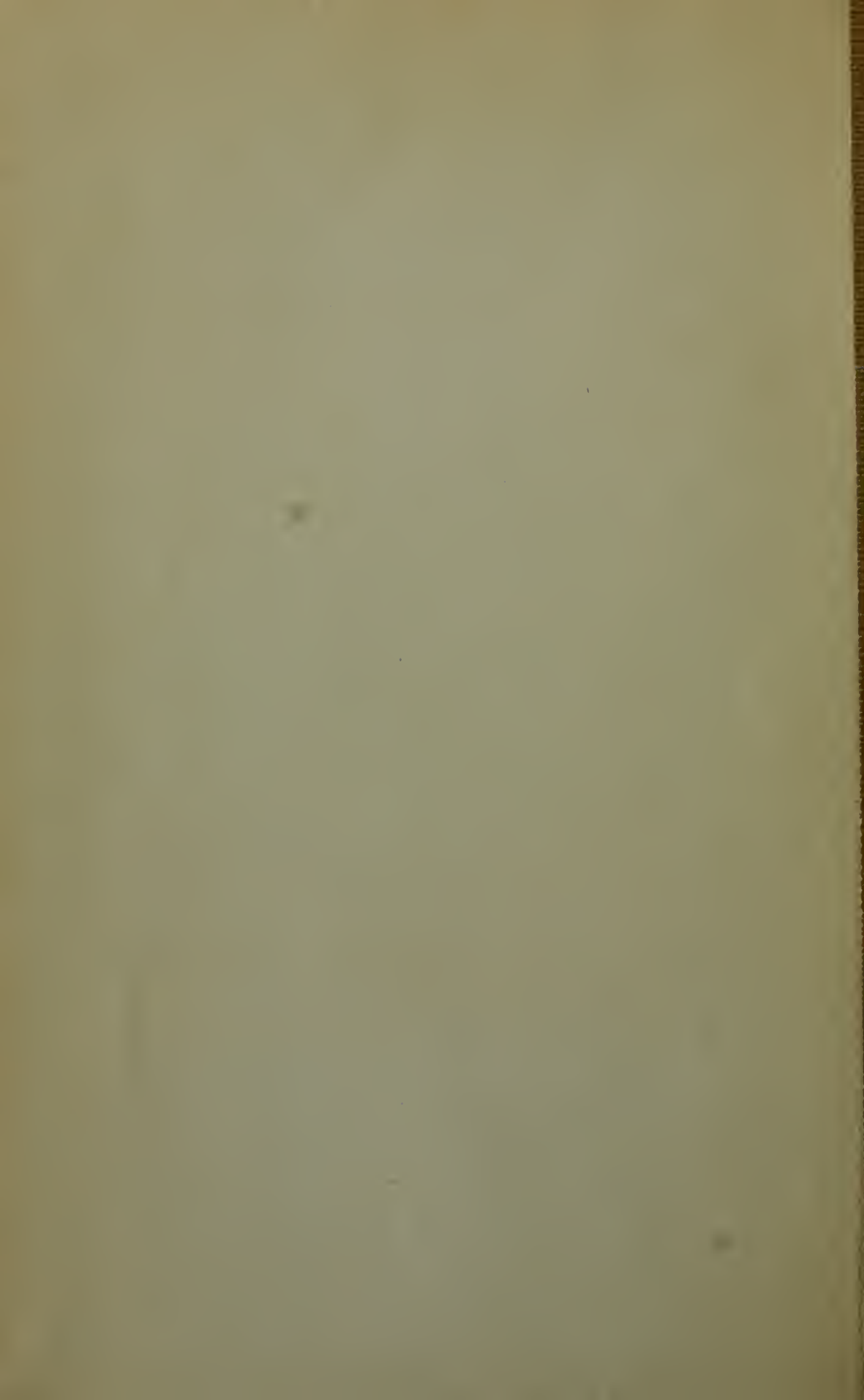


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PHYSICAL FEATURES OF IRAN



CONTRIBUTIONS  
TO  
THE ANTHROPOLOGY OF IRAN

BY  
HENRY FIELD  
CURATOR OF PHYSICAL ANTHROPOLOGY



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### MAP

Physical features of Iran . . . . .	Frontispiece
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### SUPPLEMENTS

MAP A. Distribution of tribes in Iraq
MAP B. Distribution of tribes in western Iran



## PREFACE

On April 1, 1934, the Field Museum Anthropological Expedition to the Near East, under my leadership, began work in Baghdad. The Expedition was financed by Mr. Marshall Field. The main objective was to continue the anthropometric survey of Southwestern Asia which I had begun in 1928 as a member of the Field Museum-Oxford University Joint Expedition to Kish, Iraq. An account of these studies on 398 Kish Arabs, 231 Iraq Soldiers, and 38 Ba'ij Beduins was published in 1935 under the title "Arabs of Central Iraq, Their History, Ethnology, and Physical Characters" (Field Mus. Nat. Hist., Anthr. Mem., vol. IV).

The first four and a half months of the survey were spent in Iraq, where, in addition to our anthropological work, we collected botanical, geological, and zoological specimens. Similar researches were conducted in Iran during the following six weeks. Mr. Richard A. Martin, now Curator of Near Eastern Archaeology at Field Museum, was in charge of collecting zoological specimens and also accompanied me throughout the Expedition in the capacity of photographer. The excellence of the photographs illustrating this publication is entirely due to his skill and patience, not only in dealing with recalcitrant subjects but also in the development of negatives under adverse conditions. Dr. Walter P. Kennedy, of the Royal College of Medicine in Baghdad, took blood samples among the series of Isfahan Jews and assisted in the collection of materia medica in Tehran and Isfahan. Yusuf Lazar, an Assyrian, was in charge of collecting herbarium specimens and insects.

Technical questions regarding the anthropometric measurements and observations and other data were discussed at Harvard with Dr. E. A. Hooton, and in England with Sir Arthur Keith and Dr. L. H. Dudley Buxton. The recording of special information, particularly in relation to primitive medicine, was requested by my former chief, the late Dr. Berthold Laufer.

Prior to our leaving the United States, Mr. Wallace Murray, Chief of the Division of Near Eastern Affairs in the Department of State, had very kindly notified Hon. William H. Hornibrook, United States Minister in Tehran, of our proposed scientific mission. At Mr. Hornibrook's intervention I was granted private audiences with the President of the Council, the Minister of the Interior, and the Chief of the Iran Police. As a result of these interviews a special permit (*javaz*) was issued enabling the members of the Expedition

to travel to and from Shiraz, to conduct anthropometric studies wherever convenient, to collect zoological and botanical specimens, and to take photographs.

Through the kindness of Dr. and the late Mrs. Erich F. Schmidt we were their guests at Rayy for a period of three weeks, during which time the special permits were being authorized. With the assistance of Dr. George Miles, a member of the Rayy Expedition, and Dr. Walter P. Kennedy, I took the opportunity to carry out one of Dr. Laufer's missions, the collection of medical prescriptions and specimens of useful plants and drugs with their native names. At Isfahan, Mirza Muhammad Ali Khan (Plate 14, Fig. 2), ninety-five-year-old doctor, generously consented to dictate his prescriptions for various ailments. Dr. Laufer planned to incorporate these notes in his proposed "Materia Medica Iranica"—a manuscript which unfortunately was not completed before his death in 1934 (cf. Laufer, 1919, pp. 188–189). My material, together with a catalogue of specimens and data from Iran and Iraq, appeared in 1937 in a report entitled "Useful Plants and Drugs of Iran and Iraq," prepared by Dr. David Hooper (pp. 73–241) of the Wellcome Historical Medical Museum, London, in collaboration with the writer.

At Isfahan we were the guests of Mr. and Mrs. Myron B. Smith. Our thanks to the Governor and to the Chief of Police must be recorded, for without their friendly co-operation it would have been impossible for us to measure and study a series of Jews in the Ghetto. We must also acknowledge the personal assistance of Mr. Joseph Cohen, Director of the Alliance Israélite, who made the necessary arrangements for our study of the Jews and placed at our disposal the school buildings in the Ghetto.

Mr. Myron Smith then drove Mr. Martin, Yusuf Lazar, and myself from Isfahan to Persepolis. We stayed five days at Yezd-i-Khast, where we measured a number of men and collected zoological and botanical specimens. Mrs. Smith acted as recorder.

At Persepolis we were the guests of Dr. Ernst Herzfeld, leader of the Oriental Institute Expedition of the University of Chicago. Through the kindness of Dr. Herzfeld we were directed and escorted by Mr. Donald McCown and the late Mr. K. Bergner, members of the Persepolis Expedition, to the village of Kinareh, where a number of men were measured, observed, and photographed. In Shiraz, while guests of Mr. and Mrs. W. E. Browne of the Anglo-Iranian Oil Company, we visited the shores of Lake Maharlu in search of traces of Paleolithic and Neolithic habitation (cf. Appendix D).



Upon our return to Tehran, Dr. A. Hekmat, Minister of Education, and Mr. A. Godard offered suggestions for a detailed anthropometric survey of Iran, a project which I hope will materialize in the not too distant future. Mr. G. H. Ebtehaj gave me permission to quote tribal information from his guidebook. Mr. Nasser Gholi Sardari, Chief of the Dactyloscopic and Anthropometric Services, Police Department in Tehran, very kindly acted as interpreter and facilitated the obtainment of permits.

In conclusion I must record my deep gratitude to His Majesty Riza Shah Pahlavi and to his Ministers, who made possible these preliminary studies on the physical characters of the modern peoples of Iran.

Through the Embassy of the Union of Soviet Socialist Republics in Shimran, visas for Mr. Martin and myself were granted for entry at Baku, and on September 12 we left Iran by boat from Enzeli.

Following our return to Chicago in December, 1934, we began preparations for the publication of the anthropometric data.

During the writing of this report I have had the benefit of discussing the general arrangement of the material with Dr. Paul S. Martin, Chief Curator of Anthropology at Field Museum.

Since 2,500 individuals had been studied in Iraq, Iran, and the Caucasus, it was decided to accept the invitation of Dr. Hooton and to have the statistics tabulated on the card system for sorting by the Hollerith machines at the Anthropometric Laboratory in the Peabody Museum at Harvard. During 1935 and part of 1936 the data were prepared for the machines and the introductory sections written. From September, 1936, to June, 1937, I worked on this material at the Peabody Museum. Mr. Donald Scott, Director, facilitated my work in every possible manner.

Throughout this period I had the benefit of numerous conferences with Dr. Hooton, who supervised the preparation of this report and from time to time offered many valuable suggestions, particularly in regard to the methods to be employed in the presentation of these data.

I am also grateful for opportunities to discuss numerous problems with Dr. Carleton S. Coon and with Dr. Carl C. Seltzer, who calculated the statistical tables.

In February, 1938, I returned to Harvard to spend three weeks sorting and tabulating my anthropometric data under the direction of Dr. Hooton in an attempt to determine the basic elements in the

population of Iran. Dr. Seltzer also contributed many helpful suggestions during the statistical analyses and interpretations of the machine sortings.

Dr. Gordon T. Bowles, of the Peabody Museum, returned during 1937 from an anthropometric survey from eastern Afghanistan to the Shan States of Burma. He examined our Irani photographs and has made some comments on the occurrence of these types in Afghanistan and northwestern India (pp. 502-505).

Mr. James H. Gaul of the Peabody Museum generously allowed me to quote (pp. 273-276) his measurements and observations on human skeletal material from Rayy, where he worked under Dr. Erich F. Schmidt. Dr. Frederick R. Wulsin gave permission to include measurements on eight skulls from Tureng Tepe.

During the compilation of data on skeletal material from Iran I received generous assistance from Dr. E. A. Hooton, Peabody Museum, Harvard; Mr. Horace H. F. Jayne, University Museum, Philadelphia; Dr. Wilton M. Krogman, University of Chicago; Dr. T. J. Arne, Natural History Museum, Stockholm; Dr. G. V. Backman, Institute of Anatomy, Lund; Dr. H. V. Vallois, University of Toulouse; and Dr. Erich F. Schmidt, Oriental Institute, University of Chicago.

I wish to thank Miss Elizabeth Reniff, my former research assistant, who worked unceasingly for three years on this report both at Field Museum and at Harvard.

Miss Ethel Brady, who typed the greater part of the manuscript, assisted with the final checking of the report.

I wish to express gratitude to Dr. Edith W. Ware for editorial assistance during the period of one year.

Miss Dorothy Pedersen assisted Dr. Ware in the final checking of the manuscript and, in particular, the general index and the bibliography.

I also gratefully acknowledge the aid of Miss Lillian A. Ross, Staff Editor of the Division of Printing, in seeing the manuscript through the press.

My wife has generously assisted in the arduous task of proof-reading part of the manuscript.

Russian texts were translated and transliterations checked by Mr. V. Rimsky-Korsakoff at the Peabody Museum, Harvard, and by Mr. Eugene Prostov, of the Iowa State College Library, Ames.

Miss Ethel C. Elkins facilitated reference work in the library of the American Institute of Iranian Art and Archaeology in New York and called my attention to the reports by Sir Arnold T. Wilson.

At the New York Public Library Miss Ida M. Pratt very kindly gave me access to an unpublished bibliography on Iran prepared under her direction by Mr. Alvan C. Eastman.

My former tutor, Dr. J. A. Douglas, recently appointed Professor of Geology at Oxford University and an authority on the geology of Iran, suggested some references which have been included in the text or in footnotes.

While I was in London during July, 1937, Lord Cadman, Chairman of the Anglo-Iranian Oil Company, through the good services of Colonel J. B. Dalzell Hunter, chief medical officer, put at my disposal certain climatological and medical data, parts of which have been referred to in the following pages. Included in this material was the report of Dr. M. Y. Young on former health conditions in western Iran. These medical notes have been quoted in Appendix E.

Sir Arnold T. Wilson cordially gave me permission to quote extracts from his report on Luristan.

Professor A. T. Olmstead, of the Oriental Institute of the University of Chicago, and Professor V. Minorsky, of the School of Oriental Studies in London, suggested source material and historical references.

In 1933 Mrs. Homer Thomas, formerly Miss Winifred Smeaton, compiled at Field Museum part of the comparative anthropometric data from Southwestern Asia quoted in Chapter V.

Mr. Arthur W. Du Bois allowed me to include extracts from his notes on the Lurs.

Six maps (Frontispiece and Figs. 1-3, 8, 19) were drawn for this publication by Dr. Erwin Raisz, cartographer of the Institute of Geographical Exploration at Harvard. The maps of the salt desert, south of Tehran (Fig. 22), and of Lake Maharlu (Fig. 23), the plan of the Yezd-i-Khast caravanserai (Fig. 16), and the large tribal sheet (A) of Iraq, compiled from all available sources, were drawn at Field Museum by Mr. Richard A. Martin. The large tribal sheet of western Iran (B), compiled from the maps (scale 1:1,000,000) published in Calcutta by the Surveyor General of India, from data contained in Chapter IV, and from authorities desirous of remaining anonymous, was drawn at Field Museum by Mr. Peter Gerhard, a volunteer assistant. I am most grateful to Mr. Gerhard, who also

prepared for publication the five small tribal maps and the map showing the distribution of population, based on the "Enciclopedia Italiana," vol. 26, p. 811, Milan, 1935.

Three maps and two text figures (Figs. 5, 6, 7, 20, and 21) were drawn by Staff Illustrator Carl F. Gronemann.

Dr. Richard Ettinghausen of the Institute of Fine Arts, University of Michigan, translated and prepared a brief commentary on an inscription in the Yezd-i-Khast caravanserai (Appendix F).

The place names conform to the spelling adopted by the Permanent Committee on Geographical Names of the Royal Geographical Society in London. As the question of orthography is by no means settled and many names are not yet included in the published lists of the Society, standard practice as adopted by the most recent British map-makers has been used.

In the index to tribal names occurring in Chapter III, Dr. A. H. K. Sassani, Iran Government Scholar at the University of Chicago, suggested some standardized forms of spelling for modern tribal names, but with the present lack of detailed knowledge and information further standardization is unwarranted. Orthographical discrepancies are thus inevitable.

Since this manuscript was handed to the printer a few important new references have been inserted in the text and in the bibliography.

HENRY FIELD

*May 1, 1938*

# CONTRIBUTIONS TO ANTHROPOLOGY OF IRAN

## I. INTRODUCTION

This report, based on the anthropometric data obtained during August and September, 1934, is concerned with the physical characters of the modern inhabitants of Iran.

In order to present the results of this preliminary anthropometric survey an attempt has been made to indicate the position of the modern Iranis in relation to the peoples of Southwestern Asia. Chapter II deals briefly with the general location of Iran, the physical geography, geology, climate, flora, and fauna, including a concise historical section selected from "The Persians" by Sir Denison Ross.

The waves of migration and the conquering hordes which have swept across the Iranian Plateau must have left traces in the modern population, but the racial composition of the earliest elements of the population at the dawn of the historical period is so complex and so uncertain that it seemed unwise to give more than this cursory historical outline. At some future date when a detailed anthropometric survey has been made within the boundaries of Iran and at the time when publications have appeared dealing with the skeletal remains excavated at numerous archaeological levels from several sites, it may be possible to combine these data to give a true description of the elements composing the physical characters of the ancient and modern inhabitants of Iran.

During the past two thousand years historians and travelers have recorded observations on the Persians, but no compilation of these reports is available. I have, therefore, made a careful selection from a number of sources, and in Chapter III this material is presented in chronological sequence. To simplify the task for the reader there is also an index (pp. 601-651), where the various references may be found under the name of the tribe.

I was fortunate to be granted access to full and unpublished data of the past fifteen years on modern tribal conditions in Iran. Although the authors of these reports preferred to remain anonymous, I secured permission to quote extracts from their observations. Chapter IV is a summary of this material, province by province.

During the past five years the Shah has made many changes in regard to tribal distribution throughout the country. In general, nomadism has been discouraged, a policy which should facilitate the

preparation of detailed tribal maps were it not for the fact that the Shah has transplanted many groups of the population.

During 1938 the Shah made many radical changes in the internal divisions, whose final boundaries have not yet been determined.

Mr. M. H. Ganji sent from Tehran in December, 1938, some notes on the new internal divisions of Iran together with a list of some recent alterations in the geographical names. (For previous changes see JRGS, vol. 80, p. 268, 1932.)

Chapter V is a detailed description of the four series studied by the writer, together with racial implications suggested by my conclusions. Comparative statistical data have been included so that the position of my 299 Iranis can be examined in relation to the adjacent and surrounding peoples. So as not to drift too far from the focus of study, the comparative data are limited to a few series from Iraq, Arabia, Trans-Jordan, Palestine, Syria, Anatolia, the Caucasus, Turkestan, Afghanistan, Baluchistan, and India. General trends, however, can be studied, although giant lacunae must be apparent to the most casual observer.

Reports of other activities, related but subordinate to the main objective of the expedition, have been included as Appendices A to H in No. 2 of this volume.

The two large tribal maps of Iran (B) and Iraq (A), which will be distributed under separate cover, are the result of my compilation of these data during the past eleven years. The authorities from which the greater part of the information was obtained prefer to remain anonymous.

Since there was an overlap between these two sheets it was considered desirable to distribute the Iran and Iraq tribal maps at the same time despite the fact that my Iraq Report will not appear until 1940. Attempts were made to compile tribal data for eastern Iran but with the exception of certain small areas (Figs. 10, 12, 13) no information was available. To accompany my forthcoming report entitled: "Contributions to the Anthropology of the Caucasus" Mr. Martin has prepared a large tribal map of the Caucasus region, based on data obtained by us in Tbilisi, Ordzhonikidze and Moscow during 1934. The southern boundaries of this sheet (No. C) adjoin the northern limits of the Iraq and Iran sheets (Nos. A and B). Alphabetical lists of tribal names on maps A and B have been prepared by Miss Dorothy Pedersen and Mr. Peter Gerhard.

This present report on Iran must be regarded as the result of preliminary investigations which promise important results in the

future—provided that the cordial co-operation of the Iran government is maintained. Dr. A. Hekmat, former Minister of Education, founded a Museum of Ethnology and Archaeology in Tehran with Dr. A. Haas as director. It is, however, desirable that foreign scientists continue their work in Iran until such time as the local anthropologists and archaeologists are trained and qualified to undertake this work and to publish their results.

The great cultural and artistic attainments of the Persians during the last six millennia serve to show the importance of the civilization developed on the Iranian Plateau. The true racial position of the ancient and modern peoples of Iran in relation to Europe, Africa, and Asia is a question still to be answered.

## II. THE LAND AND THE PEOPLE

Iran, as Persia is now called, is bounded on the north by the Caspian Sea and the Transcaucasian Federation and Transcaspiian region of the Union of Soviet Socialist Republics; on the east by Turkestan, Afghanistan, and Baluchistan; on the south by the Persian Gulf and the Gulf of Oman; and on the west by Anatolia (Ryder, p. 227) and Iraq (Ireland, 1937).

"Persia" in the strict significance of the word denotes the country inhabited by the people designated as Persians, the district known in ancient times as Persia, which is modern Fars. For many generations, however, the word Persia has been employed to include the entire Iranian Plateau. In March, 1935, the Shah decreed that henceforth "Iran" should be used instead of "Persia." Throughout the following report the word Iran has been substituted for Persia and Irani for Persian subjects. In cases where the new term might be chronologically inconsistent, the old term "Persian" has been employed.

Iran comprises, according to Stamp (p. 150), approximately "628,000 square miles, equal to a fifth of Continental United States or larger than the British Isles, France, Switzerland, Belgium, Holland, and Germany combined. It is 1,400 miles from north-west to south-east and 875 miles from north to south.

"Geologically<sup>1</sup> Persia lies in the great Alpine fold belt. In the plains horizontal or slightly folded sandstones, limestones, and chinks of Tertiary and Cretaceous age predominate; the border ranges are highly folded, often over-folded, and have cores of old rocks, gneisses and granites. There is much igneous material, especially in the north-west. In the deserts the solid geology is masked by sands and other superficial deposits."

Iran forms the western and larger half of the Iranian Plateau, which stands between the valleys of the Tigris-Euphrates and the Indus. Part of Khuzistan and the maritime plains bordering the

<sup>1</sup>"A. F. Stahl, 'Persien,' *Handb. d. reg. Geol.*, V. 6, (1911); G. E. Pilgrim, 'Geology of the Persian Gulf' and 'Geology of Parts of the Persian Provinces of Fars, Kerman and Laristan,' *Mem. Geol. Surv. India*, Vol. XXXIV, 1908 and Vol. XLVIII, 1924." (Stamp, pp. 155-156.)

See also J. de Morgan, 1905, vol. 3, pt. 1; H. Douvillé, 539-553; J. W. Gregory and others, "The Structure of Asia," Chap. 3, London, 1929; G. Rawlinson, vol. 3, pp. 146-147, 158-163; recent papers in "Palaeontologia Indica" by Douglas, Clegg, Cox, and Spath; Günther, pp. 345-453; Sykes, 1897, p. 588; Ainsworth, pp. 112-114; Furon, pp. 36-43; Migliorini, pp. 433-436; for earthquakes, see Wilson, 1930b; for landslide in Luristan, see Harrison and Falcon.



Persian Gulf and the Caspian Sea are the only lowlands of the country. To the northwest the Iranian Plateau is united by the highlands of Armenia with the mountains of Asia Minor, while to the northeast the Paropamisus range and the Hindu Kush Mountains link it with the Himalayas and the highlands of Tibet (Cox, p. 548).

Ebtehaj (pp. 21-22) states that Iran may be divided geographically into the following zones:

(1) The great plateau, bounded on the north by the Elburz range of mountains, on the west and south by the Zagros Mountains and in the east by Afghanistan and Baluchistan, constitutes the largest and most important area. This region, particularly on the east, is interspersed with salt deserts. The average height of the saucer-shaped Iranian Plateau above sea level is about 4,000 feet.

(2) The Caspian Sea coastal plain, which lies between the Elburz Mountains and the southern shores of the Caspian Sea, is a narrow belt of fertile land. It has an annual precipitation of from fifty to eighty inches.

(3) The coastal plain adjoining the Persian Gulf has a humid climate during certain seasons of the year, but owing to the meager precipitation is, in general, relatively arid.

The heart of the country, Stamp (pp. 150-151) points out, "is a great tableland . . . with an elevation of from 3,000 to 5,000 feet. Except on the east, where the plateau merges imperceptibly into that of Afghanistan<sup>1</sup> and Baluchistan, it is surrounded by walls of mountains . . . . The tableland of the interior [in addition to being enclosed by mountains] is itself cut up by lines of mountains with a general trend parallel to that of the boundary ranges. It is only in Eastern Persia that great desert plains are the predominant topographical feature. The plains and valleys which lie between the ranges of the plateau would be utterly sterile were it not for the water derived from the snows of the mountains.

"Along the southern borders . . . the mountains in general approach close to the sea; the coastal strip is narrow, dry and barren except in a few areas where sufficient water is available to make irrigation of crops possible.

"The mountains of the northern border are loftier and more imposing, especially the Elburz." This chain is dominated by the

<sup>1</sup> For delimitation of the Irano-Afghan Frontier from Sia Kuh (Seistan) to the Hashtadan Plain see JRCAS, vol. 24, p. 672, 1937.

extinct volcano of Demavend, northeast of Tehran, which rises to 19,000 feet,<sup>1</sup> while the upland valley floors stand 4,000 or 5,000 feet

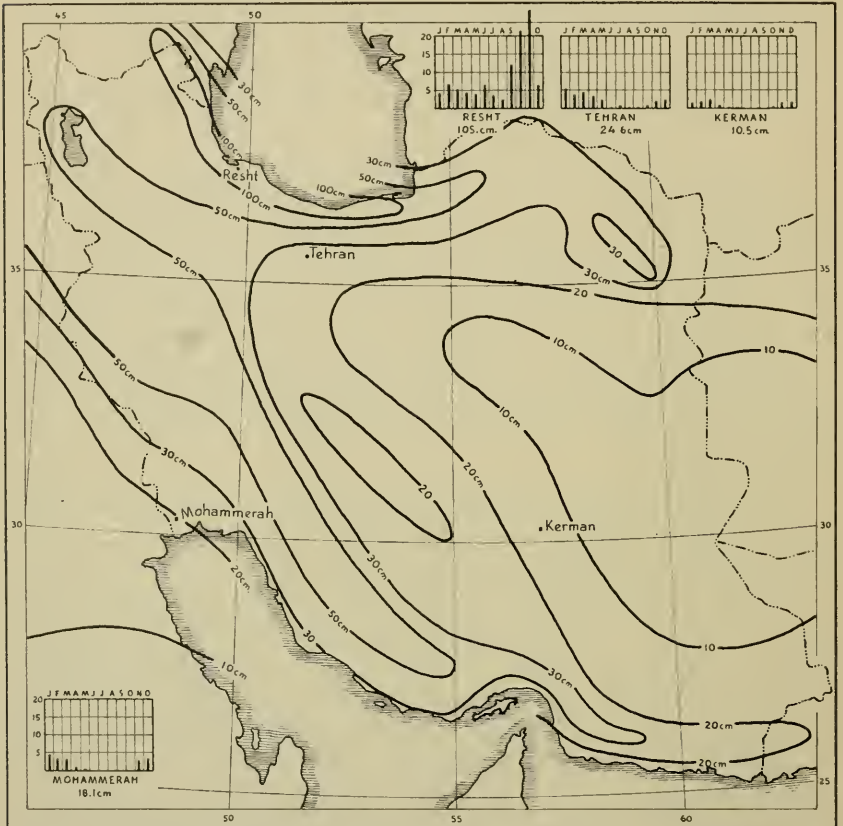


FIG. 1. Distribution of rainfall.

above sea level, and the peaks of the numerous ranges of north-western Iran rise to 8,000 or 10,000 feet.

In general the mountain ranges run from northwest to southeast. The main system, which extends almost unbroken for 800 miles, from Azerbaijan to Baluchistan, may aptly be called the central range. Many peaks rise 9,000 to 10,000 feet in height, and Kuh-i-Hazar, south of Kerman, rises to 14,700 feet (Cox, p. 549).

<sup>1</sup> According to Stamp; but marked 18,600 feet on Bartholomew's map, "The Middle East," scale 1: 4,000,000, Edinburgh Geographical Institute.

Of the surface drainage of the Iranian Plateau as a whole less than half flows outward. If we accept the area of Iran as 628,000 square miles, the drainage may thus be distributed: into the Arabian Sea and the Persian Gulf, 135,000 square miles; into the Caspian Sea, 100,000 square miles; into the Seistan depression, 43,000 square miles; into Lake Urmia, 20,000 square miles; and into the interior of Iran, 330,000 square miles. The Caspian watershed is drained by four rivers: the Sefid Rud or Qizil Uzun on the southwest, the Haraz on the south, and the Gorgan and Atrek at the southeastern corner of that inland sea. The drainage of the rivers having no outlet to the sea forms inland lakes which often become swamps and finally salt deserts (Cox, p. 549).

The great desert region, varying from 100 to 200 miles in width, stretches across the high plateau from northwest to southwest for a distance of approximately 800 miles.

Like other parts of southwestern Asia, the greater portion of Iran has an arid and semi-arid climate (Brooks, 1926, pp. 74-79; Kendrew, pp. 148-154; Miller, pp. 248-249). The "Iran type" of climate, remarks Stamp (p. 151), is defined as that of "interior basins at considerable elevations in warm temperate latitudes. In winter the cold is intense, the mean January temperature being slightly above freezing-point. There are sharp frosts at night, and the temperature may even drop below zero. In summer the skies are cloudless, the air dry and clear, so that the sun's rays are exceedingly powerful. Consequently the plateau, despite its elevation, is very little cooler than the Plains of Iraq."

Tehran has a daily range of temperature during January of 17.5° F., but in July this increases to 27.9°. The average extremes of temperature are 104° and 19°, while the recorded greatest extremes are 111° and -5°. The relative humidity in January is 69 and in July, 43. In January the amount of cloud is 4.0 and in July 0.9. Snow and thunder have never been recorded in Tehran but there are on an average twenty-seven days of rain annually.

Like the Mediterranean lands to the west, Iran is under the influence of low pressures, which pass from west to east across the northern part of the country during the winter season. Precipitation is frequently associated with the passage of these lows, but during the greater part of the year the wind blows from the north. The air therefore moves from higher (colder) to lower (warmer) latitudes and its moisture-holding capacity is increased. Moreover, the air

currents move from higher to lower altitudes before they reach the interior of the country (Bergsmark, 1935).

The following table records the annual rainfall at a number of cities in Iran and in some of the adjacent territories.

## ANNUAL RAINFALL IN INCHES

(From Cox, p. 550)

Station	Lat. N.	Long. E.	Height in feet	Number of years	Annual rainfall in inches
Lenkoran.....	38° 46'	48° 51'	-66	50	41.62
Merv.....	37° 35'	61° 47'	686	1	6.36
Urmia.....	37° 28'	45° 8'	6,225	1	21.51
Resht.....	37° 17'	49° 35'	-50	2	56.45
Ashuradeh.....	36° 54'	53° 55'	-80	19	17.07
Asterabad.....	36° 52'	54° 26'	-70	7-8	16.28
Meshed.....	36° 16'	59° 35'	3,104	26	9.22
Isfahan.....	32° 40'	51° 44'	5,817	27	4.49
Seistan.....	31° 0'	62° 0'	2,000	9	1.88
Husainabad.....	30° 52'	61° 23'	1,600	3-5	2.20
Bushire.....	28° 59'	50° 53'	14	44	10.39

(From Miller)

	J	F	M	A	M	J	J	A	S	O	N	D	Total
Cairo.....	0.4	0.2	0.2	0.2	...	...	...	...	...	...	0.1	0.2	1.3
Aden.....	0.3	0.2	0.5	0.2	0.1	0.1	...	0.1	0.1	0.1	0.1	0.1	1.9
Baghdad....	1.2	1.3	1.3	0.9	0.2	...	...	...	...	0.1	0.8	1.2	7.0
Jask.....	1.1	0.9	0.8	0.2	...	0.1	...	...	...	...	0.3	1.1	4.5
Karachi....	0.5	0.5	0.4	0.2	0.1	0.9	2.9	1.5	0.5	...	0.1	0.1	7.7
Astrakhan..	0.5	0.3	0.4	0.5	0.7	0.7	0.5	0.5	0.5	0.4	0.4	0.5	5.9
Tehran.....	1.6	1.0	1.9	1.4	0.5	0.1	0.2	...	0.1	0.3	1.0	1.3	9.3

During the summer half-year the winds blow almost incessantly from the north, especially over the northern three-fourths of Iran. During July the coastal region of the Gulf of Oman is under the influence of the southwest monsoon.

The climate of a country has its effect upon its people, its government, and its history. It is therefore of interest to know whether there has been any climatic change in Iran during human occupation. Sykes and Huntington believe that the data available warrant the deduction that ancient Iran was more fertile than in modern times. Thus, through deforestation, the effects of military campaigns, and natural factors Iran has become increasingly more arid. Numerous examples of this change of climate can be shown, from Central Asia to the Mediterranean (Field, 1932d, pp. 848-852; 1934, pp. 8-9).

In general the vegetation is limited (Rawlinson, vol. 3, pp. 140-141, 155-158; Ella C. Sykes, pp. 257-259; Fullerton). In Mazanderan, Gilan, and Asterabad from the Caspian littoral to an altitude of 3,000 feet the flora is similar to that of the "Mediterranean region." In these extensive forests there are alder, ash, beech, boxwood, elm, hornbeam, juniper, maple, oak, walnut, plane, poplar, and willow trees.

VARIATIONS OF MONTHLY MEAN TEMPERATURES  
(From Miller and Kendrew)

Country	Station	Alt. (feet)	J	F	M	A	M	J	J	A	S	O	N	D	Average	Range
Egypt	Cairo	380	55	57	63	70	76	80	82	82	78	74	65	58	70	32
	Aden	94	76	77	79	83	87	89	88	87	88	84	80	77	83	13
Arabia	Batumi	20	43	44	47	52	60	68	73	74	68	62	53	48	58	31
	Tbilisi	1,350	32	36	44	54	64	70	76	76	67	57	46	37	55	44
U.S.S.R.	Baku	0	38	38	43	52	64	73	79	79	71	62	53	43	58	41
	Lenkoran	-66*	38	40	45	54	65	74	77	77	71	61	52	43	58	39
Iraq	Baghdad	125	49	54	61	71	81	90	95	94	88	80	63	53	73	46
	Tehran	4,002	34	42	48	61	71	80	85	83	77	66	51	42	62	51
Iran	Isfahan	5,817	34	42	49	60	69	77	82	78	72	61	48	40	59	48
	Bushire	14	58	59	65	73	81	85	89	89	86	78	70	62	74	32
India	Jask	13	67	68	73	80	85	90	91	89	87	83	76	70	80	24
	Karachi	13	65	68	75	81	85	87	84	82	82	80	74	67	78	22
Iran	Seistan	2,000*	46	51	59	71	80	86	91	88	80	68	56	46	69	45
	Husanabad	1,600*	45	49	60	70	82	89	91	89	79	67	59	50	69	46
U.S.S.R.	Meshed	3,104*	34	37	46	56	67	74	77	74	66	56	47	39	56	43
	Astrakhan	-46	19	21	32	48	64	73	77	74	63	50	37	26	49	58
Afghanistan	Kabul	6,250	31	36	47	59	68	73	77	76	69	58	51	40	57	46
India	Quetta	5,500	40	41	51	60	67	74	78	75	67	56	47	42	58	38

\* Quoted from Cox (p. 550). Other figures taken from Miller (pp. 248-249) and Kendrew (p. 192).

Other trees found in Iran are the Euphrates poplar (*gharab*), the blackberry (*tarafa*), the willow (*safsaf*), the tamarisk, and the licorice plant (*sus*).

According to W. E. Browne, there are two forest belts south of Shiraz which in the Kuhgalu country merge into one zone. One

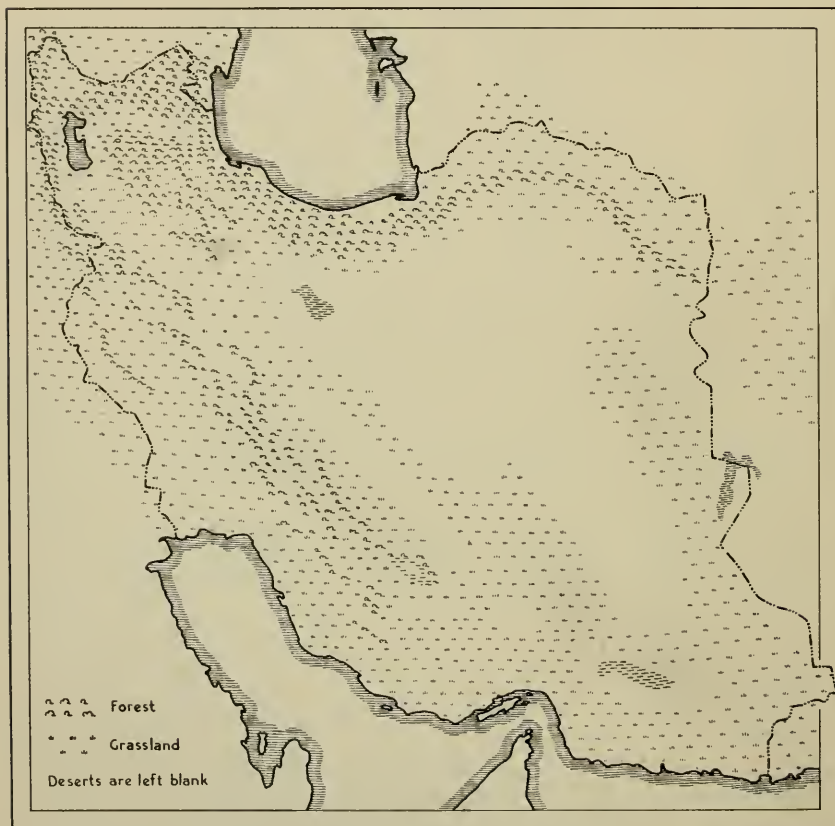


FIG. 2. Distribution of forests, grasslands, and deserts.

belt passes through Deh Dasht, Kazerun, and Firuzabad, while the other follows a line parallel through Sivand. The two belts are about twenty-four miles apart. The main trees are the tragacanth, which yields gum, some of the Platanaceae, and several species of *Fagus*. In the southern belt the oak is absent while in the Kuhgalu country the majority of the trees belong to the genus *Quercus*.

The agricultural products of Iran include wheat, barley, and rice, which are grown in all districts, and maize, linseed, gram, lentils, cotton, millet, sesame, poppies, opium, tobacco, and indigo. The chief winter crops, sown in December and reaped in April, are wheat, barley, and poppies. The summer crops are rice, maize, linseed, gram, millet, and cotton.

Wheat is harvested in July and August in the highlands, and in March in the coastal area, and between these months according to the elevation above sea level.

Barley, greater in size than the average Indian barley, is fed to animals, generally without being either crushed or soaked. The harvest season varies according to the height above sea level; in the coastal belt it is about March and April, and at Shiraz in July.

Maize (*zurat balal*) is used entirely for human consumption. The harvest is in July and August.

There are two varieties of millet, known as *zurat kalak* and *alam*. The former, similar to but smaller than *jowari*, is used to adulterate wheat and is fed to poultry. The latter is dark and smaller, resembling *bajri*.

Rice, after wheat, is the most important crop in the Irani diet. In Shiraz there are two kinds, *shakri* and *champek*; both are of good quality but generally whiter than Indian rice. In May the seeds are sown in a "nursery." After a month, when the plants are about five inches high, they are transplanted to the fields. A fortnight after transplanting, weeding (*vigin*) commences. The weeds are not plucked out but trampled down into the mud, a laborious and unhealthy process generally performed by women. This system of transplanting is called the "China" system as opposed to the "Italian" system, where seed is scattered over the field as in wheat and barley sowing.

The fields must be kept continuously under water for two or three months until the rice reaches a height of about five feet, when it is reaped with hand sickles, leaving about one foot of stubble. After threshing, the grain may be dried in the sun, but more usually a slow fire is placed underneath it in a small closed barn and it is parched for four or five days, following which it is ready for the mill (*abdhang*).

The grain is poured into a circular hollow of stone, about four and one-half feet in diameter and inserted in the floor. It is then pounded by a log fixed to a long beam which is worked by a water

wheel and rises and falls like a sledge hammer, thus breaking off the dry husk. Afterwards the rice is taken up and cleaned in a sieve.

Prior to being milled the rice is called *shali* or *jau* (Ar.=barley), but after it is husked the regular name *brinj* is used. Barley is called *jau-i-kuhi* to distinguish it from *shali*.

In districts where the soil is rich, rice may be sown every year on the same land, but the usual practice is to raise crops for two or three years in succession and then let the land lie fallow for a similar period. In Mazanderan, on sloping land, which does not become waterlogged, a crop of barley is sometimes raised every third year.

The cultivation of rice is most laborious, but the higher price and much higher yield, averaging from 250 to 350 grains of rice for every seed sown, makes it more profitable than wheat or barley, and consequently in districts where both will thrive, rice is the more popular crop.

There are two kinds of *dall*; the commonest, known as *adas*, is similar to German lentils. The other variety is called *mashak*; botanists do not recognize it as being of the same family. Similar to the Indian *mung*, it is softer and cheaper than *adas*. The pulse most often eaten by the Iranis is *nakhud* or gram, which, however, is of very much finer quality than Indian gram and is never fed to animals.

Vegetables, which are both winter and summer crops, are grown chiefly in the vicinity of the towns. The most important are broad beans (*baghala*), French beans (*lubiya*), beetroot (*chuqundur*), brinjal (*badinjun*), cabbage (*kalam*), carrot (*zardak* or *nargisi*), cucumber (*balang*), lettuce (*kahu*), peas (*nakhud*), pumpkins (*kadu*), spinach (*isfanaj*), tomatoes (*badinjun feringhi*), and turnips (*shalgham*).

According to Laufer (1938, p. 88), "Sir John Malcolm (1769-1833) introduced the potato into Persia, and he himself states (vol. 2, p. 514): 'I took great pains to introduce the potatoe into Persia; and the soil, in many parts, proved very favorable to that vegetable.' It is therefore known as 'Malcolm's plum' (*alu-yi Malkam*). Malcolm was 'minister plenipotentiary to the Court of Persia from the supreme government of India,' in 1800 and again in 1808 and 1810. The potato is also called in Persian *sib-i zamini*, *sib-i zir-i zamin* ('earth apple')."

There are also the following fruits: dates, limes, sweet limes, oranges, pomegranates, apricots, grapes, melons, plums, apples, figs, quinces, citrons, pears, and almonds. Dried raisins, figs, and dates, and to a lesser extent dried apricots and peaches, form an important part of the national diet.



Indigo is the product of a leguminous plant of the Dizful district, sown in the middle of March and cut 120 days later, when about five feet high; forty days later it is again cut. The best kind of indigo is clear blue, but a large portion of the crop is yellow.

Cotton is grown somewhat extensively but the crop is often destroyed by locusts.

There are three important grasses: *shuraib*, *fluhih*, and lucerne,<sup>1</sup> which is used largely as both a green and dried fodder. *Fluhih*, which is considered by the natives to have the highest nutritive value, would seem to be dried *dhub* grass. These grasses grow on low-lying ground in the spring; in April the crop is at its best and in May it dries up very quickly. No attempt is made to harvest in the spring, the crop being allowed to die and dry on the ground, to be picked up as required during the rest of the year; by this method it naturally loses a great deal of its nutritive value.

*Ghi*, locally known as *rughan*, is of excellent quality, far better than that obtainable in India. Prepared from sheep's and goats' milk, it is whiter in color than cows' *ghi*.

Sugar, tea, ginger, and turmeric are imported mainly from India, as are most of the chilies used. In 1914 some sugar was grown in Mazanderan (cf. Rabino and Lafont).

Salt is obtained from the numerous salt lakes and is plentiful and good. Rock salt is mined in the hills around Kamarij and in Sarvistan.

Irrigated lands are divided as follows: land irrigated by rain is called *daimi*; land irrigated by canals and watercourses is called *fariab*; land irrigated by water drawn up in skins and deposited into small watercourses is termed *dul* (cf. *charid* on the banks of the Tigris River; and Laufer, 1934).

Cultivation is carried out with the following implements: a plough (Pers. *khish*, Ar. *fidan*), drawn by one or two oxen, which consists of two shafts, at the end of which is fixed a curved piece of wood with an iron head, shaped like a curved arrow (cf. Feilberg); a curved saw with wooden handle (Pers. *das*, Ar. *minjal*); a wooden

<sup>1</sup> Alphonse de Candolle (Origin of Cultivated Plants, p. 103) states that *Medicago sativa* has been found wild, with every appearance of being an indigenous plant, in Iran. Laufer (1919, p. 208) uses the name "alfalfa" in preference to "lucerne" "in accordance with the practice of the U. S. Department of Agriculture; it is also a term generally used and understood by the people of the United States. The word is of Arabic origin, and was adopted by the Spaniards, who introduced it with the plant into Mexico and South America in the sixteenth century." See also Laufer, 1919, pp. 208-219 and Hooper and Field, p. 139.

fork with five tines (Pers. *hochun*, Ar. *morwagh*), used for winnowing barley; a long-handled spade (Pers. *bil*, Ar. *misha*); and a pick (Pers. *kulang*, Ar. *fass*).

The great bulk of the live stock in Iran belongs to the tribes and is therefore migratory and uncertain in numbers in any particular district. The tribes migrate to and from their summer quarters during March and April and again from September to November, and their flocks and herds accompany them.

Sheep are numerous and particularly good in the northern provinces. Khuzistan is considered to possess the best sheep in Iran, but the best, actually, are found in the Ramuz district and are of Qashqai not Khuzistan stock. Fallahiyeh district produces the best cows and Hawizeh the finest buffaloes. Donkeys are imported from Zubair. Dizful is famous for its mules, the best being obtained from the Sagwand tribe.

Up to the present time no adequate survey of the fauna<sup>1</sup> has been made but through individual collectors some American and European museums receive specimens from time to time. In the "Survey of Iraq Fauna made by Members of the Mesopotamia Expeditionary Force, 1915-1918" there are a number of papers on Mammalia, Aves, Reptilia, Crustacea, Myriapoda, Lepidoptera, Hymenoptera, Orthoptera, and Mollusca. As introductions to these papers the authors have compiled previous data so that these papers form a valuable contribution to our knowledge of the fauna of Iran.

In addition to the above references I have selected the following passages for inclusion. According to W. T. Blanford (1872; see also Cox, p. 550) Iran can be divided into five zoological zones: the Iranian Plateau, the provinces south and southwest of the Caspian, west of Shiraz, Khuzistan, and the Persian Gulf littoral. He described the fauna of the Iranian Plateau as "Palaeartic, with a great prevalence of desert forms; or perhaps more correctly, as being of the desert type with Palaeartic species in the more fertile regions." In the Caspian provinces the fauna is similar to that of southeastern Europe. Ibex and moufflon are found in the mountain ranges. The leopard and wolf are widely distributed. The tiger is still seen in Mazanderan. Wild asses are found in the salt deserts. Bears still live in the Elburz and Zagros Mountains. There are also wild boar,

<sup>1</sup> See, however, G. Rawlinson, vol. 3, pp. 141-143, 145, 148-150; Günther, pp. 345-453; Wells, pp. 501-513; Vaughan, 1893, pp. 114-115, 1896, p. 31; Ella C. Sykes, pp. 238-248. For horse, see Amschler. For references see Casey A. Wood, 1931.

fox, jackal, badger, and hare. Game birds are plentiful throughout the country. Over 400 species of birds have been recorded from Iran. Falconry is still practiced (cf. Timur-Mirza Qajar).

Alexander Finn (p. 35) comments on the birds<sup>1</sup> as follows: "On the Caspian side of the Elburz, snipe, woodcock, pheasants, and duck are . . . abundant . . . . So far as I know, there are only two kinds of birds in Persia which do not exist in Europe. One is a small partridge known as *Tehoo*, known to zoologists as *Perdrix bonhamensis*, because the first specimen was brought over by Mr. Bonham, then Consul-General at Tabriz. The other is a large red-legged partridge as large as a small goose, but it is rarely to be found, as it does not live below the snowline." He adds that there are "wolves, leopards, mountain goats, and sheep, wild boar, gazelles, foxes and hares, and once in a while a tiger, and in the south there are lions, but these too are rare."

Houtum-Schindler (p. 29) gives the following information regarding amphibians<sup>2</sup> and reptiles: "The amphibians are poorly represented by a few varieties of frogs and toads, *guk*, *ghuk*, *kur-bagheh*, *kurvagh*, *vazagh*.

"Of reptiles there are tortoises, *kasa-pusht*, *sang-pusht*,<sup>3</sup> *lak-pusht*, *kashaf*; and many species of lizards, *susmar*, *bozdush*, *bozmijeh*,<sup>4</sup> *chalpaseh*, *marmaluk*, *malmali*; and some snakes. Of the last there are some colubrines and a few vipers. I have seen one *Cerastes*,<sup>5</sup> *mar-i-shakh-dar*, i.e. horned snake, which had been caught in Veramin, southeast of Tehran."

Sir Arnold Wilson (1932a, pp. 71-72) gives the following general description: "Persia is not a paradise for sportsmen. The lion, so common fifty years ago, is now extinct. The leopard and bear survive, but are rare except in the Bakhtiari and Kuhgalu country. The mountain goat (ibex) [probably *Capra hircus aegagrus*] and mountain sheep are commoner, but are restricted for the most part to the most waterless and least attractive areas. The francolin is met with in fair numbers in South-West Persia, but it affords but

<sup>1</sup> See S. V. P. Pill, "Bird Life in Southern Iran," in "The Naft," November, 1935, and C. E. Capito, "Notes on the Birds of South-West Persia," in "The Naft," November, 1932. "The Naft" is published monthly by the Anglo-Iranian Oil Company, London. See also Capito, 1931; Scott, 1938; Ella C. Sykes, pp. 248-253; G. Rawlinson, vol. 3, pp. 142, 149-150; and Casey A. Wood, 1931.

<sup>2</sup> See also G. Rawlinson, vol. 3, pp. 143-144, 151-155, and Günther, pp. 378-381.

<sup>3</sup> "Saenpuscht according to Pallas is the tortoise *Emys orbicularis* L."

<sup>4</sup> "Believed to suckle goats, this lizard is the *Uromastix asmussi* Strauch."

<sup>5</sup> This is probably *Pseudocerastes persicus* D. and B. (cf. Schmidt, pp. 227-229).

little sport, as it is apt to refuse to rise. The inhabitants, hardy mountaineers, and not infrequently with ample leisure, are forever scouring the hills in search of anything that will give an excuse for a shot in season and out of season. Males, females and young—in fact, whatever has life is hunted down and shot. Stalked from every side, and not recognizing the demarcation laid down by man, a wounded bird is frequently the cause of a hunters' quarrel, the commencement perhaps of a tribal feud."

In Iran the members of the Expedition<sup>1</sup> collected for the Field Museum Department of Zoology specimens of mammals, amphibians, reptiles, fish, and insects.<sup>2</sup> At the present time reports on these collections are being prepared.

An outline of the history of Iran will show the influence of invaders upon the modern peoples.

During the Paleolithic period the climate of Iran was different from that of modern times. The rainfall was heavier over south-western Asia and as a result there was much less desert region. Despite the fact that Paleolithic implements have been found only near lakes Niriz and Maharlu (Appendix D), it seems plausible to suggest that prehistoric man migrated into Iran from Central Asia.

The excavations at Susa by de Morgan and others, at Anau by Pumpelly, at Persepolis by Herzfeld, and at Damghan and Rayy by Schmidt, have yielded the general sequence of historical events during the past six thousand years. The cultural contacts between Persia and Mesopotamia on the west and the Indus Valley on the east are slowly being reconstructed.

According to Sir Denison Ross (pp. 30 et seq.) the history of Iran<sup>3</sup> "falls naturally into two distinct periods, the pre-Islamic and the Islamic, the dividing point being the overthrow of the Sasanians by the Arabs in the third decade of the seventh century of our era. These two periods occupy each 1,290 years: from Cyrus to the Arab conquest, 550 B.C. to A.D. 641; and from the Arab conquest to the present day, A.D. 1930 . . . . As far as we know, the earliest Iranians to settle in what we now call Persia were the Medes, who, migrating

<sup>1</sup> Dr. Walter P. Kennedy (pp. 745-749) includes Mollusca, Arthropoda, Pisces, Amphibia, Reptilia, Ophidia and Chelonia, some of which were obtained by him at Rayy, Iran, where he joined the Field Museum Near East Anthropological Expedition, 1934. These specimens are in the Royal College of Medicine, Baghdad.

<sup>2</sup> Reports on Hemiptera and Orthoptera were published by Field Museum during 1938 by W. E. China and B. P. Uvarov (see Bibliography).

<sup>3</sup> Cf. Browne (1909); Grousset. For creation legends see Christensen.

from the region of Transoxiana or Turkestan, established themselves . . . between Rhages [Rayy] and Ekbatana [Hamadan] in the northwest, probably in the 8th century B.C. . . . The earliest prophet of the old religion of Iran . . . was Spitama Zarathushtra [Zoroaster] . . . who lived in the sixth century B.C. during the reigns of Cyrus, Cambyses, and Darius I." Zoroaster preached a religion attempting to combine the co-existence of good and evil. His followers worshipped the sun and fire. "Muslim historians alleged that among phenomena witnessed at the birth of the Prophet Muhammad was the sudden extinction of the Sacred Fire of the Zoroastrians." At Naksh-i-Rustam there stands a pair of fire altars (Plate 99, Fig. 1) carved from rude stone, which perhaps antedate the Achaemenian period. The so-called "tomb of Zoroaster" (Plate 98) is near this place (Sprenghing, pp. 126-144).

With regard to the disposal of the dead, the Zoroastrians believe that "to bury a body would defile the pure earth, which is one of the gifts of Ahuramazda, and to burn it would defile his symbol, the Sacred Fire. Bodies are therefore exposed on towers (*dakhma*) specially constructed for the purpose, to be devoured by birds of prey. The priests . . . were known as the Magi." The sacred writings of the Magi are contained in the Avesta.

"About the beginning of the seventh century B.C. another group of Iranians, also coming from . . . Turkestan, . . . settled in the country south of Media . . . known as Parsua, and from this place-name they derived the ethnic Parsa which in turn gave this name to the province known to-day as Fars . . . formerly called Anshan." Hakhamanish, whose name in Greek became Achaemenes, was the first tribal chief in Parsua. Theispes, the first king of the Achaemenian dynasty, led his people into Anshan, a district of ancient Elam, destroyed by Assurbanipal, King of Assyria, in 645 B.C. This event was probably recorded in Jeremiah (XLIX: 34-39) in the following passage:

"The word of the Lord that came to Jeremiah the prophet against Elam in the beginning of the reign of Zedekiah, the King of Judah, saying, thus saith the Lord of Hosts; Behold, I will break the bow of Elam, the chief of their might. And upon Elam will I bring the four winds from the four quarters of heaven, and will scatter them toward all those winds; and there shall be no nation whither the outcasts of Elam shall not come. For I will cause Elam to be dismayed before their enemies, and before them that seek their life: and I will bring evil upon them, even my fierce anger, saith the Lord;

and I will send the sword after them, till I have consumed them: and I will set my throne in Elam, and will destroy from thence the king and the princes, saith the Lord. But it will come to pass in the latter day that I will bring again the captivity of Elam, saith the Lord.”

The foundations of modern Iran were laid by Cyrus II, who came to the throne of Pars in 559 B.C. Nine years later he utterly defeated Astyages, King of Media, and thus joined the Achaemenids and Medes into one empire. In 546 B.C. Cyrus defeated Croesus, then King of Media. The following six years were occupied with wars against the Scythians. In 538 B.C. Babylon was captured. The kingdom founded by Cyrus had capitals at Pasargadae, Babylon, Susa, and Ekbatana. Thus arose a spirit of national unity, which has never died. During the reign of Cyrus the Jewish exile terminated and a Zionist movement took place. According to Ezra (II: 64) “the whole congregation together was forty and two thousand three hundred and three score.”

In 529 B.C. Cyrus died in battle and was buried at Pasargadae, where his tomb now stands (Plate 99, Fig. 2). Cambyses, his son, succeeded him and added the conquest of Egypt and Ethiopia to the Achaemenid Empire. During the thirty-five-year reign of Darius I, who succeeded Cambyses, the emperor crossed the Bosphorus (512 B.C.) to the Danube but retired with heavy losses inflicted by the journey and by the Scythian nomads. In 490 B.C. Miltiades defeated the Persian army at the battle of Marathon. Darius, who died five years later, was succeeded by his son, Xerxes, the Biblical Ahasuerus (see Ezra IV: 6; Daniel IX: 1; Esther, *passim*). The Persians were defeated by the Greeks at Salamis and Plataea. In 339 B.C. Artaxerxes III came to the throne and re-established Persian domination in many countries. At the battle of Chaeronea (338 B.C.) Philip of Macedon defeated the confederate Greek states, and in 334 B.C. his son Alexander crossed the Hellespont, defeated the armies of Darius Codomannus, and thus made himself ruler from the Nile Valley to Persepolis.

During the next five hundred years the history of Iran can be divided into two dynasties, that of the Seleucids, or successors of Alexander, 323 B.C. to 140 B.C., and that of the Parthian Arsacids,<sup>1</sup> 256 B.C. to A.D. 226. A few years later was born Mani, the founder of the Manichaeian dualistic religion. A claimant to the true line of the Achaemenids, Ardashir Babagan, founded the Sasanian dynasty, which flourished for about four hundred years.

<sup>1</sup> See Debevoise, 1938.

During the following thousand years there were invasions from Central Asia, Turkey, and Mesopotamia. The invasions by Genghis Khan and by his grandson, Hulagu Khan, who was appointed in the year 1256 to rule over Iran, as well as the campaigns of Tamerlane in 1380, brought Mongoloid peoples into this country. It is thus to



FIG. 3. Communications within Iran.

be surmised that each invader left some indelible mark on the physical characters of the peoples of Iran.

In the year 1502 Shah Isma'il founded the Safavid dynasty, which ruled Iran down to the middle of the eighteenth century. In 1736 the Afghans under Nadir Shah conquered the country. During his reign of eleven years the Persian Empire extended from the Caucasus to the Indus. In 1779 Agha Muhammed founded the

Qajar dynasty, which lasted down to the time of the World War. In April, 1926, Riza Khan became Shah of Persia, a position which he has occupied since that time with the greatest distinction and success, under the name of Riza Shah Pahlavi.

Among many modern improvements introduced by the Shah can be numbered the total disarmament of the population, with the resultant coordination of the tribesmen into a semblance of national unity, and the establishment of greater facilities for transportation and communication. Therefore, from the anthropological point of view it is most desirable to make detailed studies of the people of Iran before the rapidly advancing wave of western civilization carries their ancient traditions and folklore beyond recall.

Since few accurate census figures are available I have compiled several estimates, which of necessity show some discrepancies but at the same time indicate the general range of probability for any given area.<sup>1</sup>

Henri Massé (pp. 24-38) published notes obtained in Tehran during 1922-23 dealing with birth, circumcision, marriage, etc.

In 1934 Basile Nikitine (pp. 78-79) obtained the following population figures (in thousands) from Tehran:

District	Population	District	Population
Abadan	130	Ghermrud	65
Abadeh	63	Gulpaigan	90
Amul and Nur	70	Gunabad	63
Arak	250	Hechterud	75
Ardebil	85	Isfahan	570
Ashraf (see Sari)		Jahrum (see Kasir)	
Asterabad and Sehneh	270	Jandaq (see Samnan)	
Baluchistan	200	Kashan	100
Barfrush	120	Kasir and Jahrum	84
Behbahan	78	Kazerun and Mamassani	72
Bijar	59	Kazvin	250
Bujnurd	70	Kerman	579
Bulak-eh-Sabeh (see Shiraz)		Kermanshah and Qasr	220
Burujird and Luristan	175	Khalkhal	44
Bushire	121	Khoi and Shapur (ancient Salmas)	305
Damghan	40	Kurdistan (Sehneh)	146
Darab and Sabeh	88	Lahijan (Enzeli) <sup>2</sup>	437
Dashti and Dashtistan	91	Lar	72
Dashtistan (see Dashti)		Luristan (see Burujird)	
Dehkhwarkan	65	Mahallat	23
Dizful	115	Maku	66
Erwenek	140	Malayer and Tuisarkan	160
Estehbanat (see Niriz)		Mamassani (see Kazerun)	
Firuzabad and dependencies	61	Maragheh	165

<sup>1</sup> Cf. population figures recorded in 1820 by Gordon, p. 72; and Migliorini, p. 438.

<sup>2</sup> According to the RGS Permanent Committee on Geographical Names, Enzeli is the old form of Pahlevi and thus there seems to be some confusion between the figures for Resht and Pahlevi and Lahijan (Enzeli).



District	Population	District	Population
Meshed	310	Saveh	110
Mohammerah	95	Sehneh (see Asterabad)	
Nasiri and Ram Hormuz	165	Seistan	40
Niriz and Estehbanat	100	Shahrud	62
Nishapur	115	Shapur (see Khoi)	
Nur (see Amul)		Shiraz and "seven cantons," also	
Pahlevi (see Resht)		Bulak-eh-Sabeh	250
Qainat	73	Shushtar	38
Qaraja Dagh	65	Tabas	64
Qasr (see Kermanshah)		Tabriz	310
Quchan	57	Tehran	550
Qum	120	Tuisarkan (see Malayer)	
Ram Hormuz (see Nasiri)		Tunakabun	90
Resht and Pahlevi	260	Turbat-i-Haidari	60
Rézayeh (Urmia)	120	Turbat-i-Shaikh Jam	35
Sabeh (see Darab)		Turshiz	55
Sabzawar	130	Yakherz-Khawaf	49
Sain Qal'eh	45	Yezd	200
Samnan and Jandaq	40	Zenjan	270
Sarab	65		
Sari and Ashraf	140		
Saujbulagh	40	Total	10,000,000

According to Ebtehaj (p. 27) the population of Iran has been decreasing gradually since the reign of Fath Ali Shah, when it was estimated at about 50,000,000 persons, and was reduced by 50 per cent when Caucasia, Turkestan, and Baluchistan were separated from Iran. In 1935 the "Enciclopedia Italiana" gave the total population as 15,055,155.<sup>1</sup> The more important towns are listed, with the number of their inhabitants:

Town	Population	Town	Population
Tehran	360,251	Kerman	59,525
Tabriz	219,949	Sultanabad	54,987
Meshed	139,350	Urmia	49,843
Shiraz	119,850	Zenjan	45,612
Isfahan	100,140	Maragheh	45,372
Hamadan	99,852	Ardebil	44,808
Resht	89,876	Pahlevi	41,997
Kermanshah	70,159	Abadan	40,055
Kazvin	60,013		

According to Ebtehaj (p. 28) about 14,000,000 of the population adhere to the Mohammedan Shiah faith, which has been declared by constitutional law the official religion of the country. Approximately 1,000,000 Persians, principally Kurds in northwestern Iran, are of the Sunni sect. Safei is another branch of Mohammedanism, which has about 700,000 believers among the Kurds. Another branch of Mohammedanism, Hanafi, has followers among the Turkomans and other tribes of Khurasan in the Hazara and Jamshidieh districts. Ismaileyeh, under the leadership of the Agha

<sup>1</sup> Simmonds (page v), writing in 1935, estimates the population at about 12,000,000, giving an approximate average density of nineteen persons to the square mile.

Khan, has a considerable number of adherents in Khurasan. Other religions comprise Christians (Armenians, Chaldeans, Greek Orthodox, Roman Catholics, and Protestants; cf. Hoare, 1937, also "Iran

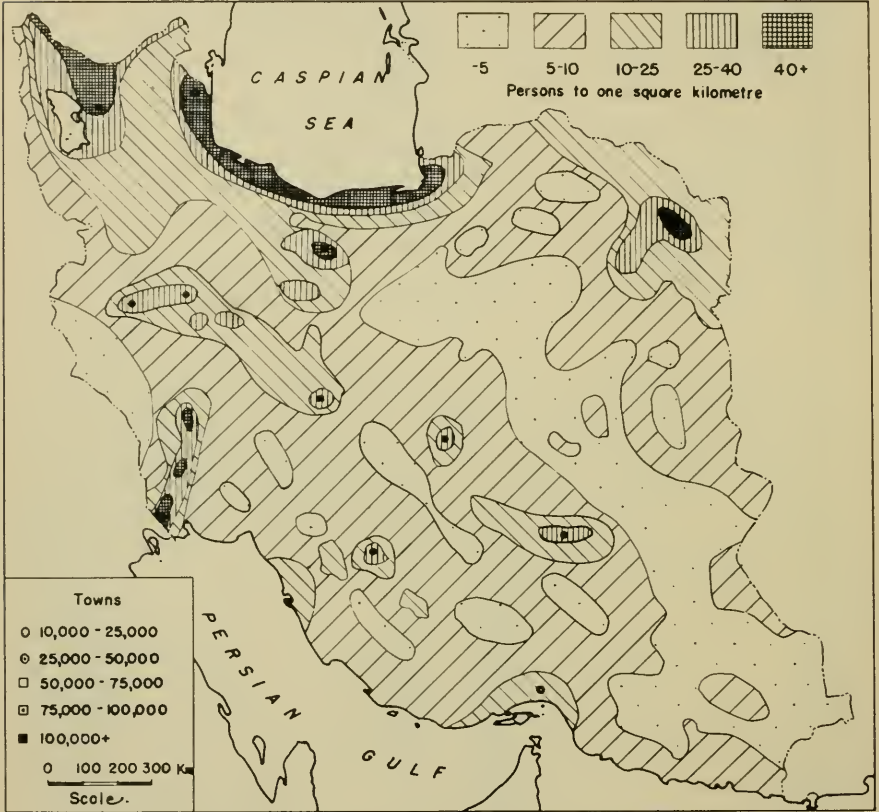


FIG. 4. Distribution of population (after Enciclopedia Italiana).

Mission"), about 120,000; Jews, 45,000; and Zoroastrians, 14,000. The Bahais number about 100,000 followers.

The authorities on Iran, such as Curzon, Sykes, and Wilson, give full accounts of the religious beliefs but since Ebtehaj is the most recent author his figures are quoted here.

Simmonds (page v) states that the number of schools has been greatly increased in recent years, the figure in 1935 being given as 4,855 in the whole country, as compared with less than 2,000 ten

years ago. Under the progressive encouragement of the Minister of Education, schools are being opened throughout the country and educational facilities are increasing.<sup>1</sup> Also, by order of the Shah improvements in transportation, communications and public health service are progressing rapidly so that the general condition of the peoples of Iran is becoming ameliorated.

<sup>1</sup> See also Sadiq, pp. 44-123; Shadman, 1937; Simmonds, p. 37; and Gray, p. 28.

### III. HISTORICAL REFERENCES TO PEOPLES OF IRAN

During the search for comparative anthropological and anthropometric data I found relatively few authors who had recorded observations or proposed theories on the origins and physical relationships of the peoples of Iran. Some of these writers, however, described various sections of the population in considerable detail and since the lack of a contemporary compilation of the more important historical references to the anthropological problems must be recognized by any student of Iran I feel it desirable to quote extensively from these various sources. For further original contributions on Iran, the reader is referred to the list of bibliographical references given by Curzon (1892a, vol. 1, pp. 16-18).

#### AUTHORITIES CITED

Date	Author	Date	Author
B.C.		1899	William Z. Ripley
ca.445	Herodotus	1902	Percy M. Sykes
A.D.		1914	Alexander Finn
ca.360	Ammianus Marcellinus	1915	Sir Percy M. Sykes
ca.950	Al-Istakhri	1919	Jivanji Jamshedji Modi
1599	Antony Sherley	1919	Berthold Laufer
1650	Pietro della Valle	1924	A. C. Haddon
1684	Pater Angelus (Labrosse)	1925	A. H. Sayce
1686	Sir John Chardin	1926	Joseph Deniker
1815	Sir John Malcolm	1926	W. Ivanov
1828	Frederic Shoberl	1927	William H. Worrell
1843	J. C. Prichard	1928	Hadi Hasan
1846	Austen Henry Layard	1928	Philip K. Hitti
1858	Anders Retzius	1929	L. H. Dudley Buxton
1863	E. Duhousset	1929	Sir George MacMunn
1866	Nicolas de Khanikoff	1930	Sirdar Ikbal Ali Shah
1875	G. R. Aberigh-Mackay	1930	Bernard E. Read
1880	George Rawlinson	1932	Sir Arnold T. Wilson
1880	H. W. Bellew	1935	Ernst Herzfeld
1887	Frederic Houssay	1936	George G. Cameron
1889	C. R. Conder	1936	Sir Aurel Stein
1891	Isabella L. Bishop	1937	A. M. Tallgren
1892	George N. Curzon	1937	V. V. Ginzburg
1894	N. P. Danilov	1937	Alexandre Baschmakoff
1895	Daniel G. Brinton	1938	{ Ernst Herzfeld and Sir Arthur Keith
1895	Charles de Ujfalvy		
1896	A. Houtum-Schindler		

Several methods of arranging the excerpts presented themselves. After careful consideration and discussion with Dr. Hooton, I decided to cite the extracts from the selected authors in chronological order. A detailed index of tribes (pp. 601-651) will assist the reader to find information on specific anthropological criteria.

Wherever translations have been made, especially in the cases of de Khanikoff and Houssay, despite the fact that they are in free

style, quotation marks have been used so that there can be no question regarding their origin. In order to standardize the spelling in passages not quoted directly from English authors, some words have been altered to conform to the style employed in Field Museum publications. These changes apply particularly to the spellings of place names which, wherever possible, follow the style adopted by the Permanent Committee on Geographical Names of the Royal Geographical Society in London. When the name in a quotation is not immediately recognizable, words in square brackets have been added to elucidate the text. In the index all variations will be referred to the accepted form of the place name.

*Ca. 445 B.C.*—For our earliest observations on the Persians by Herodotus I have used the translation by Rawlinson, edited and embellished with meticulous footnotes by A. W. Lawrence.<sup>1</sup>

Herodotus (IV, 37) writes that "the Persians inhabit a country which extends to the southern or Erythraean Sea; above them, to the north, are the Medes; beyond the Medes, the Saspeirians; beyond them, the Colchians, reaching to the northern sea [Black Sea], into which the Phasis empties itself. These four nations fill the whole space from one sea to the other."

With regard to the tribes Herodotus (I, 125) states: "... Now the Persian nation is made up of many tribes. Those which Cyrus assembled and persuaded to revolt from the Medes, were the principal ones on which all the others are dependent. These are the Pasargadae, the Maraphians, and the Maspians, of whom the Pasargadae are the noblest. The Achaemenidae, from whom spring all the Perseid kings, form one of their clans. The rest of the Persian tribes are the following: the Panthialaeans, the Derusiaeans, the Germanians, who were engaged in husbandry; the Daans, the Mardians, the Dropicans, and the Sagartians, who are Nomads."

Lawrence contributes the following footnote: "The Persian tribes, like those of other oriental peoples, were perpetually dissolving and reforming; thus Xenophon makes the total number twelve instead of ten, and isolated detachments of those named here were later found all over the Middle East (Hommel, *Ethnol. u. Geog. des alten Orients*, 1926, p. 197). Some of the tribal chiefs held powerful positions at the Achaemenian court, and the tribes themselves had at this time the usual distinctions in rank and privileges. The Sagartians are the only Persians named among the peoples who

<sup>1</sup> Brother of Colonel T. E. Lawrence.

paid tribute (III, 93); this may refer to an isolated branch, but perhaps the nomadic tribes were not exempted from tribute.

“The Pasargadae are also called by the Greeks Parsagadae, a name subsequently applied to a tribe in Carmania (Ptol. vi, 8, 12; Herzfeld, *Klio*, viii, 1908, p. 19). A place of this name formed Cyrus' capital, seventy miles north-east of Shiraz, and it is questionable whether the Greeks were not mistaken in supposing a tribe to be so called; Darius describes himself as a Parsa, a Persian proper, and that may be the correct tribal name (Andreas, *Verh. d. XIII. Intern. Orient.—Kongr.*, p. 96).

“From the Achaemenids, nominally if not actually the descendants of Achaemenes, were sprung both branches of the royal family, that of Cyrus and that of Darius . . .

“The Germanians were usually called Carmanians; they lived round Kirman which takes its name from them. Although classical authors describe their manner of life and religion as similar to that of the other Persians, they were commonly considered as a distinct people. It is plain that their culture was more primitive; they indulged in head-hunting (IV, 64 n.), and preserved the rite of blood-brotherhood (I, 74, n. 5). Daans ( $\Delta$ AOI) or Dahae were found elsewhere in Iran, especially east of the Caspian (I, 201 n.) The Iranian form appears in the Avesta as Daha, which may have meant something like ‘barbarians,’ if it is derived from dahyu, ‘country’ (Christensen, *Iranier*, pp. 217, 236). The Mardians also bore an opprobrious name, for Marda may be roughly translated ‘rascals,’ and they, too, occur elsewhere; indeed it is questionable whether either term, Dahae or Mardian, carried a racial significance. The Mardi or Amardi of northern Iran (near Tehran) received a regular subsidy from the Achaemenian kings in return for good conduct, and are described as ‘a warlike tribe with habits repugnant to the manners of the Persians. They dig caverns in the mountains, in which they inhumate themselves with their wives and children: they feed on flesh, either that of their herds, or of wild animals. The women are not of a softer nature than the men: their hair is shaggy; and their garments do not reach the knees. They bind the forehead with a sling, making an ornament of a weapon’ (Q. Curtius, v. 6. 21).

“The Dropici appear in Stephanus Byzantinus as Derbicci; Ptolemy mentions Dribyces on the Caspian, while Derbiccae or Derbices or Terbissi lived to the east in Turkestan (n. on 201). These names may be based on the Iranian drigu or drivi, ‘wretched,’

and thus apply to all manner of races (Marquart, *Untersuch.* i, p. 31 n., 136; ii, p. 139 n. 1, 142, 170 n. 2; Christensen, *Iranier*, pp. 236, 253 n. 4). The Sagartians are called in Old Persian *Açagarta* (ç representing a strong sibilant); this might mean 'land of caves,' and would apply well enough to the tribal home in the northern Zagros mountains. But other Sagartians lived somewhere nearer the centre of modern Persia, these being the tribesmen taxed in company with peoples of south-eastern Iran (III, 93; Sarre and Herzfeld, *Iran. Felsreliefs*, p. 23).

"In the Assyrian period a minor nation called by Semites *Zikirtu* lived in *Parsua* in the northern Zagros, but the connection between *Zikirtu* and *Açagarta* cannot be firmly established (Streck, *Z. f. Ass.* xiv, p. 146). These names have also been connected with that of the Kurds, which begins in Greek and Latin with *Gord-* or *Kord-* (I, 189, n. 2). The *Cyrtians*, found according to Strabo both on the Caspian and among the Persians, have also been regarded as Kurds, with more philological than geographical justification (xi. 523; xiv. 727). Strabo also includes among Persian tribes the *Patischorians*, inhabitants of a place or district called *Patishuvara*; *Gobryas*, the Bearer of the King's Spear, is described on Darius' tomb as a *Patishuvari*."

Herodotus (I, 101) continues: "Thus *Deioces* collected the *Medes*<sup>1</sup> into a nation, and ruled over them alone. Now these are the tribes of which they consist:<sup>2</sup> the *Busae*, the *Paretaceni*, the *Struchates*, the *Arizanti*, the *Budii*, and the *Magi*."

Giantism in ancient times was considered miraculous; Herodotus (VII, 117) describes a Persian giant in these words: "It was while he remained here that *Artachaeus*, who presided over the canal, fell sick and died. He was a man in high repute with *Xerxes*, and by birth an *Achaemenid*; moreover he was the tallest<sup>3</sup> of all the Persians, being only four fingers short of five cubits, royal measure,<sup>4</sup> and had a stronger voice than any other man in the world."

<sup>1</sup> In the *Encyclopaedia Biblica* (p. 3664), London, 1902, appears: "It is quite certain that the founders of this empire, the *Medo-Persians*, were not the original inhabitants of the country. They belonged to the *Aryan stock*."

<sup>2</sup> Lawrence notes that "the *Median tribes* then, as now, must have included both settled and nomadic peoples, but at the present day the proportion of nomads is much smaller here than farther south where the *Persian nomadic tribes* lived."

<sup>3</sup> In September, 1934, I was informed that there lived in *Shiraz* a giant named *Sia-Kuh* (= *Man-mountain*), whose stature exceeded seven feet.

<sup>4</sup> Lawrence notes that "the *Royal cubit* measured 20 inches (I, 178, n. 3); thus *Artachaeus* was over 8 foot tall."

The earliest reference to Persian skulls is that of Herodotus (III, 12) regarding Peluse. "On the field where this battle was fought I saw a very wonderful thing which the natives pointed out to me. The bones of the slain lie scattered upon the field in two lots, those of the Persians in one place by themselves, as they had been divided at the first—those of the Egyptians in another place apart from them: If, then, you strike the Persian skulls, even with a pebble, they are so weak, that you break a hole in them; but the Egyptian skulls are so strong, that you may smite them with a stone and you will scarcely break them in. They gave me the following reason for this difference, which seemed to me likely enough:—The Egyptians (they said) from early childhood have the head shaved, and so by the action of the sun the skull becomes thick and hard. The same cause prevents baldness in Egypt, where you see fewer bald men than in any other land. Such, then, is the reason why the skulls of the Egyptians are so strong. The Persians, on the other hand, have feeble skulls, because they keep themselves shaded from the first, wearing the hats they call tiaras. What I have here mentioned I saw with my own eyes, and I observed also the like at Papremis, in the case of the Persians who were killed with Achaemenes, the son of Darius, by Inarus the Libyan."

*Ca. A.D. 360.*—Ammianus Marcellinus (XXIII, 6, 75, 80) gives the following contemporaneous account of the Persians:<sup>1</sup> "They are nearly all slight in figure, swarthy or rather of a pale livid complexion; fierce-looking, with goat-like eyes, and eyebrows arched in a semicircle and joined, with handsome beards, and long hair . . . . They are so loose in their gait, and move with such correct ease and freedom, that you would think them effeminate, though they are most formidable at a distance. They abound in empty words, and speak wildly and fiercely; they talk big, are proud, unmanageable, and threatening alike in prosperity and adversity; they are cunning, arrogant and cruel, exercising the power of life and death over their slaves, and all low-born commoners."

In another passage (XXIV, 14) he writes: "ex virginibus, quae speciosae sunt captae, ut in Perside, ubi feminarum pulchritudo excellit." (For additional classical references see Rawlinson, vol. 2, p. 308.)

*Ca. 950.*—Abu Ishak al-Istakhri, celebrated Moslem traveler and geographer, observed in Khuzistan that "Persian, Arabic, and

<sup>1</sup> In a footnote to Herodotus (I, 125), Lawrence adds that "a general account of the Iranians of A.D. 400 must apply on the whole to the Achaemenian Persians."



Khuzi were spoken. The external appearance of the inhabitants of this province was yellow and emaciated, the beard scanty and in general their hair less abundant than that of other peoples." (Houssay, p. 127.)

1599.—Antony Sherley, head of a Dutch Embassy to Persia, describes (p. 10)<sup>1</sup> King Abbas as a man of excellent physique but he remarks on his brown skin color "as though he had been burned by the sun."

1650.—Pietro della Valle (pp. 105–106) wrote: "These men (the Gaurs), almost like the Persians of today, are of rather coarse type."

1684.—Pater Angelus, whose name was Labrosse, states (p. 136), that "one can see their ancient facial type among the Gaurs,<sup>2</sup> the fire-worshippers, who are hardly less ugly than monkeys."<sup>3</sup>

1686.—Sir John Chardin (French ed. 1711, p. 34), who made two journeys to Persia, one in 1664–70<sup>4</sup> and one in 1671–77, writes: "The stock of Persia is naturally coarse; that is evident among the Gabrs, who are the descendants of the ancient Persians." He adds that "the ancient Persian race was ugly and malformed, resembling the Mongols, and that the type of beauty so common among modern Persians is their heritage from Circassian and Georgian concubines." This opinion, Prichard has remarked, is probably based on a confusion of the Ilats with the Persians, a statement which de Khanikoff (p. 50) firmly refutes as impossible.

Curzon (1892a, vol. 2, p. 492) writes that "Chardin . . . attributed the dearth of people to four subsidiary causes, namely, unnatural vice, immoderate luxury, early marriages, and constant migration to the Indies. Malcolm, in the early part of the present century, estimated the population as about 6,000,000, balancing against the checks upon its growth, which were identical with those named by Chardin, the following advantages, viz., 'the salubrity of the climate, the cheapness of provisions, the rare occurrence of famine,<sup>5</sup> the bloodless character of their civil wars, their obligation to marry, and the com-

<sup>1</sup> This was translated by Mr. David Gustafson from the Dutch. The quotation marks signify a literal translation.

<sup>2</sup> These are presumably the Gabrs, the majority of whom now live in Yezd.

<sup>3</sup> "The exaggeration of this observation has been justly criticized by Ouseley in Volume III of his *Voyage*, p. 355, note 13." (De Khanikoff, p. 48.)

<sup>4</sup> See also the report of Daulier-Déslandes, 1673.

<sup>5</sup> Curzon (1892a, vol. 2, p. 492) comments in a footnote: "This cannot, I think, be said with truth. In the second half of this century famines of greater or less severity have occurred at intervals of about ten years."

paratively small number of prostitutes.” Then Curzon elaborates in a footnote: “Dr. J. E. Polak, who was a physician, in his Report on Persia in 1873, gave the following as the main causes of the decline of the population: (1) The unfavorable position of women, including the facility of divorce, early marriage and premature age, the length of the suckling period, and the thereby impaired fertility of the sex; (2) decay of sanitary police, and consequent greater ravages by typhus, dysentery, cholera, plague, and, more particularly, owing to the inadequacy of inoculation, by small-pox—the mortality of children in the second year of their age being very striking; (3) the exterminating wars of the Tartars, Mongols, and Afghans, the raids of the Turkomans in the eastern provinces, and sale of the inhabitants in the slave markets of Khiva and Bokhara, civil wars, and the mortality among soldiers enlisted for life, but swept away in masses before properly acclimatised to the different garrison stations; (4) emigration of non-Mussulman elements, such as Guebres [Gabrs], Christians, and Jews, to India, the Caucasus, and Turkey; (5) oft-recurring famine, caused by dearth of rain and snow, but intensified to the highest degree by want of means of communication, prejudice against the corn trade, bad condition of water channels, and misgovernment.”

Curzon (1892a, vol. 2, p. 492) continues: “Rawlinson in 1850 estimated the population as 10,000,000; but in 1873, after two desolating visitations of cholera and famine, as 6,000,000. The figures given by other writers during the last twenty years vary between 5,000,000 and 10,000,000. Nor, indeed, is any estimate based upon data that are either scientific or reliable. No census is taken in Persia, the machinery or means for doing so in at all an adequate fashion not being in existence, and the idea being repugnant to the religious orders.”

1815.—From Sir John Malcolm’s “History of Persia” incidental passages regarding the population and relevant to this report have been extracted and quoted below.

With reference to estimates of the population, Malcolm (vol. 2, pp. 518–521) writes: “In a manuscript, which professes to be taken from state papers in the reign of Shah Sultan Hussein, and which enters into all the details of the numbers of the different tribes and citizens, the total amount of the subjects of the Monarch of Persia is gravely stated at upwards of two hundred millions! An European traveler (Chardin), who made his estimate near a century earlier, expresses his belief that the inhabitants of that kingdom are about forty

millions: but an eminent geographer (Pinkerton) on the conclusion that the population of Persia and Candahar does not exceed that of Asiatic Turkey, computes their number at ten millions; of which he thinks four may be allotted to the provinces of Candahar, and six to what he terms Western Persia, or, in other words, the limits of the present kingdom: and this estimate is probably not very remote from truth. It gives about one hundred to the square mile; and, though some parts of Persia may far exceed that calculation, there are large tracts of desert which are totally uninhabited . . . .

“Within the last twelve years the number of the citizens of Isfahan has nearly doubled,<sup>1</sup> in consequence of the excellent local administration of that city, which has induced its former inhabitants to return from the villages near the mountains, where they had taken shelter from violence and oppression . . . .

“Though the population of Persia has perhaps diminished in a very considerable degree since the invasion of the Affghans, it has, no doubt, increased within the last twenty years, and may be said to be, at this period, rapidly increasing. But this observation only applies to the Mohammedan inhabitants of that country. The despised Jews are much decreased in numbers; and the persecuted Guebers [Gabrs], whose residence is confined to a quarter of the city of Yezd, are probably over estimated, when computed at four thousand families. The colony of Armenians, settled in a suburb of Isfahan, which formerly amounted to two thousand five hundred families, some of whom were of great opulence, do not now amount to five hundred, none of whom are wealthy; and this race has diminished in a still greater proportion in all other parts of the empire. The whole of the Armenians in Persia are calculated, in an estimate made of their number by order of the Bishop of Julfa, to amount to twelve thousand three hundred and eighty-three souls, which is said to be not more than a sixth of their number before the Affghan invasion.”<sup>2</sup>

According to Malcolm (vol. 2, p. 630): “The whole of this community [Kazvin, Tabriz, Hamadan, Shiraz, Yezd, Qum, Kashan, and Isfahan] may be deemed, as far as regards their personal appearance,

<sup>1</sup> “The population of this city, when it was the capital of the Suffavean Kings, was, if we can credit the European travellers by whom it was visited, between six and seven hundred thousand. When I went to Persia in 1800, it was not supposed to exceed one hundred thousand; and it is now calculated at nearly two hundred thousand.”

<sup>2</sup> “I owe this enumeration of the Armenian population in Persia to Captain Frederick, who obtained it from the Bishop of Julfa. The statement made out by the bishop is very particular, and has every appearance of being correct.”

a fine race of men: they are not tall; but it is rare to see any of them diminutive or deformed, and they are in general strong and active. Their complexions vary from a dark olive to a fairness which approaches that of a northern European: and if they have not all the bloom of the latter, their florid healthy look often gives them no inconsiderable share of beauty."

"For a short time the legions of Rome [vol. 2, pp. 207-210] had occupied a part of Carduchia [Kurdistan], but they had probably possession of little more than their military positions: and it is remarkable, that none of the numerous Tartar tribes who have overrun Persia, have ever permanently established themselves in this province,<sup>1</sup> which is still inhabited by an original and rude race; who, though they have departed from the religion, maintain the usages and habits of their forefathers, and speak a barbarous dialect of the ancient language of Persia.

"The causes which have enabled this people to preserve their soil from strangers are obvious. Their country is mountainous and barren; and the few beautiful and fertile valleys, which are interspersed among its clustering hills, offer no adequate temptation to reward the effort that would be necessary to its complete reduction: for its warlike and robust inhabitants are singularly attached to their native land; and the conquest of their rugged mountains would be found as difficult to make, as it would prove unprofitable to maintain . . . .

"The districts of Kurdistan which lie near the Tigris and in the vicinity of Bagdad, admit the supremacy of the Turkish government; while those that are situated more to the northward and eastward profess to be under the protection of the King of Persia. Among the latter chiefs, the Waly, or Prince of Ardelân, is by far the most powerful. His territories, which border on Irak and Aderbijan, are nearly two hundred miles in length, and about one hundred and sixty in breadth. The revenues of this tract are not great; but its princes, who maintain almost regal state, boast their descent from the celebrated Salladin."<sup>2</sup>

Malcolm (vol. 2, p. 231) continues as follows: "To the north of Mushed, along the more mountainous part of Khorassan (which

<sup>1</sup> "There are some Arabian tribes in this country; and several of the principal Kurdish chiefs boast a descent from families of that nation."

<sup>2</sup> "This is the name which European writers give to Sâlâh-û-deen, the famous enemy of the crusaders. The family of Ardelân trace their lineage to this monarch through female descent; but, in the History of Kurdistan, their title to their possessions rests upon an actual occupation for four centuries, and a succession of twenty-five male heirs."

borders on the country of the Turkomans, who now inhabit the lands of the ancient kingdom of Khaurizm), two Kurdish chiefs, high in the favour and employ of Nâdir and his successors, established their tribe."

He adds (p. 216): "Khorassan is peopled by many races: its warlike inhabitants boast their descent from Arabian, Kurd, Turkish,<sup>1</sup> and Affghan tribes, who came into the province at different periods to subdue or to defend it . . . ."

Malcolm (vol. 2, p. 617) states that "the Arabian tribes subject to Persia, who inhabit the shores of the Gulf, are more assimilated, in their habits, to the people from which they are derived, than to those amid whom they dwell. They continue to speak Arabic, and preserve almost all the customs of their original country. They in general dress like the inhabitants of Arabia, wearing, instead of the cap of the Persians, a light turban, and are usually covered with a flowing cloak. The manners of this race, though less rude than those of the other tribes of Persia, retain much of the wildness and independence of their ancestors."

He adds (vol. 1, p. 277) that "the progress of the conquerors [invasion of the Arabian Caliphs] was rapid and wonderful: colonies, from the burning desert of Arabia, were extended over the cold countries of Khorassan and Bulkh: and they flourished in the soil to which they were transplanted. Their descendants still remain a distinct race,<sup>2</sup> and continue to preserve the manner and the appearance, though they have lost the language, of their forefathers."

Malcolm (vol. 2, p. 596, footnote) writes that "small encampments of gypsies are frequently met with in Persia, particularly in Aderbijan. The habits and occupations of the families which we saw in that country appeared very similar to those of the vagrant tribes who wander over England. The Persians call them Kârâchee; a Turkish term, which may be translated 'the black people'; and

<sup>1</sup> "The word Turkish is always used to describe the inhabitants of Turkistan, or Tartary, or those who derive their origin from that country and continue to speak its language."

<sup>2</sup> "I have conversed with a man of the tribe of Ben-Shybanee [Shaibani], who belonged to a branch of that tribe, settled within four days' march of Bokharah: his countenance and manner were as completely Arabian as an inhabitant of Yemen, which he accounted for by saying that none of his tribe intermarried with the other inhabitants of the country. The Arabs, in Khorassan, in Bulkh, and even in the vicinity of Bokharah, are still numerous: but, except in the former province, they have no chiefs of any distinction, it having been the policy of both the Tartars and Affghans to scatter and weaken them. Though many of these tribes have preserved the name and appearance of Arabians, they have completely lost the language of that country."

which probably has been given to them from their complexion being darker than that of the natives."

1828.—Frederic Shoberl (p. 20) published some statistical information regarding the linguistic problems and the population of various groups based on the following philological divisions:

"1. The Turkish language is the most numerous: it comprises 41 families or branches, and 428,000 persons. The Afshars and the Cadjars [Qajars] are the most powerful of these tribes. The former are spread over all Persia, but especially in Adherbijan, and amount to about 28,000 souls. The Cadjars dwell in Mazanderan, at Tehran, at Meru in Khurasan, at Erivan, and at Guindjeh: their number is estimated at 40,000. Feth Ali Shah, the reigning sovereign of Persia, is of this tribe, to which most of the great officers of the empire also belong.

"2. The Courd [Kurd] language embraces nine families, and numbers about 79,000 individuals. To this class belonged the celebrated Kerim Khan, whose tribe, the Zends, has been almost exterminated since the tragical end of Looft Ali; the few survivors being in some measure proscribed by the reigning dynasty, and living concealed, or out of the kingdom.

"3. The Louree [Luri] language has six families, and comprises 84,500 persons. The numerous tribes of the Faelees and Bakhtiarees form part of it. The latter supply the army with the best infantry, but inhabiting, like the former, a mountainous tract bordering on Turkey and Persia, they live independent of both powers.

"4. The Arab language. The tribes of this division are of Arabian extraction. Time, and a long residence in a foreign country, have caused them to lose much of the language of their forefathers; so that they now speak a very corrupt Arabic, mixed with a great number of Persian words. This division comprehends eight families, and 93,500 souls."

1843.—Prichard (p. 171) writes: "The modern Tajiks or the true Persians, called by the Turks *Kyzilbachs* [Qizilbashes], are well known as a remarkably handsome people with regular features, long and oval faces, black and well defined eyebrows and black, gazelle-like eyes . . . .

"There are several races inhabiting the countries situated near the borders of Persia who do not belong to the Persians so called, but who are closer to them than to any other great nation of Asia.

I believe that they must be included in the Aryan nation. These are the Afghans, Kurds, Beludjs [Baluchis], Brahuis, Haikans or Armenians, and finally the Ossetians."

"The greater part of Persia is occupied by semi-nomadic peoples who wander through the country, living in tents and cultivating the soil with the aid of their slaves and their servants . . . . A very great part of them is not of the Persian race; some are Turks, others belong to Mongol hordes or Afghans, while some are of uncertain origin. The towns and their surroundings are inhabited by representatives of the true Persian race, who are called everywhere Tajiks and not Persians. The Tajiks are in truth a well-known people widely spread over the East. They inhabit not only the towns of Persia but also those of Transoxiana and of all the countries subjugated by the Tatar Uzbeks. Some claim that they extend as far as the borders of China or at least as far as Tibet."

In 1843 Westergaard<sup>1</sup> sought confirmation of the statement of Herodotus regarding the fragility of the Persian skulls by visiting a *dakhma* near Yezd and experimenting on their resistance to blows. He came to the same conclusion as Herodotus, but de Khanikoff (p. 64) disagrees with both authors on this point.

1846.—Layard (p. 7) maintains that the Bindunis, actually one of the less numerous tribes of the Bakhtiariis, are considered as aboriginal and, according to tradition, it is this tribe which came to join the Bakhtiariis, who had emigrated from Syria.

The Dinarunis, another Bakhtiari subdivision, came from Isfahan. The Gunduzlu are a Turkish tribe of the Afshar family who became detached under the Sefavids or even earlier; the Janeki *garmsir* and the Janeki *sardsir* are also of Turkish origin . . . . Since neither Istakhri, Ibn Haukal, nor even Yakut . . . mention the Bakhtiariis it is very probable that their immigration took place after the thirteenth century, perhaps even under Tamerlane.

1858.—Retzius (p. 112) noted among the peoples of Asia the existence of two head forms and included in the list of Asiatic dolichocephals a class formed by Hindus, Aryan Persians, Arabs, and Jews—four groups who were at the same time orthognathous.

1863.—Duhousset (pp. 23-24), who studied a regiment at Sultaniyeh, recorded the following: "The men are medium in stature, very robust, able to endure great fatigue; skin color brown; black, wavy hair; small eyes overshadowed by heavy eyebrows; large,

<sup>1</sup> "In a letter from Professor Westergaard to the Reverend Dr. Wilson written in 1843 in Jour. As. of Gr. Brit. and Ir., London, 1846, VIII, p. 350." Quoted from de Khanikoff, p. 64.

aquiline nose with depressed tip; large square mandible; prominent malars; the expression fierce; and neck thin . . . . The calvarium presents unusual characters, removing itself completely from the Aryan type by the receding forehead and protruding occiput. The head length of one skull was 180 but only 150 when measured 3 mm. above . . . . The basal circumference is from 560–570 mm., the diameter between external auditory meati is 320–340 mm., and the head height from the upper border of the auditory meatus is 110 mm.”

In comparing these figures with those in his Appendix (pp. 127–140) de Khanikoff (p. 109) states that the Bakhtiari skull is most analogous with those which he assembled under the name *Tehranis*. He adds that it “is incontestable that these latter represent Iranian skulls well modified by Turkish admixture; we must see the same thing among the Bakhtiaris, only the great vertical diameter, artificial in part, indicates again a strong Semitic influence . . . . The head length is Iranian in character, the breadth Turkish, and the height Semitic.”

Omalius d’Halloy (p. 36), says de Khanikoff, attributes the Persian stock to the Aramaic branch and describes their general characteristics in the following words: “The peoples whom we group under the denomination of the Aramaic branch generally possess black hair, dark eyes, a skin color more susceptible to the effects of the sun than that of Europeans, an expressive face, and a medium stature.”

On the other hand, de Khanikoff points out, Perty (p. 70) places the Persians in the Aryan-Oceanic group with the following physical features: “Head oval, wide forehead, prominent nose, moderately prominent malars, horizontal eyes, often blue, hair blond, brown, or black, and heavy beard.” Perty adds (pp. 82–83): “The Persians or Tajiks, as they call themselves, form a population very widespread in Asia. They occupy the plateau of Iran right up to the Indus; they are found even in the Turan and in the western part of Central Asia. They have formed colonies in Russia and Siberia.”

1866.—From “*Mémoire sur l’Ethnographie de la Perse*” by Nicolas de Khanikoff who led an expedition to Persia in 1858, I have selected and translated the following additional passages based on his own work:

“We know that the culminating point of the ancient world, the Himalayas, nourishing the principal rivers which carried life in the direction of the four cardinal points of the continent of Asia, also separate four very different nationalities, the Chinese to the east, the



Turanians to the north, the Indians to the south, and the Persians or Iranians to the west . . . We know that the ancient traditions of each of these nations place their cradle in Central Asia and that the community of origin of the Aryans of Iran and the Hindus is a fact accepted by scientists (p. 35).

“As final proof of the comparatively late arrival of the true Persians in the west, I must call attention to the fact (p. 43) that there is no mention of them in Genesis (x: 1-31), where there is an ethnographic list of the peoples known to the Hebrews. The only Iranian people mentioned in the Bible are the Medes.”<sup>1</sup>

All de Khanikoff’s conclusions proceed from anthropometric studies by Duhousset, whose figures he quotes in detail. Below is a comparative table of head measurements on elements of the Persian population, which I have assembled from pages 59 and 63.

People	No.	G.O.L.	G.B.	H.H.	C.I.	Head circum.
Gabrs . . . . .	3	198	139	104	70.2	555
Hindus . . . . .	8	196	146	100	74.5	565
Afghans . . . . .	7	189	144	103	76.2	559
Gilanis and Mazanderanis . . . . .	5	183	154	106	84.2	558
Kurds . . . . .	5	182	157	101	86.3	560
Bakhtiaris . . . . .	4	181	164	107	90.6	571
Semites . . . . .	175	137	126	78.3	...	...
Turanians . . . . .	193	153	108	79.3	...	...

In the above table the cephalic indices have been calculated from the means by the writer.

De Khanikoff (p. 62) describes the head form of the typical Iranian as follows: “Relatively large cranial capacity, almost one and a half times longer than broad, less high than the Semites but higher than the Turanians, having the frontal bone little developed, the semi-circular temporal lines well separated; finally, the skull is relatively flat from above with a very flattened occiput.”

De Khanikoff (p. 70) reprinted the following figures from Pruner-Bey to give an idea of the head form of Semitic peoples.

Country	People	No.	Sex	G.O.L.	G.B.	C.I.	Head circum.
Africa . . . . .	Arabs . . . . .	11	M	178.0	135.2	76.0	505.6
Africa . . . . .	Arabs . . . . .	3	F	176.5	134.0	75.9	499.7
Africa . . . . .	Jews . . . . .	3	M	175.3	131.6	75.1	486.6
Africa . . . . .	Jews . . . . .	2	F	170.0	132.0	77.7	473.5
India . . . . .	Semites . . . . .	4	M	181.7	134.2	73.9	497.5
	Etruscans and Phoenicians } . . . . .	7	M	188.4	143.0	75.9	529.8

In the above table the cephalic indices have been calculated from the means by the writer.

<sup>1</sup> The close connection between the Medes and the Persians is shown by their constant association (see Daniel v: 28; vi: 8, 12, 15; Esther i: 3, 14, and 19, x: 2, and compare Herodotus I, 102, 130, etc. Also G. Rawlinson, vol. 2, p. 306, footnote 1).

At the Musée d'Histoire Naturelle, Paris, de Khanikoff (p. 71) measured ten Arab and Jewish skulls with the following results:

No.	Individual	G.O.L.	G.B.	H.H.	C.I.	Head circum.
1	Marabout Kabyle, Algiers, 1841 . . . . .	176	134	126	76.1	495
2	Jew, before 12th century, Paris . . . . .	171	145	103	84.8	490
3	Jew, before 12th century, Paris . . . . .	169	150	110	88.8	506
4	Arab, Tlemcen, Algeria, No. 223 . . . . .	191	137	146	71.7	528
5	Arab, Bône, Algeria, No. 227 . . . . .	168	138	141	83.1	494
6	Mozabite [Mozarab?], life cast, No. 265 . . . . .	188	145	112(?)	77.1	530
7	Arab, Sahara, No. 241 . . . . .	170	124	140	72.9	480
8	Arab, Sahara, 1841, No. 259 . . . . .	181	132	135	72.9	505
9	Arab, Blida, Algeria, No. 238 . . . . .	166	133	129	80.1	479
10	Arab, Algiers, No. 303 . . . . .	175	127	117	72.6	491
	Averages . . . . .	175	137	126	78.3	500

In the above table the cephalic indices have been calculated by the writer.

De Khanikoff (p. 71) concludes that the Semitic skull in comparison with the Iranian skull appears to be of less cranial capacity, smaller in length and width, but greater in height. Gliddon, he adds, refers to a skull<sup>1</sup> excavated by Layard from a *tell* in Babylonia and gives the following measurements: G.O.L. 197; G.B. 137; H.H. 133; C.I. 69.5.

Therefore, de Khanikoff (p. 73) states:

"1. The cradle of the Iranian race should be to the east of Persia.

"2. Up to the present time there exists a characteristic difference between the oriental and occidental populations of the Empire.

"3. This difference has been felt for a long time and there exists a trace of it in the most ancient ethnographic documents."

After acknowledging the influence of the Persian conquest of Mesopotamia (Iraq) he recapitulates (pp. 74-76) that since the Achaemenid period Persia has been also under the sway of the following peoples:

People	Years	People	Years
Arameo-Semitic . . . . .	1500	Persian . . . . .	425
Greek and Semitic . . . . .	200	Semitic . . . . .	400
Greek, Semitic, Aramean, Turanian . . . . .	500	Turanian . . . . .	600
		Armeno-Georgian . . . . .	220

With regard to the Tajiks de Khanikoff (p. 77) writes that one of the groups living in the eastern provinces of Persia was generally given this name, which was never used in western Persia, and was

<sup>1</sup>"In *Types of Mankind*, pp. 426-427, after a drawing sent him by J. B. Davis, one of the authors of *Crania Britannica* . . . . Gliddon adds that in Morton's large Egyptian collection there are only two skulls of similar dimensions, which are designated as Pelasgians." (De Khanikoff, pp. 71-72.)

only employed as the designation of a certain class of the population in eastern Khurasan, Seistan, and Herat in Afghanistan; it only became general for everyone of Persian blood on the banks of the Oxus and beyond this river. The westerners . . . use an abridged form. In northwestern Persia they call the aborigines of those countries subjugated by the Turks by the name Tats. Pietro della Valle (tome II, pp. 468, 469, French translation, 1663) seems to have been the first European to mention the Tats.

The word Tajik has led to many hypotheses and de Khanikoff (p. 78) notes that the name "is derived from the Persian words *tadj* or *tiare*, but it does not occur in ancient texts nor in Achæmaenid inscriptions." Some authorities, quoted by de Khanikoff (p. 87), "have tried to see in the Huzvareh word *Tazik*, corresponding to Persian word *tazi*, a synonym of the word *tadjik*, although there is no reason to confuse the word *tadj* with all its derivatives, such as *tadjik* (little crown), *tadjar* (possessor of a crown), *tadjwer* (wearer of a crown), less ancient than the words *tazi*, *taz*, *tazianèh*, etc." He adds (p. 90) that "the *tadj* or crown was to the followers of Zoroaster what the sign of the cross is to Christians and the turban, *salleh*, to Moslems, that is to say an external mark by which they distinguish themselves from those of other faiths."

After saying that Wood believes the Tajiks were Persians, de Khanikoff (pp. 87-88) quotes from this author (p. 259): "But the Tajiks themselves indicate Arabia and the region of Baghdad as the first habitation of their ancestors; and since this opinion is generally widespread, it deserves a certain attention. They say that their name is derived from the word *tadj*, a head ornament, and that it was given to their fathers because they were suspected of having removed this symbol of royalty from the head of Mohammed. They are, however, too numerous to be the descendants of Arab warriors who invaded this vast portion of Asia in the first century of the Hegira."

De Khanikoff (pp. 88-89) comments on this by noting that "during the last twenty-five years of the first century after the Hegira the energetic persecution of the descendants of the Prophet in Mesopotamia by Hujaj forced many *Sayyids* from Kufa, Baghdad, Basra, etc. to seek refuge in Transoxiana . . . . These refugees mixed with the Tajiks. . . . We know from Masson (vol. 1, p. 217)," continues de Khanikoff, "that the Tajiks of Bajor call themselves descendants of the heroes of the Keianian epoch." Further (pp. 93-94), according to Mountstuart Elphinstone (chap. xii), Ambassador to

Peshawur in 1809, "the Tajiks are not one single nation . . . they are spread in isolated sections over a wide area of Asia . . . . The sedentary inhabitants of Persia are also called Tajiks to distinguish them from the Tatar conquerors of this country, as well as to avoid confusing them with the nomadic population, who appear to have been of Persian origin. They even occur in Chinese Turkestan . . ." [from which point Elphinstone proceeds to a discussion of the Tajiks of Afghanistan].

De Khanikoff (pp. 103-105) himself describes the Tajiks as "tall with black hair and eyes; the head long as among the Persians, but the frontal bone is larger between the semi-circular temporal lines which gives them more oval faces than those of the western Persians. The nose, mouth, and eyes are well defined, but the former is rarely curved; its form is generally straight, far more prominent than among the Mongol races but not as marked as among the central and western Persians . . . . The hair quantity is similar to that of the Persians and not only is the beard heavy, but often the chest and arms are covered with hair. The Tajik skeleton is much more massive than that of the Persian, which gives the living person a heavier appearance . . . . The Gabrs, almost identical with the Tajiks, have one peculiarity in that aquiline noses are less rare among them . . . . The stature range of 1400-1500 is far commoner among the Hindus, Afghans, and central and western Persians than that of 1700 and 1600 recorded by Wood at Wakhan.

"Of 14,870 Persians from every district who requested passport visas at the Russian Consulate-General at Tabriz in 1857, more than 75 per cent had black eyes and were medium in stature, i.e. 1300-1500. The skull becomes narrower in a more protuberant frontal region; the oval face is longer, eyes larger and well shaped with longer eyelashes. The ear is smaller, as are the mouth and the feet. Actually, as in the time of Herodotus, hair is very abundant among all the peoples of the Iranian race; the hair is black and, in section, usually oval in shape. Albinos are rare in Persia as in Afghanistan. During three expeditions in fifteen years I saw only two or three albinos and Masson, long a resident in Afghanistan, refers to only one woman, shown to him as a curiosity, saying that she must be a *Feringhi* or European. Such is the general character of the changes undergone by the Persian type which I consider as primitive; but these variations occur little by little.

"After the Tajiks and the Gabrs," de Khanikoff (pp. 107-108) continues, "the inhabitants of Khurasan have retained the greatest

number of primitive traits." Smaller in stature than the Tajiks, they are well built and slenderer in body proportions. "At Yezd and Kerman one perceives the influence of the type of the populations of western Persia on the physical characters; the body is slender, eyes almond-shaped, more prominent and aquiline, and the face long and oval in the majority of individuals. To the west of Shiraz and Isfahan the Semitic influence makes itself strongly felt, as always, becoming apparent in the head . . .

"In general the eyes of the Kurds are black and larger than those of the Afghans; they are squarer than among the western Persians, Tajiks, and Puchtus; but, at the same time, their similarity with these latter is striking." He (p. 108) notes, in addition, a similarity between the Baluchis and the Bakhtiaris.

De Khanikoff (p. 110) states that the Nestorians and Chaldeans near Urmia, Salmas, and in the mountains which contain the sources of the Zab River, are "undoubtedly a Semitic people, speaking a dialect of ancient Syriac, modernized by the loss of some grammatical forms and by the admission of a quantity of Persian, Turkish, Arabic, and Kurdish words." De Khanikoff (pp. 111-112) then continues: "The Nestorians and Chaldeans form a single people. This latter name is a modern creation; it has been applied, by Papal order, to that portion of the Nestorian nation converted to catholicism by Jesuit missionaries during the 18th century. The shape of the skull is without question Semitic, especially among the Diz, Jelu, Bosse, Tchoub, and Tiari tribesmen,<sup>1</sup> who are more isolated than the inhabitants of the plains; the Iranian influence is shown by their large eyes, which are well shaped as among the Persians, that is to say the vertical diameter is approximately half the horizontal diameter; but in their separation they resemble the Kurds. Far from being deeply set in the head, as among the majority of Semites, the Nestorian eye is almost level with the frontal plane. The nose is generally straight, fairly prominent but short; the face is oval, but larger than among the western Persians; the neck is long; the ears, hands, and feet are small and delicate. These people are tall in stature, well proportioned, endowed with great muscular force, and tireless walkers. The color of the hair and eyes is usually brown and is less dark than that of the Persians. I have been told that among the mountain peoples blond and red-haired individuals occur. The resemblances between the Nestorians and the Persians have

<sup>1</sup>I suggest that the last three names refer to the Assyrian tribes of Baz, Tksuma, and Tiari. For description of the Assyrians see Ezekiel xxxi: 3 et seq.

not resulted in a brief space of time . . . but took place before the first Mongol invasion."

"To the north of the Kurds and Nestorians (p. 112) live the ancient people called Armenians, who without the least doubt are Iranians . . . but greatly modified by a long contact with Semites and Turks. To establish the Armenian type . . . we must go to the people of Astrakhan, refugees from north of the Caspian since the fourteenth century, epoch of their emigration from Ani, in the reign of Abusaid-Khan, last Halakuid king of Persia . . . . They are of tall stature, well proportioned, but inclined to obesity. The head form is decidedly Iranian and dolichocephalic. The eyes are large and black but much deeper set than among the Persians. The forehead is low; the nose, almost without exception, is very prominent, very aquiline, and very long. The oval face of the Armenians is still longer than the Persian. The neck is long and lean, but the mouth, hands, ears, and feet are generally large and are not as small as among the Persians."

In conclusion de Khanikoff contributes some comments and observations on the peoples of Mazanderan, the Tats, the Afghans, and the Ossetes.

The Mazanderanis (pp. 116-117) belong to the "true Persian type, being medium in stature, extremely hirsute, the hair jet black in color, the beard very heavy and often growing on the cheeks to just below the eyes, which are big and black with long lashes and thick eyebrows . . . . The majority of the noses are aquiline, sharply pointed and narrow rooted; the mouth is small, the teeth very regular and white. Not as strong as the Persians in general, the Mazanderanis are good walkers."

The Tats, de Khanikoff (p. 114) says, were probably brought from Azerbaijan under the Sasanians and "they were influenced more than any other members of the Iranian family by Turkish groups, among whom they had lived for about fifteen centuries. They are medium in stature, have round and chubby faces, eyes black and much smaller than the Persians'; the neck is short and thick, the body stocky and inclined to obesity, the hands and feet relatively small; the complexion is swarthy, the hair black and rather heavy, though less so than among the Persians and Tajiks."

De Khanikoff (pp. 55-56) states that, while Afghanistan has been subjected to Indian and Persian influences, the Afghans should be placed between the Turkomans and the Mongols since they are not only brachycephalic as the latter but also prognathous.

Finally, de Khanikoff (pp. 113–114) concludes: “Still farther to the north . . . toward the northwest limit of the expansion of the Iranian peoples live the Ossetes! . . . Situated for centuries in direct contact with the Lezghians and endowed with almost identical characters, the Ossetes have shown radical transformations in their features . . . . The Ossetes established on the plain to the north of the Caucasus appear to retake relatively quickly the Iranian type and it is very noticeable, if this is confirmed later, that in the second generation aquiline noses become rarer among them than among the Ossetes, and that the straight nose of the Tajik reappears among them.”

“Accustomed as they are during their childhood,” remarks de Khanikoff (p. 113), “to brave the most terrible hardships of the high, Alpine regions, they are able to climb with absolute safety the steepest passes . . . . Without the least doubt the environment which surrounds them has had a considerable influence which has subjugated the primitive Iranian tribe.”

“Nothing in the Ossetes’ external appearance,” de Khanikoff (p. 113) points out, “indicates their relationship with the Iranians of the south. They are strong, thickset, heavily built, often blond or red-headed; eyes small, frequently blue; aquiline and pointed nose; ears, hands, and feet of considerable dimensions; nevertheless, they call themselves *Iron* and their speech bears evident traces of an Iranian origin. Generally medium in height, it is not rare to encounter among them individuals of great stature with a Herculean strength; temperate for the most part, they can eat and drink to excess with impunity in such quantities as would be fatal to any other people. The men are rarely handsome but their wives are often almost ideal in beauty. They undergo easily all kinds of privations.”

In the Appendix (pp. 127–140) de Khanikoff contributes valuable comparative data, which I have summarized below. Series of skulls were examined in the following collections:

Abbreviation

- |      |   |
|------|---|
| C.S. | Hunter Collection, Royal College of Surgeons of England   |
| B.M. | British Museum  |
| N.   | Netley Hospital, Southampton  |
| M.N. | Natural History Museum, Paris   |
| Bl.  | Blumenbach Collection, Göttingen  |
| P.   | Museum of the Academy of Sciences, St. Petersburg (now Institut Antropologii i Etnografii [IAE], Leningrad) |

<sup>1</sup> During September, 1934, I recorded anthropometric data on 107 male and 50 female North Ossetes in Ordzhonikidze (formerly Vladikavkaz), Ciscaucasia, U.S.S.R. These results will appear in a forthcoming Field Museum publication.

De Khanikoff took the following measurements which are hereafter listed by number:

- (1) Head length.
- (2) Head breadth.
- (3) Height from foramen magnum to vertex.
- (4) Maximum horizontal circumference.
- (5) Longitudinal median arc, measured from the nasal suture to the exterior border of the foramen magnum.
- (6) Vertical arc, measured from the middle of one auditory meatus to the other, passing over the middle of parietals.
- (7) The shortest distance in an arc between the semi-circular temporal lines.
- (8) Height of the frontal arc.

These measurements were applied to thirty-sevenskulls. Von Baer made similar observations on five Gabr skulls in St. Petersburg (now Leningrad). De Khanikoff (p. 131) included the rich collections of Semite skulls in the Natural History Museum, Paris, represented by Arabs from North Africa as well as Jews of the Middle Ages, rare in European collections.

	SEMITES							
	1	2	3	4	5	6	7	8
Means of 6 at M.N.....	175	137	126	500	359	323	104	127
Assyrian in B.M.....	186	140	137	520	372	322	101	125
Arab C.S. No. 5562.....	183	141	137	508	367	318	110	120

According to de Khanikoff (p. 132) the Assyrian skull is the one found by Layard in the palace of Ashurbanipal and measured incorrectly by Gliddon,<sup>1</sup> who had only a drawing from which to work.

<i>Provenance</i>	TURANIANS							
	1	2	3	4	5	6	7	8
Turk, Asiatic, C.S. No. 5563....	178	150	140	524	367	341	118	138
Turk from Ochakov, Bl.....	181	141	143	508	364	309.5	102	129
Turk, Bl.....	163	143.5	155	482	350	344	101	129
Turk deformed (left side+) ...	175	140	153	500	368	352	105	129
Turk from Athens cemetery, Bl.	165	138	143	483	341	326.5	116	118
Kirghiz-Cossack, Bl.....	170	137	145	506	351	322	99	124
Kirghiz-Cossack, Bl.....	188	152	145	529	357	329	100	127

“Before giving the measurements of Iranian skulls, I found that no European collection contains an authentic Persian skull until I referred to the five Gabr skulls whose measurements I am going to cite.” (p. 132; see table below.)

The following tables are quoted from de Khanikoff (pp. 133-139).

	GABRS							
	<i>(Measured by von Baer in 1863 at St. Petersburg)</i>							
	1	2	3	4	5	6	7	8
Yezd.....	189	129	144	524	382	265	104	137
Yezd.....	177	135.5	147	514	375	345	101	132
Yezd.....	193	129	140	530	388	345	96.5	137
Kerman.....	184	129	145.5	520	378	350	97.5	116
Kerman.....	185	126	139	514	377	342	100	115

<sup>1</sup> See p. 50, footnote.



In a letter dated October 1, 1863, von Baer wrote: "I took measurement No. 2 a little below the auditory meatus. It is not always the greatest distance. In the first skull from Kerman, this distance is considerably larger behind this opening; it is at least 133 mm. . . . The face is more prominent among the Kerman skulls so that they could be called prognathous. Of the Yezd skulls Nos. 1 and 3 are similar but No. 2 is larger, higher, and shorter."

HINDUS  
(From India)

	1	2	3	4	5	6	7	8
C. S. No. 5541.....	170	129	139	474	352	312	100	120
C. S. No. 5542.....	165	127	140	466	344	300	100	120
C. S. No. 5543 (eastern).....	180	147	144	521	382	343	99	137
C. S. No. 5544 (girl).....	163	140	136	479	345	320	108	118
N. No. 223.....	180	125	139	490	361	289	103	123
Chilliuwalli, N.....	187	145	140	534	395	352	103	135
N. No. 234 (eastern).....	167	125	145	470	322	340	103	120
N. No. 249 (pariah).....	179	132	143	500	362	310	109	127

AFGHANS

	1	2	3	4	5	6	7	8
C. S. No. 5540.....	165	134	143	483	337	316	108	120
Khilji, N. No. 223.....	177	137	142	500	370	308	110	127
Khilji, N. No. 224.....	175	135	137	549	351	308	118	120
Khilji, N. No. 225.....	178	138	140	555	385	320	110	129
Mullah, N. No. 235.....	165	140	129	480	339	316	100	122
N. No. 229.....	182	140	145	510	370	329	122	122

VARIOUS GROUPS

	1	2	3	4	5	6	7	8
Baluchi, N. No. 218.....	184	130	132(?)	510	368	320	112	124
Armenian (aged 67), Bl.....	176	127	138	507	350	297	100	118
Behar Mohammedan, C.S. No. 5559.....	187	125	133	510	367	305	102	126
Delhi Mohammedan, C.S. No. 5560.....	169	130	136	473	349	317	110	120

MEANS OF RACIAL GROUPS

Semites.....	181.3	139.3	133.3	509.3	366.0	321.0	105.0	124.0
Turanians.....	174.3	143.1	146.3	516.0	356.9	332.0	105.9	127.7
Gabrs.....	185.6	129.7	143.1	520.4	380.0	349.4	99.8	127.4
Hindus*.....	173.9	133.8	140.7	491.7	357.9	333.2	103.7	125.0
Afghans.....	173.7	137.3	139.3	512.8	358.7	316.7	111.3	123.3

\* This series includes one female skull.

Below, de Khanikoff quotes a table of measurements taken by Duhousset, the means of which have been given previously (p. 49).

People	Provenance	Age	G.O.L.	G.B.	H.H.	C.I.
Hindus.....	Multan.....	22	195	149	108	76.4
	Delhi.....	40	195	140	96	71.8
	Multan.....	20	195	150	102	76.9
	Lucknow.....	40	203	150	102	73.9
	Lahore.....	35	210	144	100	68.6
	Peshawar.....	28	197	153	94	77.7
	Hyderabad.....	20	179	147	106	82.1
	Hyderabad.....	40	195	136	97	69.7

People	Provenance	Age	G.O.L.	G.B.	H.H.	C.I.
Afghans	Kabul	35	185	141	98	76.2
	Kandahar	25	191	150	95	78.5
	Kandahar	20	182	137	107	75.3
	Kandahar	26	190	148	106	77.9
	Kandahar	20	185	137	105	74.1
	Kandahar	35	193	147	104	76.2
Gabrs	Kabul	25	195	152	105	77.9
	Yezd	22	200	136	103	68.0
	Yezd	35	198	138	100	69.7
Persians (from interior)	Yezd	30	195	142	110	72.8
	Amul (Mazanderan)	40	176	152	102	86.4
	Savad Kuh	25	175	155	110	86.6
	Resht	50	197	152	110	77.1
	Asterabad	45	183	151	107	82.5
Kurds	Khurramabad	30	182	160	109	87.9
	Urmia	70	185	165	105	89.2
	Saujbulagh	31	193	156	98	80.8
	Kurdistan (Iran)	20	171	160	103	93.6
	Saujbulagh	40	175	157	103	89.7
Bakhtiari	Sultanabad	20	188	150	94	79.8
	Shustar	..	170	150	110	88.2
	Bakhtiari	..	179	165	100	92.2
Tehranis	Zerdkuh [Zardeh Kuh?]	30	180	165	100	91.7
	Luristan	..	193	163	110	84.5
	Tehran	..	190	154	109	81.1
Turks	Tehran	..	200	164	128	82.0
	Guklan	56	187	155	101	82.9
	Guklan	30	200	169	113	84.5
	Turkoman (Khiva)	..	192	152	110	79.2
	Khoi	50	197	142	116	72.1
Means	Khoi	25	187	152	116	81.3
	Marand	60	194	145	90	74.7

In the above table the cephalic indices have been calculated by the writer.

Age	Stature	OSSETES (Living)							
		1	2	3	4	5	6	8	
24	....	188	154	146	576	390	379	129.5	
39	1634	178	162	141	560	327.5	371	125	
35	1556	201	155	135	588	354	374	121	
24	....	185	159	154	570	362	394	129	
Means		188	157.5	144	573.5	358.4	379.5	126.1	

"In general the Ossete has a long head with a flat occiput; the forehead is elevated, and the occipital region is large and flat so that when viewed in profile, the contours of these heads form elongated parallelograms." (De Khanikoff, p. 139.)

1875.—Aberigh-Mackay (p. 16, footnote) describes the Turkomans as "a nation of Turk race, which, in the 11th and 12th centuries, overran Bukharia, northern Asia, and, on the westward of the Caspian Sea, Armenia, S. Georgia, Shirvan, and Daghistan. They lead a nomade life and compose the principal part of the population of these countries, where they are called Tarekameh, Turkmans, and Kizilbashi. To explain the name of Turcomans, the Persians

relate that the Turk tribes, at the time of their invasion of Khorasan, had married the women of the country, and that to their descendants was given the name Turcomans, which means 'like the Turks.' This specious etymology appears very paradoxical, since the hordes of this people who speak Turkish and have remained beyond the Jaihun also call themselves Turcomans. I think the name is rather derived from Turk and Coman, and that it was given to that part of the Coman nation which remained on the east of the Caspian Sea, under the domination of the Turks of the Altai; while another independent part came and established itself in the vast plains to the westward of that sea, and to the north of the Sea of Azof, and afterwards pushed forward into Hungary. The Uzbeks (so called from one of their Khans) were a mass of tribes of Turki Moghal, and probably of Fennic origin, moulded into one people, but with a great preponderance of Turks. The Uzbeks who now possess Transoxiana, the Turcomans, both on the Oxus and in Asia Minor, the wandering tribes of Northern Persia and the Ottomans or Turks of Constantinople are all *Turks*, as was the greater part of the army of Tamerlane. . . . Between the Turcomans and the Uzbeks I see only a difference of tribe and nothing more; the types are similar, the face is flat, large and pointed at the chin; the beard is sandy, or light, thin, and irregular; the head often too small for a body exhibiting considerable development of muscles; the face is pierced with two small holes, the form of which recalls the eyes of a Chinese. There is, however, a striking difference. The Turcomans are nomads, and the Uzbeks are villagers."

1880.—George Rawlinson (vol. 2, p. 307) describes the general physical characters of the ancient Aryan race from the sculptures of the Achaemenian kings in the following words: "a form tall, graceful, and stately; a physiognomy handsome and pleasing, often somewhat resembling the Greek (Dr. Prichard, *Nat. Hist. of Man*, p. 173, observes of the type in question: 'the outline of the countenance is here *not strictly* Grecian, for it is peculiar; but it is noble and dignified; and if the expression is not full of life and genius, it is intellectual and indicative of reflection. The shape of the head is entirely Indo-European, and has nothing that recalls the Tartar or Mongolian.');

the forehead high and straight, the nose nearly in the same line, long and well formed, sometimes markedly aquiline, the upper lip short, commonly shaded by a moustache, the chin rounded and generally covered with a curly beard. The hair evidently grew in great plenty and the race was proud of it . . . of the

Median women we have no representations upon the sculptures; but we are informed by Xenophon that they were remarkable for their stature and their beauty (*Anab.* iii. 2, § 25). In accord with his statement in this place, Xenophon makes the daughter of Cyaxares, whom he marries to Cyrus the Great, an extraordinary beauty (*Cyrop.* viii. 5, § 28). The same qualities were observable in the women of Persia, as we learn from Plutarch (*Vit. Alexand.* p. 676, D), Ammianus Marcellinus (xxiv, 14), and others including Quintus Curtius (iii, 11) and Arrian (*Exp. Alex.* ix, 19 etc.)."

Rawlinson observes that "probably the wild Kurd or Lur of the present day more nearly corresponds in physique to the ancient Mede than do the softer inhabitants of the great plateau."

1880.—Some extracts from Surgeon-Major H. W. Bellew's account of the races of Afghanistan which apply to the inhabitants of Iran are herewith included.

Bellew (p. 13) writes that "the principal nationalities, which together compose the inhabitants of Afghanistan, are the Afghan, the Pathan, the Ghilzai, the Tajik, and the Hazarah. There are besides the lesser nationalities of the Char Aymac on the western frontiers about Herat, the Uzbek on the southern bank of the Oxus, and the Kafir on the southern slopes of Hindu Kush."

He continues (pp. 15-16) that "the traditions of this people [the Afghans] refer them to Syria as the country of their residence at the time they were carried away into captivity by Bukhtunassar (Nebuchadnezzar), and planted as colonists in different parts of Persia and Media. From these positions they, at some subsequent period, emigrated eastward into the mountainous country of Ghor, where they were called by the neighboring peoples 'Bani Afghan' and 'Bani Israil,' or children of Afghan and children of Israel. In corroboration of this we have the testimony of the prophet Esdras to the effect that the ten tribes of Israel, who were carried into captivity, subsequently escaped and found refuge in the country of Arsareth, which is supposed to be identical with the Hazarah country of the present day, and of which Ghor forms a part. It is also stated in the *Tabacati Nasiri*—a historical work which contains, among other information, a detailed account of the conquest of this country by Changhiz Khan—that in the time of the native Shansabi dynasty there was a people called Bani Israil living in that country, and that some of them were extensively engaged in trade with the countries around."

Bellew, discussing some of the tribal groups which have had physical and cultural contacts with Iran, contributes the following notes on the Hazara, Tajiks, Turkomans, Khilji, and the peoples of Seistan:

“This people [the Hazara],” writes Bellew (pp. 113–114), “differ entirely from all the other races of Afghanistan, and occupy a very extensive area of country, extending from the borders of Kabul and Ghazni to those of Herat in one direction, and from the vicinity of Kandahar to that of Balkh in the other. They hold, in fact, all the country which formed the Paropamisus of the ancients, and in their possession of it are isolated from all the other peoples of Afghanistan, with whom they are in contact only where their borders march together. . . . Regarding the ethnic affiliation of the Hazarah people there can be no doubt, their features and forms declaring them distinctly to be Tatar of the Mongol division. But little or nothing appears to be known for certain regarding their history and settlement in these parts, and they seem to have no traditions on the subject themselves. The name too by which they are now known affords no clue, as it is not a native one, but of foreign derivation. The general idea regarding the origin of the word Hazarah is that it is derived from the Persian word *hazar*, ‘a thousand,’ and was supplied to these people by their neighbours, in consequence of their having been planted here as military colonists in detachments of a thousand fighting men each by Changhiz Khan in the first quarter of the thirteenth century. It is said that Changhiz Khan left ten such detachments here, nine of them in the Hazarah of Kabul, and the tenth in the Hazarah of Pakli to the east of the Indus.”

“The Tajik,” Bellew (pp. 109–110) states, “or, as he is frequently called, the Parsiwan, constitute a numerous and widely spread portion of the inhabitants of Afghanistan, from whom they differ in language, internal government, and manners and customs. They are the representatives of the ancient Persian inhabitants of the country, as the Afghans are of its ancient Indian inhabitants. It would appear that as the Afghans (whose true home and seat are in the Kandahar and Arghandab valleys) mixed and intermarried with the Indian people whom they conquered, and gave their name to the mixed race, so the Arabs, who did the same with the Persian people whom they conquered, left their name as the national designation of their mixed posterity—that is, the name by which they were called by the Persians. . . . The term Tajik, it is said, is

derived from the ancient Persian name for the Arab, the ancient Persian writers distinguishing their hereditary enemies on the north and south respectively by the terms Turk and Taz or Taj. And hence it is that the term Taz applied to the Arab only in Persia; and everything connected with him, or proceeding from him, was called by the Persians Tazi or Tazik, which are the same as Taji or Tajik. In course of time, it seems these terms became restricted to designate things of Arab origin in Persia in contradistinction to the pure and native article. Thus an Arab settling in the country, and not intermarrying with its people, retained his proper national title through successive generations. But the Arab intermarrying with the people of the country lost his proper nationality, and, in the succeeding generations, was called Tajik by the Persians. An imported Arab horse or dog, etc., was not called Tazi but Arabi. Their offspring, however, from a Persian mare or bitch received the name of Tazi, and were no longer called Arabi. By some, however, the term is said to signify 'Persian,' and there is also reason to believe that the Taochi of the Chinese is the same word as the modern Tajik. If so, and this latter appears to be the correct version, the former explanation must be rejected, and Tajik be held to be merely the ancient name for the Persian cultivator or peasant. The word, in fact, being a Persian one, is restricted to the territories which formerly owned the Persian sovereignty. Hence its absence from India, and its presence in Turkistan. The Tajik extend all over the plain country of Afghanistan from Herat to the Khybar and from Kandahar to the Oxus, and even into Kashgar. The name is applied nowadays in a very loose way, and is made to include all the Persian-speaking people of the country who are not either Hazarah, Afghan, or Sayyid. Thus the Indian races on the southern slopes of Hindu Kush, who have been converted to Muhammadanism and speak Persian (as well as to some extent their native dialects), are commonly called Tâjik. The term is also applied to the representatives of the ancient Persian inhabitants of Badakhshan and its inaccessible mountain glens."

Bellew (pp. 17-18) cannot decide at what period the Afghans of Ghor moved forward and settled in the Kandahar country, which is now their home. "It appears, however, from the writings of the early Muhammadan historians, that in the first century of their era—the seventh-eighth of ours—the province of Sistan was occupied by an Indian people. At that time the territorial extent of Sistan was very much wider than the restricted little province of the present

day. At that time Sistan, or Sajistan as it is written in native books, comprised all the country from the head waters of the Tarnak and Arghasan rivers and the Toba range of hills on the east, to the Nih Bandan range of hills and Dashti Naummed—Desert of Despair—on the west; from the valleys of the Helmand and Arghandab rivers on the north, to the Khoja Amran range and the Balochistan desert on the south. It comprised, in fact, the Drangiana and Arachosia of the Greek writers. The former was afterwards called Sijistan after the Saka Scythians, who occupied it about the first century of our era, and the latter was called Gandhar after the Indian Gandhara, who, it seems, overpowered a kindred people in prior possession some time after the Greek conquest.

“Who the Indian people occupying this country at the time of this Arab invasion were will be mentioned presently, but it seems clear they were not the only inhabitants thereof, but shared it with the native Persian and other immigrant tribes of Scythic origin. For the province itself derived its name of Sakistan, Sagistan, Sajistan, Sistan from the Saka, who were probably the same people as the Saka Hamuvarga mentioned in the tables of Darius (see Rawlinson’s Herodotus)—Saka dwellers on the Hamu, which has from the earliest times been the name of the lower course of the Oxus river . . . .

“It is probable that, in the course of the repeated military expeditions carried by the Arabs from the side of Persia against Sind, a variety of new races were brought into the country forming the southern part of the present Afghanistan, and that extensive changes occurred in the previously existing local distribution of the inhabitants.”

Bellew (p. 100) maintains that “the word Khilich means a ‘sword,’ and Khilichi, a ‘swordsmen,’ just as, according to the Turk custom of naming their tribes after some individual peculiarity or characteristic—Cazzac or Cossack means a robber; Kirghiz or Cirghiz, a wanderer; Uzbak, an independent; Cara Calpac, a black hat; Kizilbash, red head, etc. The Khilichi, when they entered Ghor, probably consisted only of the true Turk clans of Hotak, Tokhi, Andar, Taraki, Tolar, and Polar (the last two of which are lost in the Afghan reckoning), and made good their settlement there by force of arms amongst a mixed population of Jews, Israelites, Afghans, Indians, and Persians.”

Bellew (p. 97) notes that the “Ghiljai (plural Ghilji) as he calls himself—Ghilzai, as strangers call him—is a numerous and wide-

spread people, extending from Jalalabad in the east to Kalati Ghilji in the west, and occupying the adjoining slopes and spurs of Sufed Koh, Suleman Koh, and Gul Koh (west of Ghazni)."

"At the beginning of the last century," states Bellew (p. 28), "Afghanistan, at that time known as Khurasan (a Persian word signifying the East or the Levant of the Persians) was divided pretty equally between the Mughal and the Persian Empires—that is to say, Kabul and Ghazni pertained to the former, and Herat and Kandahar to the latter."

1887.—During an eighteen-month sojourn in Persia Houssay (pp. 101–148) obtained important anthropometric data. Passing two winters at Susa and the intervening summer along the road from Susa to Tehran via Shiraz, he had an opportunity to observe the peoples and divided them into the following groups:

- (1) Aryans: Farsis, Lurs.
- (2) Mongols: Turkomans, Azerbaijanis.
- (3) Mongolo-Aryans: Armenians, Ajemis, Tajiks, Ilats.
- (4) Mongolo-Semites: Bakhtiaris.
- (5) Semites: Arabs, Seides, Jews.
- (6) Aryo-Negroids: modern Susians.

The Gabrs (Zoroastrians), a religious group, he adds, are a racial mixture, composed mainly of Tajiks and Ajemis (p. 103).

ARYANS  
(Measurements of five adult male Lurs)

	1	2	3	4	5	Mean
Stature.....	1750	1700	1670	1570	1710	1680
Head length.....	190	190	197	200	188	193
Head breadth.....	140	150	147	140	135	142
Cephalic index.....	73.7	78.9	74.6	70.0	71.8	73.6
Nasal height.....	55	55	63	54	60	57
Nasal breadth.....	40	36	35	40	40	38
Nasal index.....	72.7	65.5	55.6	74.1	66.7	66.7

In the above table (Houssay, p. 111) the cephalic and nasal indices have been calculated by the writer.

COMPARATIVE DATA (p. 110)

People	C.I.	Observer
Lurs (5).....	73.57	Houssay
Afghans.....	76.19	Duhousset
Hindus.....	74.48	Duhousset
Hindus.....	72.28	Quatrefages
Afghans.....	73.15	Quatrefages
Persians.....	84.61	Ujfalvy
Tajiks.....	82.31	Ujfalvy
Mongols.....	85.4	
Tchudis.....	84.0	
Kalmucks.....	83.8	





FIG. 5. Ethnographic map of Persia (after Houssay).

## MONGOLS

In Mazanderan and Gilan, Houssay continues, dwell the pure Turkoman tribes. From Qum to a line between Isfahan and Abadeh is the territory of Iraq Ajemi, inhabited by a mixed population of Turkomans and Medo-Persian Aryans, who call themselves Ajemis.

People	C.I.	Observer
Turkomans . . . . .	82.00	De Khanikoff
Mazanderanis (4) . . . . .	86.31	Duhousset
Guklans (2) . . . . .	81.45	Duhousset

## MONGOLO-ARYANS

1. *Ajemis*.—This group includes the greater portion of the population of Iran. Since it extends from Tehran to Deh Bid and from Luristan to Khurasan, the peoples of Tehran, Isfahan, Qum, and Qumisheh (now Shahreza) belong to this subdivision.

People	C.I.	Observer
Ajemis . . . . .	84.61	Duhousset
Ajemis (2 Tehran) . . . . .	81.54	Duhousset

At Qum (p. 115) a number of the inhabitants have a vertical flattening of the frontal bone. The physical characteristics are delicate. The hair is thick and glossy, similar to that of the Turanians.<sup>1</sup> They cut their hair and generally shave the face with the exception of the mustache. The nose is neither large and long as among the Lurs, nor aquiline as among the Farsis, nor flat and short as in Mongols, but is small and delicate.

## BURUJIRD MALES (p. 117)

No.	Stature	G.O.L.	G.B.	C.I.	N.H.	N.B.	N.I.
1	156	180	140	77.8	57	37	64.9
2	167	190	140	73.7	59	39	66.1

In the above table the cephalic and nasal indices have been calculated by the writer.

2. *Tajiks*.—They live on the eastern frontier of Iran in Khurasan and between Afghanistan and Fars. In general physique they resemble the Ajemis.

3. *Ilats*.—According to Polak, "Persien und seine Bewohner," the word *Ilat* was applied to all nomads. Houssay (p. 119) disagrees on this point of nomenclature by adding that a Lur, a Bakhtiari, or an Arab would never use this term. In summer the *Ilats* move northward toward Isfahan and during the winter they live between southern Fars and the Persian Gulf. Some are Turks and

<sup>1</sup> Houssay (p. 119) quotes Ujfalvy as giving a cephalic index of 82.31 for the Ajemis at Issikul (Issiq K l) or Aphrosiab (in northeastern part of Kirgiz, A. S. S. R.), and states that the Ajemis to the north are more Turanian, while those in the south are more Aryan.

some are Arabs, and a tribe may consist of a few tents or of several thousand families. He adds that they appear to be of Arab origin but that they are now well intermingled with the Farsis.

4. *Armenians*.—At Julfa, which adjoins Isfahan, Houssay (p. 120) observed some Armenians, the descendants of those brought there in 1605 by Shah Abbas I. He states that in comparison with the Ajemis the head is shorter; the zygomatic arches are more developed; the thorax is strong and thick-set; the nose is short and prominent. The cephalic index, according to Chantre (1883, p. 45), varies from 84 to 86, which makes them as brachycephalic as the pure Turkomans.

#### MONGOLO-SEMITES

The Bakhtiari tribes inhabit the mountainous region between the Lurs and the Farsis. According to Houssay, Duhousset (p. 24), infers that all Bakhtiaris are the result of the fusion of the Turanian Scythians with the Semites of Babel-Assur. Duhousset "characterizes them, above all, besides their brachycephaly, by the shape of the occiput, which falls vertically into the nuchal projection. 'I have ascertained this general form of the skull of the Bakhtiaris from those individuals who constituted an entire regiment in camp at Sultaniyeh where 20,000 men were assembled under my commanding officer in 1859.'"

Houssay (p. 121) comments: "This flattening is without doubt due to an artificial deformation produced during childhood, although I have not been able to see this for myself. Whatever it may be, the author [Duhousset] considers it as typical and says, 'None of the great racial stocks of Central Asia offers a similar conformation.' It suffices, however, to compare the drawings which he gives of the Bakhtiaris, Turkomans, and Azerbaijanis in order to recognize that the last possess almost as much as the first. This would then be instead a Mongoloid character; elsewhere, in Central Asia and Syria, it is caused by artificial deformation."

Houssay (p. 122) suggests that the Bakhtiaris are not a single group and quotes Layard, who agrees that the different tribes did not have the same origin. According to Layard the Bindunis are aborigines mixed with Syrians. The Dinarunis came from Isfahan to Malamir about 1830. The Gunduzlus are Turk Afshars and the Janekis who live between Malamir and Ram Hormuz are also Turks.

"This region," Houssay (pp. 122-126) continues, "probably contains other elements . . . . The mountain chain, which has been the enforced retreat of the scattered tribes, has been the theatre of

numerous Aryan, Turanian, and Semitic fusions. The Turanian element appears in certain places to be preponderant, in others it disappears.

"We spent twelve days with the Bakhtiariis, but the lack of confidence which we inspired, the bad reception which was given us, and the quarrels which shattered each day did not allow me to take as many measurements as I should have liked. At Meidowid a tribe of Janekis showed themselves less savage, so I profited immediately by this and obtained the following measurements:"

No.	Stature	G.O.L.	G.B.	C.I.	N.H.	N.B.	N.I.
1	170	185	160	86.5	65	42	64.6
2	175	172	145	84.3	70	43	61.4
3	170	177	142	80.2	60	32	53.3

In this table the cephalic and nasal indices have been calculated by the writer.

These figures, Houssay (p. 122) points out, apply only to the Janekis and not to the entire Bakhtiari group. "The men of this tribe, whom Layard said were Turk, present on the contrary at first sight the physical characteristics of Lurs; the same high stature; general muscular strength; beard and hair silky and curly, very long and very black; the nose long and straight; the skin is remarkably light in color, particularly in view of the fact that they inhabit a relatively hot part of the mountains.

"The anthropometric figures, however, indicate a strong Turkoman element. The average cephalic index is 83.7. Although very much lower than that usually given to the Bakhtiariis, it is relatively high. The jugofrontal index of 74.5 is also high.

"This tribe differs considerably then from other Bakhtiariis by a lesser degree of brachycephaly and by a greater number of Aryan characters.

"It is extremely probable that a Turkish tribe found a country occupied by Lurs and intermingled with them. . . . The first subject measured was the Sheikh of the encampment. He showed more than the others a western origin, as his cephalic index was 86.48. Among the men of the tribe . . . I noticed many auburn haired people, as there are in Fars. Others had black hair and beards and blue eyes, a character which I had already noticed among the Lurs.

"Another fact confirms the hypothesis of an Aryan occupation of the country. One day's march from Meidowid . . . at the point where this river flows out of the mountain gorges into the Ram Hormuz plain, we found a small tribe which could not possibly

have had any relationship with the Farsis or the Lurs. The individuals in this encampment did not even possess tents . . . . They were very handsome, tall, slender, very white-skinned, auburn or blond of hair. Nothing in their general appearance indicated a Turkoman admixture.

"They no longer speak Persian and we were unable to understand a word of their language. By careful attention, however, one could distinguish in their discussion Persian forms, particularly in the verbal roots. Was this Pahlevi? Perhaps this small and miserable tribe, existing in a remote corner and not taking part in the general movement, had retained with their racial purity the ancient form of the language? This was indeed possible.

"These few observations do not add much to our knowledge of the Bakhtiaris in general, with the exception that they show that the question is more complicated than is generally supposed. It will be necessary to visit encampment after encampment and explore one by one the more solitary valleys of the mountains. One should be able to find pure tribes of Turkomans, perhaps Semites, Aryans, Susians, and others formed of a mixture of elements in diverse proportions. Such an expedition would be difficult and perilous, but should provide for the anthropologist and historian results of high interest."

#### ARYO-NEGROIDS

*Ancient Susians.*—According to Quatrefages and Hamy (*Crania ethnica*, pp. 152, 166, quoted from Houssay, p. 126) "the Negroid type which occurs at Küyünjik represents the primitive element of Susiana, whose inhabitants are probably a mixture of Kuchite and Negro. The nose is relatively flat with dilated nares, the malars prominent, the lips thick, conforming to a well-known type. There may be a relationship with the Hubbashee (Habbashi) of Makran and Laristan recorded by Hamilton Smith. Is this the same people who introduced the prototype of the Negro Buddhas of India?"

*Modern Susians.*—Houssay (p. 127) continues that the modern Susians are distinct from all other Persian types. In Dizful Houssay (pp. 129–132) measured eleven men (Nos. 1–11), a Bakhtiari mulatto whose father was from Shushtar and whose mother was born on the east coast of Africa (A), and two children, a girl (B) and a boy (C).

In the following table the cephalic and nasal indices have been calculated by the writer. The nasal height of No. 7, apparently incorrect, affects the mean. The mean cephalic index of 78.35, calculated by Houssay, was derived from the means of the two measurements.

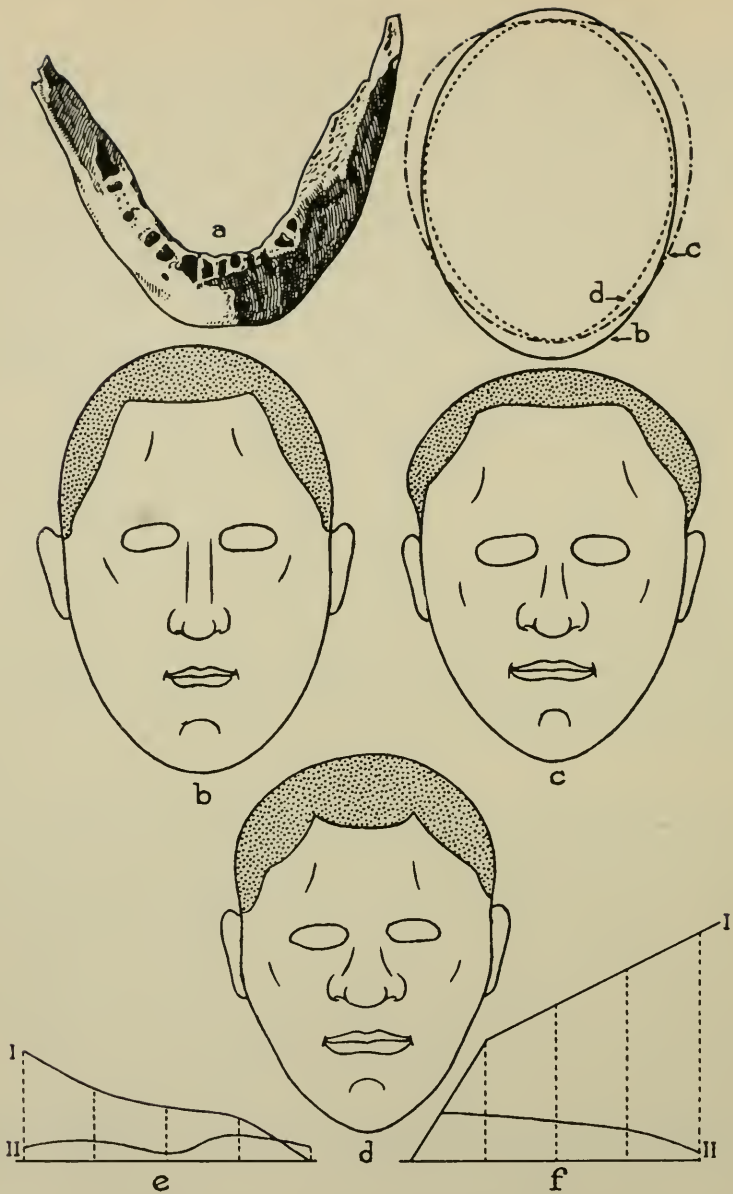


FIG. 6. Physical characters of Lur, Bakhtiari, and Susian. *a*, Mandible of Susian Negrito; *b*, Lur; *c*, Bakhtiari; *d*, Susian; *e*, Susian Persians: I, stature, II, cephalic index; *f*, Susian Negritos: I, stature, II, cephalic index. The base line in both diagrams represents 140 cm. for stature or 76.0 for cephalic index. (After Houssay, Plate IV.)

No.	Stature	G.O.L.	G.B.	C.I.	N.H.	N.B.	N.I.
1	1710	180	160	88.9	50	40	80.0
2	1670	170	130	76.5	56	40	71.4
3	1740	180	130	72.2	60	40	66.6
4	1630	182	136	74.7	55	36	65.5
5	1650	185	132	71.4	50	40	80.0
6	1720	186	150	80.6	50	39	78.0
7	1570	178	145	82.6	26	37	142.3
8	1400	178	149	83.7	41	41	100.0
9	1620	182	147	80.8	60	35	58.3
10	1570	184	135	73.4	48	35	72.9
11	1680	196	145	74.0	62	37	59.7
<i>Means</i>	1633	182	143	78.6	50	40	80.0
A	1580	205	160	78.0	47	43	91.5
B	1170	170	130	76.5	40	35	87.5
C	1390	180	125	69.4	45	35	77.8

To the statistical data Houssay (page 133) adds these physical characteristics: forehead narrow and low; eyes large and gentle and often afflicted with disease; nose short, large and fleshy. To visualize the differences in nasal form and index the following comparisons can be made:

People	N.L.	N.B.	N.I.
Susians . . . . .	50	40	80.0
Bakhtiaris (Janekis) . . . . .	65	39	60.0
Ajemis . . . . .	57	38	66.7
Lurs . . . . .	57	38	66.7

In the above table the nasal indices have been calculated by the writer.

The Susians have the shortest and broadest noses in Iran. The children show marked Negroid characters.

Finally Houssay (pp. 136-137) summarizes the evidence for the theory that Negrito populations once occupied Susiana. "The first thought must be toward the Persian Aryans, who in the Achæmænid period, dominated and inhabited Susiana; then toward the Mongols, Parthians, or Bakhtiaris of the neighboring mountains. The Negritos are small Negro brachycephals whose cephalic index is . . . about 80. The Persians had the cephalic index of other Aryans: Hindus, Afghans, and Lurs, which was 73. As for the Parthians, they belong to the Ural-Altaiic populations whose cephalic index varies from 80 to 84 . . . . The mean of these three indices, 80, 73, and 82, is 78.33, which is almost identical with the peoples of Susiana, namely 78.35 . . . .

"In the table [top of page] Nos. 4, 7, 8, 9, and 10 have a mean stature of 155.8; the skull is smaller and the cephalic index 78.76 approaches that of the Negritos, although the head may be lengthened by Aryan influence. Among the taller individuals in

the group are Nos. 1 and 6, who present Turanian characters. Their stature is 171.5 and the cephalic index 84.63.

"As for the others (Nos. 2, 3, 5, 11) their mean stature is 168.5 and their cephalic index 73.22, in fact dolichocephals who perpetuate the characters of the Persian element of the population."

Thus the conclusions from a study of stature can be added to the preceding deductions. "There is in Susiana a clearly defined race formed by a mixture of Turanians, Persians, and Negritos. The physical characters of these three peoples have been blended to form an average type," out of which may appear one of these three distinctive traits.

When stature and cephalic indices are arranged in the following table, Houssay (pp. 137-138) remarks that they show no direct correspondence:

Stature.....	1400	1570	1570*	1620	1630
C. I.....	83.70	81.46	73.37	80.76	74.72
Stature.....	1650	1670	1680	1710	1720
C. I.....	71.35	76.47	73.97	88.88	80.64

\*The cephalic index of this individual has been changed to 73.37 from 73.26 since Houssay's measurements (p. 130) show the latter to be incorrect.

This, he explains, results because the Susians are a mixture of three different elements.

By selecting the individuals whose average cephalic index is approximately 80 and arranging them by stature Houssay (p. 138) makes up a group of Susian-Negritos.

Stature.....	1400	1570	1620	1670	1720
C. I.....	83.70	81.46	80.76	76.47	80.64

"This time there is a positive concordance between the two criteria," states Houssay.<sup>1</sup>

The Persian section of the Susiana population, he continues, has a cephalic index of about 73. These individuals can also be arranged by stature and cephalic index as follows:

Stature.....	1570	1630	1650	1680	1740
C. I.....	73.37	74.72	71.35	73.97	72.22

Thus among eleven individuals five have Persian characteristics and five Negrito, while the Turanian influence is shown by one very brachycephalic subject and by raising slightly the horizontal index of the Negrito part of the population.

<sup>1</sup> In this table, however, I have transposed two cephalic indices to conform to the previous table since here was obviously a misprint, despite the fact that the published figure makes the theory more plausible.



Five supposedly Parthian skulls, Houssay (pp. 140-143) continues, were excavated at Susa. These included three adults and two infants.

*Skull No. 1.*—The cephalic index, 77.19, is not pure Negrito. The following skull characters are very typical: (a) Pentagonal in

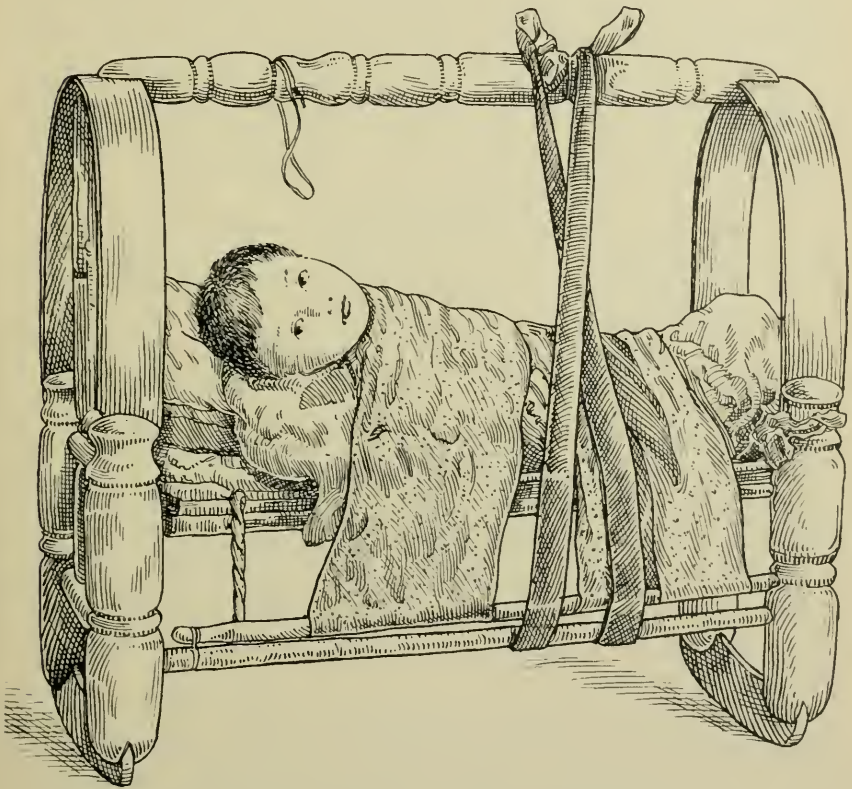


FIG. 7. Armenian type of cradle (after Bishop).

outline. (b) The middle of the temporal fossa is marked by a depression which continues to the median line, thereby giving a bilobate aspect.

These two characters indicate Negrito admixture. Houssay (p. 142) adds that this Parthian-Negrito skull resembles closely a Negrito-Japanese skull in Quatrefages and Hamy (*Crania ethnica*, Plate XVI).

*Skull No. 2.*—Larger than No. 1 but very incomplete. It is that of an aged male. Oval in form, combined with the basi-bregmatic height and a cephalic index of 74.17, its characters suggest a Persian skull.

*Skull No. 3.*—A young individual with a cephalic index of 77.93. The poor condition renders other measurements impossible, but the skull bears traces of a basilo-bregmatic deformation. This artificial cranial deformation applied in the cradle still exists in the Caucasus, in Syria, and among the Bakhtiaris. Houssay (p. 143) suggests that this custom is Turanian in origin. The deformation on this skull could very well be considered as a custom brought from Turan by the Parthians.

## SKULLS FROM SUSA

	I	II	III
Head length.....	171	182	145
Head breadth.....	132	135	113
Cephalic index.....	77.2	74.2	77.9
Cranial capacity.....	1226	....	....

In the above table the cephalic indices have been calculated by the writer.

Houssay concludes that Susiana was formerly occupied by a black population, ancestors of those Negroes of India who were forced by the white people to seek refuge in these inaccessible, mountainous regions. These Negroes were Negritos.

With regard to the geographical distribution of the Susians, they extended from the Persian Gulf to the foot of the mountain chain. Their center was Dizful, located about twenty miles from Susa (Shush).

1889.—Conder (pp. 30–51) attempts to define the racial and linguistic elements present among the early races of western Asia. The Turanian family of Central Asiatic agglutinative tongues includes “the Turkic dialects, the Mongolian language, the various Finnic tongues, and, as recent researches show, the language of the ruling Tatar race in China.”

The physical features of a Kirghiz Tatar, an Uzbek Tatar, two “Akkadians,” a Hittite chief, a Cappadocian, and an Etruscan man and woman are compared (JAI, vol. 19, Plate I).

1891.—Isabella L. Bishop, who gives a delightful picture of her travels through Persia and Kurdistan, describes (vol. 1, p. 316) the Bakhtiaris in the following words: “Whatever beauty these women possessed was in the Meg Merrilees style, with a certain weirdness

about it. They had large, dark, long eyes, with well-marked eyebrows, artificially prolonged, straight prominent noses, wide mouths with thin lips, long straight chins, and masses of black hair falling on each side of the face."

She says elsewhere (vol. 1, pp. 38-39): "Though some of the Armenian girls are beautiful, every one has one or more flattish depressions on her face—scars in fact—the size of a large date stone. Nearly the whole population is thus disfigured. So universal is it among the fair-skinned Armenian girls, that so far from being regarded as a blemish, it is viewed as a token of good health, and it is said that a young man would hesitate to ask for the hand of a girl in marriage if she had not a 'date mark' on her face.

"These 'date boils,' or 'Baghdad boils,' as they are sometimes called, are not slow in attacking European strangers, and few, if any, escape during their residence here. As no cause can reasonably be assigned for them, so no cure has been found. Various remedies, including cauterisation, have been tried, but without success, and it is now thought wisest to do nothing more than keep them dry and clean, and let them run their natural course, which lasts about a year. Happily they are not so painful as ordinary boils. The malady appears at first as a white point, not larger than a pin's head, and remains thus for about three months. Then the flesh swells, becomes red and hard and suppurates, and underneath a rough crust which is formed is corroded and eaten away as by vitriol. On some strangers the fatal point appears within a few days of their arrival." (Cf. Schlimmer, pp. 81-92; and Mense.)

1892.—From G. N. Curzon's two significant volumes on Persia a pertinent selection of material has herewith been incorporated. In general the data have been treated from a geographical aspect, beginning primarily with his observations and statistical information concerning the population, continuing with extracts on the areas in the northwest, west, southwest, south, southeast, northeast, and north, successively. His comments on the Jews have been relegated to pp. 289-290.

Curzon (1892a, vol. 2, pp. 492-494) introduces his figures on the general population with the statement: "Neither the assessment for taxation . . . nor the military conscription list, affords a basis of calculation, which must therefore be in every case more or less a matter of guesswork. The two most recent estimates that I have seen differ as widely in their totals as do any of their predecessors. One of these was drawn up by General Schindler—than whom no

man is better qualified to pronounce, from his wide acquaintance with the whole country—in 1884.”

		Sq. mi.
Approximate area of Persia.....		628,000*
	Families	Souls
Towns (99) containing.....	363,630	1,963,800
Villages and districts without towns.....		3,780,000
Nomads		
Arabs.....	52,020	
Turks.....	144,000	
Kurds and Leks.....	135,000	
Beluchis and gipsies.....	4,140	
Bakhtiaris and Lurs.....	46,800	
Total.....	381,960	1,909,800
Total population of Persia.....		7,653,600

\* Other estimates (1892a, vol. 2) are 610,000, 636,000, and 660,000 square miles.

This total Curzon again subdivided, according to creeds:

Shiahs.....	6,860,600
Sunnis and other Mohammedan sects.....	700,000
Parsis.....	8,000
Jews.....	19,000
Armenians.....	43,000
Nestorians and Chaldaeans.....	23,000
Total.....	7,653,600

“The above figures are clearly conjectural in many respects, my own experiences having convinced me that the populations of several of the towns, in General Schindler’s table,<sup>1</sup> are as much in excess of the real totals as some of the items in the second of the above tables, e.g. the figures of Jews, Nestorians, and Chaldaeans, are below. If, however, we accept his grand total as the most available approximation to the truth, and add thereto a  $\frac{3}{4}$  per cent. annual increase for each of the succeeding years, which have been free both from war and famine, we shall arrive at the following, as the total of population in 1891, viz., 8,055,500.

“On the other hand, M. Zolotaref published a much lower estimate in the Proceedings of the Russian Geographical Society in 1888 (No. 2, p. 120). He calculated the whole population as follows:

Persians.....	3,000,000	Arabs.....	300,000
Turks and Tartars.....	1,000,000	Turkomans, Jamshidis, etc....	320,000
Lurs.....	780,000		
Kurds.....	600,000	Total.....	6,000,000

“These figures differ so widely from General Schindler’s, both in total and in composition, as to give some idea of the precarious

<sup>1</sup> Curzon (1892a, vol. 2, p. 493) quoted this “Commercial Reports of the Foreign Office,” No. 7, 1885.

character of the data upon which any computation reposes. My own impression, which I hazard diffidently, not having visited some of the most populous quarters of the country, is that General Schindler's estimate errs modestly, and M. Zolotaref's ludicrously, on the side of depreciation. The recognised highways, which are traversed by the ordinary traveller, connect the principal cities, but they do not lead through the most fertile districts; and, owing to the terror inspired by the passage of armies, and even by the pacific progress of the monarch, or of provincial governors going to and from their posts, have repelled rather than attracted population. In civilized countries the reverse is the case, and the main thoroughfares lead through the most populous districts."

Breaking up this population into its elements, Curzon (1892a, vol. 2, pp. 269-270) states: "Roughly speaking, the tribes of Persia<sup>1</sup> are susceptible of a fourfold classification—Turks (i.e. offshoots of the great Turki or Turkoman or Tartar stock, not to be confused with the Osmanli branch of the same root); Arabs, Beluchis, and a great nameless class, sometimes described as Leks, by those who defend their common Iranian origin, more commonly known by the names of their various constituent elements, the principal of which are the Kurds and Lurs, with the Feilis, Bakhtiariis, Mamasennis, etc., as sub-divisions of the latter title. In a greater or less degree all these tribes contain a settled population, which in the case of the Turks constitutes an enormously preponderant majority, in that of the Arabs and Beluchis a decided majority, in that of the Kurds and Lurs a decided minority. The settled peoples are known as *shehr-nishins* or *deh-nishins*, i.e. dwellers in cities or villages; the nomads as *sahra-nishins*, i.e. dwellers in the open country. All nomads may further be grouped under the designation *Iliat*, a Turkish word, which is the plural of *Il*, a family or clan. Of the entire population of Persia it has been assumed that one quarter, or over 2,000,000, are in the nomadic state." Concerning this people, Curzon adds in a footnote: "It is impossible to arrive at any scientific estimate of the numbers of the nomad population. No census or register of births is kept; the scale of military contribution affords no clue; and an approximate calculation is only

<sup>1</sup> Of the few existing accounts of the tribes of Persia, Curzon (1892a, vol. 2, p. 269) cites only "the following as in the least satisfactory: Sir J. Malcolm (1800-10), *History*, vol. ii. cap. xxiii; M. Jouannin in Dupré's *Voyage en Perse*, (1808); J. P. Morier (1814-15), *Journal of the R.G.S.*, vol. vii, pp. 230-42; C. Ritter (1833-40), *Die Erdkunde von Asien*, vol. vi; Sir J. Sheil (1840-50), Note to Lady Sheil's *Glimpses of Life*; Comte J. de Rochechouart (1865), *Souvenirs*, cap. iv; and F. Spiegel, *Eranische Alterthumskunde*, vol. i. Ritter's is the most comprehensive account, and corresponds more nearly than the others to the *status quo*."

arrived at by taking the number of the families, which are roughly ascertained for revenue purposes by the chiefs. Equally difficult is it to explore their past history. The nomad tribes appear never to have developed a folk-lore, or produced a book, or harboured an historian. Such historical details as are contained in this chapter have been laboriously gleaned from a wide variety of sources, partly written, partly oral."

Curzon (1892a, vol. 2, p. 270) continues: "Among the Turkish tribes of Persia, which are most numerous in the north and north-west, the best known are the Kajars (the tribe of the Shah), the Afshars (the tribe of Nadir Shah), the Karaguzlus of Hamadan, the Shah Sevens of Ardebil (supplying the Royal Bodyguard), the Turkomans of the Gurgan and Atrek valleys, and the Kashkai hordes of Fars and Laristan. Of these the last three contain the only remaining nomad elements, changing their pastures according to the season of the year."

In a discussion of geographical areas in particular, we cite first Curzon's information (1892a, vol. 1, pp. 549-551) on northwestern Persia and its inhabitants: "Kurdistan<sup>1</sup> . . . is no more than a convenient geographical expression for the entire country, estimated at over 50,000 square miles, that is inhabited by the Kurds. This region has no natural or political boundaries; it includes both Turkish and Persian territory, and it contains many other elements, Turkish, Persian, Chaldaean, and Armenian, in the population as well. It may be said to extend from Turkish Armenia on the north, to the plains of the middle Tigris and the Luristan mountains on the south, and through the greater part of this length to overlap the Persian border.

"The origin and ancestry of the Kurds is too large, and, I may add, too uncertain a question to be debated at length here. Whether they are of Iranian or of Turanian origin, whether they are the descendants of Medes, or of Parthians, or whether they are the Gardu or Gurdu, or Gutu, who, in remote times when Hittites and Accadians were great in the land, held the mountains north of Assyria, and after the fall of Nineveh became Aryanised by the overwhelming Aryan migrations of the period—are questions which no one has hitherto solved. . . . One may still vindicate for the Kurds a respectable antiquity, by identifying them . . . with the Carduchi

<sup>1</sup> Kurdistan is a region of western Asia, mostly in Turkey but partly in northern and northeastern Iraq and northwestern Iran, 35°-40° N. Lat., 38°-47° E. Long., area 74,000 square miles, population 2,500,000. The capital of Iran Kurdistan was Sinneh, with a population of about 200,000.

of Xenophon (probably the Kudraha of the cuneiform inscriptions), who, in this very region, harassed and tormented the retreating Ten Thousand. Alike in country, character, and name (though this last is not universally admitted), the two peoples correspond. . . . Included, but never absorbed in the successive empires that have claimed the sovereignty of Western Asia—Macedonian, Roman, Parthian, Byzantine, Tartar, Persian, and Turkish—they have proved a thorn in the side of every ruling power. The famous Saladin (lit. Salah-ed-Din) of the Crusades, was, according to Abulfeda, a Kurd. So was Edrisi, the historian, who, when Sultan Selim I. wrested these regions in battle from Shah Ismail, the first Sefavi King of Persia, in 1514, was appointed by the conqueror to organise and administer the territory of his unruly countrymen. Over a century later, in 1639 A.D., a treaty between another Sultan and another Shah, Murad IV. of Turkey and Sefi of Persia, established a frontier line between the two empires, substantially identical with that which has ever since prevailed; and from this period, therefore, dates the divided and, as a rule, in both cases illusory allegiance of the Kurdish tribes. On either side of the frontier, the subsequent history of the Kurds is obscure. . . . The tribal feeling was very strong amongst them, and in the absence of any interference—for the best of reasons, fear—on the part of the central power, individual chieftains acquired a position that was little short of despotic independence. About sixty years ago, in 1834, the Turks, under the capable lead of Reshid Mohammed Pasha, set about destroying this system and replacing it by Ottoman *vilayets* and *valis* in Turkish Kurdistan: while in Persian Kurdistan, where the problem, because smaller, was always less acute, the reigning dynasty, and particularly the present Shah, have pursued the familiar Kajar policy of breaking up the cohesion and ruling families of the dangerous tribes, and reasserting the authority of Teheran. At the present time, therefore, the Kurds, though addicted to outbreaks of lawlessness, are, in both territories, more subject to discipline than at any previous epoch of their history.”

Curzon (1892a, vol. 1, pp. 554–555) adds that “the number of Kurds under Ottoman rule is estimated at from one to one and a half million. The figures of those on Persian territory have been given as follows (exclusive of the Kurdish colonies . . . in Khorasan):

Frontier Kurds and Kurds of Azerbaijan . . . . .	250,000
Kurds of Kurdistan proper, i.e. Sinna and Ardelan . . . . .	120,000
Kurds of Kermanshah . . . . .	230,000
Total . . . . .	600,000

“On the other hand, Colonel Stewart, in his latest report (1890), gives the number of Kurds in Azerbaijan as 450,000 . . . but no numerical calculations in Persia agree, or can be accepted with implicit confidence. The above-quoted table is, however, useful as supplying us with a fairly correct classification of the Persian Kurds.”

In his description, Curzon (1892a, vol. 1, p. 553) says: “They have the black hair and eyes, the dark complexion, and the sullen swagger (so characteristic, too, of the Afghans), that are usually associated with picturesque ruffianism; and the sympathies or the fears of travellers have variously represented their features as strikingly handsome, or repulsively ugly.”

“Of these border-nomads and Azerbaijani Kurds, the following [1892a, vol. 1, pp. 555-557] is the latest computation that I have received:

	Tents or families
<i>Shekak</i> .—Partly Turkish, partly Persian . . . Sunnis of Shafei sect . . . .	1,500
<i>Herki</i> .—Crossing in summer into Persia and descending in winter to the plains of Mosul . . . . .	2,000
<i>Oramar</i> .—A few of whom cross the Persian frontier in summer . . . . .	. . . . .
<i>Karapapak</i> .—Villagers of the Sulduz and Baradost (Beranduz) plains; Shiahs	3,000
<i>Mikri</i> .—East and northeast of Suj Bulak; Sunnis and sedentary . . . .	2,000
<i>Menkuri</i> .—South of Suj Bulak; Sunnis and sedentary . . . . .	5,000
<i>Mamash</i> .—In district of Lahijan, west and south-west of Suj Bulak; Sunnis and sedentary . . . . .	3,000
<i>Zeza</i> .—In mountains north-west of Ushnu; Sunnis . . . . .	1,000
<i>Haideranlu</i> .—Large tribe on frontier near Khoi . . . . .	. . . . .

“Suj Bulak, with a population of 15,000, is the local capital of the Kurds of Azerbaijan. . . .

“Between the provinces of Azerbaijan and Kermanshah is situated the small province of Ardelan, or Persian Kurdistan proper, inhabited mainly by sedentary Kurds. The capital, Sinna, is situated in an open, cultivated valley. . . . It is only within the present reign that this province has been thoroughly subdued to the central authority. For centuries it was ruled by almost independent Guran chieftains, of the house of Beni Ardelan, claiming descent from Saladin, and bearing the title of wali of Ardelan. When Rich was here, in 1820, he found the Wali absolutely independent of Teheran, and ruling his province like a kingdom. Upon the death, however, of the last male in the direct line, about thirty years ago, the Shah disinherited the remaining male relatives, whose family are now reduced to insignificance, and signalled his recovered sovereignty by appointing his uncle as Governor. I have



been supplied with the following list of Kurds in Ardelan, but cannot vouch for its accuracy.

Kurds	Locality	Tents or families
Kalhur	Sakiz	300
Tailaku	Hawatu	600
Gulbaki	Hawatu	500
Sheikh Ismail*	Isfandabad	300
Purpishah*	Isfandabad	300
Mundami	Hasandabad	500
Mamun, Jabrachi	Bilawar	300
Gushki	Bilawar	400
Gurgai	Lailagh	300
Lek	Lailagh	1,000
Shamshiri*	On the frontier	400

\* Nomads migrating in winter into Turkish territory.

“Lastly are the Kurds of Kermanshah, or the province of which Kermanshahan is the capital. Through this district, and through its capital city . . . runs its main caravan route between Teheran and Baghdad. . . The province borders on Turkish territory on the west and on the Persian province of Luristan . . . on the south. It may be considered the middle or dividing line between Northern and Southern Persia. . . These are the Kurdish tribes of Kermanshah:

	Tents or families
<i>Kalhur</i> . *—Partly nomad, partly sedentary. (Their summer quarters are the mountains to the north-west of the Pusht-i-Kuh; their winter quarters are the plains of Zohab and Kasr-i-Shirin, as far as the Turkish frontier.) They are variously reported to be Ali Illahis and Shiahs . . . . .	5,000
<i>Sinjabi</i> .—In Mahidasht plain, west of Kermanshah; Ali Illahis . . .	1,500
<i>Guran</i> .—Partly nomad, partly sedentary; between Mahidasht and Harun Nishin Khan; Ali Illahis . . . . .	5,000
<i>Kerindi</i> .—Partly nomad, partly sedentary; between Kerind and Harunabad; Ali Illahis . . . . .	2,000
<i>Bowanij and Jelalawand</i> .—Under the <i>sertip</i> of the Kerindi . . . . .	1,000
<i>Zangenah or Zenjina</i> .—Shiahs . . . . .	1,500
<i>Hamawand</i> .—Sedentary . . . . .	200
<i>Sunguru and Kuliahi</i> .—Sedentary; north of Kermanshah . . . . .	2,500
<i>Nanakuli</i> .—Sedentary; west of Kermanshah . . . . .	300
<i>Jelilawand</i> .—Sedentary; east of Kermanshah . . . . .	300
<i>Mafi, Chubankera, Ghazil, Hululan or Halilan</i> . †—Nomads in the mountains south-east of Kermanshah, and on the upper waters of the Kerkhah . . . . .	4,000
<i>Akhur</i> .— . . . . .	1,000

\* “Sir H. Rawlinson fancied from the marked Jewish cast of their countenances that they might be descendants of the Samaritan captives who were placed in the Assyrian city of Kalhur Halah (Sarpul-i-Zohab?).”

† “I doubt if the Hululan ought to be included in this table, for they belong to the Lur tribes of Luristan, who disavow any blood-connection with the Kurds.”

Next to Kurdistan and also in the northwest area lies Azerbaijan. Curzon (1892a, vol. 1, p. 546) gives the following calculation of the Nestorian population of Azerbaijan:

	Families		Families
Salmas district.....	700	Baradost or Beranduz.....	100
Somai and Chara.....	100	Tergavar.....	500
Urumiah district.....	3,600	Mergavar.....	100
Sulduz.....	400		
		Total.....	5,500

“It has been common to estimate these families at four or five persons apiece, and hence the total usually given of 20,000 to 25,000 Persian Nestorians. The missionaries, however, are of opinion that the population has so much increased in the peaceful reign of the present Shah that eight persons to each family is a fairer computation. Adopting this average, we shall get a total of 44,000. . . . The Nestorians of the plains are robust, broad-shouldered men, with open countenances, fair complexions, and frequently with red beards. The mountain Nestorians are wild and uncouth, and often undistinguishable from the Kurds, with whom, however, they are at constant and deadly enmity.”

Curzon (1892a, vol. 1, p. 548) states that “the number of Armenians resident in Azerbaijan is inferior to the Nestorians, but is yet considerable. The census is calculated as follows:—

	Families		Families
Maku.....	300	Karadagh.....	1,000
Kotur.....	100	Maragha.....	120
Khoi.....	400	Miandoab.....	80
Salmas Plain.....	1,200	Suj Bulak.....	60
Somai and Chara.....	100	Tabriz.....	740
Urumiah.....	400	Ardebil.....	35
Sulduz.....	100		
Baradost or Beranduz.....	180	Total.....	4,815

“The Armenians being less prolific, less gregarious, and less stay-at-home than the Nestorians, it is recommended to compute their families at an average of six persons, which will give a total of 28,890; or, together with the Nestorians, a grand total of 72,890 for the Christian population of Azerbaijan.”

Passing south to Luristan, Curzon (1892a, vol. 2, pp. 273–275) writes: “Who the Lurs are and whence they came is one of the unsolved and insoluble riddles of history. A people without a history, a literature, or even a tradition, presents a phenomenon in face of which science stands abashed. Fifty years ago Rawlinson described them as an ‘unknown and interesting people’. . . . Are they Turks? Are they Persians? Are they Semites? All three hypotheses have

been urged. They appear to belong to the same ethnical group as the Kurds, their neighbors on the north; nor does their language, which is a dialect of Persian, differ materially from the Kurdish tongue.<sup>1</sup> On the other hand, they themselves consider it an insult to be confounded with the Kurds, whom they call Leks; and the majority of writers have agreed in regarding them as the veritable relics of the old Aryan or Iranian stock, who preceded Arabs, Turks, and Tartars in the land. Rawlinson says that their language is descended from the old Farsi, which was coeval with, but distinct from, the Pehlevi tongue in the days of the Sassanian kings. Whilst, however, we may accept this as the most probable hypothesis. . . . we are not compelled to endorse the conjectural connection of Bakhtiari with Bactria, which has been propounded by some writers,<sup>2</sup> or to localise their ancestral home. It is sufficient to believe that they are Aryans by descent, and to know that they have lived for centuries in their present mountains. The word Feili means a rebel, while the word Lur is commonly applied as a synonym for a boor by the modern Persians. . . .

"In 1836 Rawlinson gave the numbers of the Feili Lurs and their dependencies as 56,000 families; in 1843 Layard returned them as 49,000 families. In the same years respectively, Rawlinson gave the totals of the Bakhtiaris and their dependencies as 28,000 families, Layard as 37,700 families. A calculation made in 1881 fixed the total of persons as follows: Feilis and dependencies, 210,000; Bakhtiaris and dependencies, 170,000; Kuhgelus, etc., 41,000; grand total of Lurs, 421,000. I am disposed to think that this is an exaggerated census; although the prevalence of polygamy among the tribes, and the large families reported by recent travellers, may be held to justify the opposite opinion.

"Lur-i-Kuchik, or Lesser Luristan, embraces the region between Dizful on the south, and the confines of Kermanshah on the north, and between the Ab-i-Diz on the east, and the Turkish frontier on the west. It is subdivided into two sections called respectively Pish-Kuh, i.e., Before the Mountains, or Cismontane Luristan, and Pusht-i-Kuh, i.e., Behind the Mountains, or Transmontane Luristan, the dividing ridge being that section of the Zagros range which is locally known as the Kebir Kuh. Till the accession of the Kajar

<sup>1</sup> "Rich (vol. 1, p. 130) declared that the Bakhtiaris were Kurds."

<sup>2</sup> "Some have gone so far as to base on this resemblance the assertion that the Bakhtiari are the relics of one of the Greek colonies left by Alexander in Asia, an hypothesis for which the further support is claimed of a similarity in the Greek and Bakhtiari national dances."

dynasty there was no political distinction between the two; but Pish-Kuh was taken away by Agha Mohammed Shah from the Vali of Luristan, who has ever since been forced to content himself with Pusht-i-Kuh. Hence it arises that the Feili nomenclature, which was formerly applied to the whole of Lur-i-Kuchik, has become restricted in popular usage to the Pusht-i-Kuh, the Feilis proper constituting the bulk of the population in the latter district.

"Pish-Kuh, which is the eastern portion of the Luristan province, has for its boundaries Kermanshah on the north, the Ab-i-Diz and the Bakhtiari country on the east and south, and the River Kerkhah on the west. It differs both in political organisation and in the character of its people from Pusht-i-Kuh."

Curzon (1892a, vol. 2, pp. 320-322) passes to the coast plains and to an Arab population. "The administrative title of Arabistan [Khuzistan], literally the Land of the Wanderers, is applied to a larger area than that embraced by the plains alone, many of the Bakhtiaris being under the jurisdiction of its Governor, whose official residence is at Shushter. Nevertheless the title more correctly describes the alluvial levels between the mountains and the sea, including the respective plains of Dizful, Shushter, Hawizeh, and Ram Hormuz. Its boundaries may be defined as a line from the Kerkhah River to Mohammerah on the west, the Bakhtiari hills on the north, the Shat-el-Arab and Persian Gulf on the south, and the Hindian River on the east. This province is identical with the ancient Elam, the classical Susiana, and the more modern Khuzistan. The latter designation appears now to have fallen into disuse. . . .<sup>1</sup>

"The population of this region is either pure Arab, or, more frequently, mixed Arab and Persian. The introduction of the former element commenced with the Arab conquests in 641 A.D., and has been recruited ever since by spontaneous immigration from the other side of the Tigris and the Persian Gulf, as well as by direct importation, Shah Ismail having, it is said, brought a large number of Arab colonists from the district of Nejd. . . .

"Of the Arab peoples the most important are the Ka'b<sup>2</sup> (vulg. Cha'b) Arabs, of whom there were originally seventy-two tribes.

<sup>1</sup> "Khuzistan is thought to be derived from the word Uwaja, signifying aborigines, that occurs in the cuneiform inscriptions, and is, perhaps, also the origin of the Uxii of Strabo and Pliny. On the other hand, Mordtmann derives Khuzistan from a Persian word meaning sugar-cane."

<sup>2</sup> In central and southern Iraq the soft *ch* combination is preferred to the hard *k*.

The bulk of these have died out or disappeared; but the race is still the most numerous in Arabistan. Layard in 1841 gave a tabulated list of their tribal divisions and subdivisions, many of which are not now known in the country. From a list compiled by Mr. Robertson, the late British Consul at Busrah, I take the following names as those of the Arab tribes of the province, not Ka'bs alone, who are said still to number 500 or more adult males. They are the Al-bu-Ghubaish, Asakirah, Khanafirah, Bawieh, Bait-el-Haji, Beni Rushaid, Beni Saleh, Beni Turuf, Hamudi, Humaid, Kindazli, Jurf, Kathir, Muhaisen, Naisieh, Nasara, Sharaifat, Shurafa, Suwari, Sudan, Suleiman. The number of smaller tribes is very large. On the eastern borders of the province are some other Arab tribes not included in the above list, notably the Muntefik of Hawizeh, and . . . the Beni Lam. The bulk of these, however, particularly the Beni Lam, are in Turkish territory; and of the latter, therefore, I shall not again speak. The Arab and semi-Arab tribes of the province have been reckoned at various totals between 170,000 and 200,000, the larger sum being thus arrived at:—

Ka'b Arabs . . . . .	62,000
Mixed Arabs and Persians	
Ram Hormuz . . . . .	27,000
Shushter, Dizful, and Hawizeh . . . . .	110,000
	<hr/>
Total . . . . .	199,000

“The history of the Ka'b Arabs, which is typical of that of most of their neighbors, has been as follows.<sup>1</sup> They are said originally to have migrated from the Arabian shore of the Persian Gulf to the marshes near the junction of the Tigris and the Euphrates, where they became Turkish subjects, and acted as buffalo herdsman; until, being propelled by drought, or expelled by another Arab tribe, they moved southwards and established a new settlement on a canal leading from the Karun, which they called Kaban or Gobban. Pushing eastwards towards the Jerahi River they presently came into collision with the tribe of Afshars, whose headquarters were at Dorak on that river.” Curzon (1892a, vol. 2, pp. 327–328) continues: “The Ka'b Arabs occupy the entire extent of territory from Mohammerah and the Karun River eastwards towards the River Hindian, a distance of over one hundred miles. The natural richness of this region is enormous. . . . From long residence on Persian

<sup>1</sup> “Vide C. Niebuhr, *Voyage en Arabie*, vol. ii, p. 160; H. Layard, *Journal of the R. G. S.*, vol. xvi, pp. 36–45, and *Early Adventures*, vol. ii, *passim*; H. Rawlinson, *Journal of the R. G. S.*, vol. xxvii, p. 185; W. F. Ainsworth, *Personal Narrative of the Euphrates Expedition*, vol. ii, pp. 207–18; Baron C. A. De Bode, *Travels*, vol. ii, pp. 110–20.”

territories the Ka'b Arabs have lost much of their own national character. They have intermarried with the Persians, and have adopted the Shiah religion, as well as parts of the Persian dress. . . .

"Among the remaining Arab tribes I need only notice the Muntefik of Hawizeh, on the extreme south-eastern [southwestern] border of Persian territory. They appear to have migrated thither from Turkish soil in 1812, and to have ousted that section of the Ka'b Arabs who occupied this district. Hawizeh was once an important place, with a population of 24,000 souls, at the time when it was the capital of the Vali of Arabistan. . . . In 1837, however, the main dam [of the river Kerkhah] burst; the river dissipated itself in futile swamps, and Hawizeh shrank from a great town to a petty village. It is still governed by a sheikh of the old ruling family, claiming a sacred lineage; and according to his strength or weakness he receives the allegiance of a larger or smaller number of tribes. The majority of his people have always remained Sunnis. Surrounded by their marshes, they are fairly safe from encroachment."

In the adjacent territory live the Bakhtiaris, whom Curzon (1892a, vol. 2, p. 300) describes in these words: "Alike in costume and complexion, darkness is the prevailing hue of the external man. Their hair is black, with its two long uncut tufts curled behind the ear, black their bushy eyebrows and flashing eyes beneath, black the beard and mustache, black the small skull-cap upon the head, black the coat of the male, and blue-black the indigo-dyed cloak of the female. The men are robust and muscular in appearance, and have a very manly bearing. . . . The women are tall and dark, of shapely limbs and erect carriage. . . . Cleanliness, it is to be feared, is little known or appreciated by the nomads, and to this must be attributed the diseases, both of the skin and eye, to which they are liable. The latter ailment is exaggerated by the blinding glare of the sun from rock and sand, and by the scant protection afforded by the national head-dress (cf. Bishop)."

In the ancient province of Fars, considerably south and east of the Bakhtiari country, Curzon (1892a, vol. 2, p. 103) writes that the inhabitants "pride themselves upon the purity of their origin, the correctness of their tongue, and the excellence of their wit. No doubt we encounter here a less mixed Iranian type than elsewhere, as is evident from the darker complexions and clear-cut features, the brown hair and blue or gray eyes of the northern provinces being rarely met with in the south."

The migratory tribes of Fars and its administrative subdivision of Laristan, Curzon (1892a, vol. 2, pp. 112-114) states, "fall under two heads: Turkish Lurs and Arabs, the principal tribe of the former being the Kashkai. I have called them Turks because that is their origin, the tradition being that they are the descendants of a race transplanted to Persia, by the Mongol Hulaku Khan, from Kashgar; and I have called them Lurs because they are considered to belong to the Lur family, and in manners and customs differ very little from the Bakhtiaris and Kuhgelus. The Kashkais cover, in their biennial migrations, an immense tract of country; for, whilst in winter they are found to be in their *kishlaks*, or winter quarters, in the *garmsir*, or warm region of the coast fringe, known as Dashtistan (the Land of Plains), and in Laristan, as the spring advances they move northwards . . . to their *yeilaks*, or summer-haunts in the highlands! . . .

"These tribes, like those which I shall afterwards describe, are under chieftains drawn from one of their own ruling families. There are two governing offices, those of Ilkhani and Ilbegi. . . .

"The Kashkais were once a numerous and powerful aggregation; but their ranks were greatly thinned by the famine of 1871-2; yearly more and more abandon nomadic and take to settled existence; and other causes of decline were thus stated to me in a communication derived from the tribe:—

"All the Kashkai tribes are now under the Ilbegi Darab Khan. Twenty years ago there were over 60,000 families of these tribes, all under . . . Mohammed Kuli Khan, the father of the present Ilkhani. At that time they were able to bring into the field 120,000 (?) horse, but, after the death of the above chief, the tribal affairs fell into the hands of smaller Khans, which resulted in internal dissension. Owing to this, about 5,000 families went over to the Bakhtiaris, and an equal number to the Iliat Khamsah, and about 4,000 families dispersed themselves to different villages. This reduced the total to about 25,000 families, which is their present number.' I may say that I do not accept even the reduced total, the latest information which I possess rendering it doubtful whether the tribe now numbers more than 10,000 to 12,000 tents. . . .

"I append a table both of the Kashkai and Arab Iliats of Fars, as their clans have been returned by different authorities during

<sup>1</sup>"The best authorities on the Kashkais are Keith Abbott (*Journal of the R.G.S.*, Vol. xxvii); De Bode, *Travels*, vol. i, p. 256; E. Stack, *Six Months in Persia*, vol. i, caps v., vi.; and F. C. Andreas. The name is erroneously derived by Stack from the Turkish *kachmak*, to flee."

recent years. The Arab tribes known under the collective title of Khamsah, are far less numerous than the Turks, and are said not to number more than 3,000 tents. They are scattered over the same region, and claim descent from the Beni Sharban tribe of Arabia. . . .

NOMADS OF FARS AND LARISTAN				
KASHKAI TRIBES (Turks)		KHAMSAH TRIBES (Arabs)		
1875	1890	Col. Ross 1875	Curzon	
		1875	1889	1890
	1. Nomad:	Baseri	Arab	Basiri
Kashkuli	Kashkuli	Napar	Bajri	Nafar
Darashuli	Darashuli	Baharlu	Nofar	Baharlu
Shish Beluki	Shish Beluki	Arayalu	Baharlu	Ainalu
Farsi Madan	Farsi Madan	Abulwardi	Apatlu	Shaiwani
Safi Khani	Safakhani	Amalah Shahi		Safari
Igdar	Ikdir	Mamasenni		Jabbarah
Ali Kuli Khani	Alakuini	(Turks)		
Gallazan	Gallazan			
Kuruni	Haj Masih Khan			
Karachai	Arkapan			
Dadagai	Bulli			
Rahimi	Kizili			
Kuri-i-Shuli	Khawanin			
Urd-i-Shiri	Naukarbab			
Jafir Begi	2. Stationary:			
Imam Kuli Khani	Cheharpinjah			
Darab Khani	Pablisi			
Amala-i-Ilkhani	Zanguin			
Bahadur Khani	Alabeglu			
Kubad Khani				

Turning from Laristan to the east, we find that Curzon (1892a, vol. 2, p. 244) estimates the population of Kerman at about 40,000:<sup>1</sup> "In 1810 Pottinger found no Jews, Armenians, or Hindus; but there are now representatives of all three nationalities, the Hindus, some forty in number, and half-Persianised in dress and appearance, being traders from Shikarpur and Sind."

With regard to Seistan, Curzon (1892a, vol. 1, p. 228) states that it "emerges into the clearer light of ascertained history in the time of Alexander the Great, when it was known as Drangiana (identical with the land of the Herodotean Sarangians). He probably passed this way on his march eastwards to India; whilst on his return therefrom, though he pursued a more southerly line himself, through Gedrosia (Mekran) to Carmania (Kerman), he despatched a light column under Craterus through Arachotia and

<sup>1</sup> "In 1878 a careful census was made by the then governor, which showed 39,718 Mohammedans, 1,341 Parsis, 85 Jews, and 26 Hindus, or a total of 41,170 persons."



Drangiana.<sup>1</sup> Under the Sassanian monarchs Seistan was a flourishing center of the Zoroastrian worship."

Concerning the Persian province of Baluchistan, Curzon (1892a, vol. 2, pp. 258-259) states: "The area of the province has been estimated at 60,000 square miles. . . . In this extent of country may be encountered almost every variety both of scenery and climate." Besides the Makran Desert, which is composed of thin particles of wind-driven sand, there are in Baluchistan "considerable rivers, great mountains, and in parts abundant cultivation. Rocks, rivers and trees . . . are succeeded by arid bluffs and naked ravines. On the coast the heat is sometimes terrific. . . . In the mountain plateaux a cooler and most agreeable temperature is encountered. . . . The prevailing tribe is that of the Beluchis, who give to the country its name. They claim to be Arabs by descent, of the Koreish tribe, and allege an ancestral migration at the end of the seventh century from the neighbourhood of Aleppo, whence their tradition represents them as having been expelled by the Khalif Yezid for taking the part of the martyred Hussein. No record, however, exists of their journey, or of the people whom they found on their arrival; and from the evidence, both of their physiognomy and of their language, which is an Aryan or Aryanised tongue, akin to Pehlevi or old Persian, the hypothesis must be rejected in favour of a non-Arab genealogy.<sup>2</sup> Pottinger, on the other hand, attributed to them a Turkoman, i.e. Seljuk-Turkish descent. Though numerically the most important tribe in Beluchistan, they yield

<sup>1</sup> "The great authority on the early history and inhabitants of Seistan is Sir H. Rawlinson's essay, entitled 'Notes on Seistan,' published in the *Journal of the R.G.S.*, vol. xliii, pp. 272-294 (1873). Compare also the excellent and accurate summary of Dr. Bellew, *From the Indus to the Tigris*, pp. 243-262, and *Inquiry into the Ethnography of Afghanistan*, 1891. The chief modern inhabitants of Persian Seistan are the Seistanis, who occupy a servile position among other and dominant tribes; the Kaianis, claiming descent from the Kai dynasty of Cyrus; the Kurd Galis, a branch of the Kurds of Kurdistan, who emigrated and established the Malik Kurd dynasty of Ghor, 1245-1383 A.D.; Iranian elements known as Tajik; and Beluchis, of whom the principal tribes in Seistan are the Sarbandi, who were transported by Timur to Hamadan, but brought back by Nadir Shah, and the Shahreki." See also Curzon, 1892a, vol. 1, pp. 379, 591, 612.

<sup>2</sup> "Dr. Bellew (*Inquiry into the Ethnography of Afghanistan*, 1891) identifies the Beluchis with the Balaecha of the Chohan Rajput tribe who originally occupied the Nushki district. The tribe variously known as Kurush, Korish, Gorich, and Guraish, which is still widely extended on the Indus border, is the Royal Rajput Kerush, Keruch, or Kurech. When these tribes were converted to Islam, they changed their name to Koreish, and pretended an Arab descent in order to conceal the fact. Bellew, therefore, assigns to the Beluchis a Rajput or Indian pedigree, and explains their dialect as a Persianised Indian tongue. The Rinds, who are now spoken of as a branch of the Beluch stock, are in reality the tribe of which the Beluchis are a branch, the name being derived from the Rin or Run of Kuch, the Sanskrit *Aranya*, or 'waste.'"

a moral and political ascendancy to smaller, but more warlike, tribes of Kurds and Nushirwanis (themselves claiming descent from Nushirwan, the famous Sassanian king, but in reality deriving their name from a district so called, near Isfahan, whence they originally emigrated); while in parts, e.g. in Dashtiari, are a people, more obviously of Hindu lineage, whose ancestors, though they are unaware of it, came from Sind, and whose language contains many Hindu words. There is also throughout the country a considerable admixture of the African element, due to the large importation of slaves from Muscat and Zanzibar. Some of the faces present a thoroughly negro type. The ordinary Beluchi . . . is not nearly so formidable a specimen of humanity as the Afghan, though like him he wears his long black hair in curls, frequently moistened with rancid butter. In parts of the country they are in a very backward and degraded condition, but little removed from primitive savagery. . . . Politically they have but two feelings; an intense passion for tribal independence . . . and an outspoken dislike of the Persians, whom they call Gajars (pronounced not unlike the English word *cudgel*), the Beluch version of the name of the reigning dynasty."

Curzon (1892a, vol. 2, p. 260) quotes "a Persian authority who has calculated the population of Persian Beluchistan as 250,000; which is believed to be a fairly accurate estimate."

Curzon states (1892a, vol. 2, pp. 262-263) that Captain Jennings found Sarhad, north of Beluchistan, "to be inhabited by Beluchi, Kurd, and Brahui tribes, with an alleged total of 13,500 families.<sup>1</sup> All were Sunnis. . . . Serhad produces an unlimited supply of sheep and goats, and grows an immense amount of tamarisk, camelthorn, and asafoetida. Its principal place is Washt, a large village inhabited by Kurds."

The population of Yezd, according to Curzon (1892a, vol. 2, pp. 240-241), "which at the beginning of the century is said to have been 100,000, but which sank to 40,000 in 1860-70, is now reported to have risen, if the suburbs be included, to something like the original figure, although 70,000 to 80,000 is a more probable estimate for the city itself. These totals include a variety of elements, there being a Jewish population now calculated at 2,000 (they are distinguished by being obliged to wear a patch in front of their coats), a fluctuating Hindu contingent, engaged in trade (in 1866 Sir F. Goldsmid found seventeen, in 1871 five), and a large Guebre or

<sup>1</sup> "This is, of course, a mistake. So, at the other extreme, is Mirza Mehdi Khan's estimate of 1,425 families."

Parsi contribution. . . . Their numbers have been variously reported as from 3,500 to 7,000 at different periods in the century, confusion having been habitual between the urban residents and the total inhabiting the surrounding district.<sup>1</sup> In the city they possess schools of their own, a high priest, and a secular head, four fire-altars, which in the prudent obscurity of private houses sustain the undying flame,<sup>2</sup> and several Towers of Silence or places of exposure in the adjacent hills."

In passing northward, Curzon (1892a, vol. 1, p. 179) describes the population of Khurasan as being "as varied as are its physical characteristics. Successive waves of conquest have brought hither specimens of most of the great ethnic divisions of Asia, and, retiring, have left them rooted, in greater or less degree, to the soil. Here, in addition to the original Iranian stock, and to other members of the Aryan family, are descendants of the Mongols who came in the wake of Timur and Jenghiz Khan, Arabs who were borne on the flood tide of Mohammedan conquest, Tartars, Turkomans, and Turks—three really interchangeable names for different branches of the same great family that, in succession to the Mongols, startled the West first with the Seljuk and afterwards with the Ottoman invasion. The 'Encyclopaedia Britannica,' in its latest edition [i.e. before 1892], gives the relative proportions of these races in Khorasan as follows:

I. Iranians.....	{	Tajiks.....	400,000
		Kurds.....	250,000
		Beluchis.....	10,000
II. Mongols.....	{	Timuris.....	250,000
		Hazaras.....	50,000
III. Tartars.....	{	Afshars.....	100,000
		Kajars.....	
IV. Arabs.....			100,000
Total.....			<u>1,160,000</u>

"But from what I can gather this estimate exceeds at least two-fold the verifiable total of the population, which may be set down as between 500,000 and 600,000; the terrible famine of 1872 having inflicted damages from which the province has never recovered."

Curzon (1892a, vol. 1, p. 191) now crosses into Khurasan proper, and glancing in an easterly direction pursues his inspection of the frontiers. "We pass from the Turkomans to the Kurds, and in the

<sup>1</sup> "In 1879 General Schindler found 1,240 Parsis living in the city, and 5,240 in 22 neighboring villages. Total, 6,480. 'Die Parsen in Persien,' *Zeit. d. M. G.*, 1882."

<sup>2</sup> "This is the allusion in Moore's 'Yezd's eternal mansion of the Fire.'"

Bujnurd district encounter the first of the Kurdish communities whose ancestors were transplanted by Shah Abbas about 1600 A.D. to the mountain border of Khorasan. . . . Whereas Kuchan, however, is chiefly peopled with Zaferanlu Kurds, it is the Shahdillu tribe who settled at Bujnurd, and still constitute the large majority of its inhabitants."

In conclusion, Curzon (1892a, vol. 1, pp. 97-98) notes that "it was characteristic of the dispositions of a great monarch that, recognising the inability of so timid a people as the Persians successfully to resist the invaders themselves, Shah Abbas looked elsewhere for his frontier garrison. Just as he transported an entire Armenian community from his north-west provinces to Isfahan, in order to teach trade and attract prosperity to his newly founded capital, so he now transferred an entire community of warlike Kurdish tribesmen from the same quarter, and planted them in the mountainous glens and uplands of Khorasan. By this judicious act he served a double purpose; for he both fortified his position in the east and relieved himself of the insecurity arising from the bloody feuds and divisions of the Kurdish clans in the west. The expatriated tribes were the Shahdillu, Zaferanlu, Kaiwanlu, and Amanlu; and it is said that while the transplantation of 40,000 families was originally contemplated by Abbas, the resistance of several of the chieftains reduced the number actually moved to 15,000 families."

To the south of Meshed, states Curzon (1892a, vol. 1, p. 199), lie "the border districts of Jam, or Turbat-i-Sheikh-Jam (i.e. the Tomb of Sheikh Jam, a local saint of immense sanctity, who was buried here), Bakharz and Khaf, which are at present united under a single Persian governor of Arab blood. . . . The bulk of the population under his rule also belong to one of the Chehar Aimak tribes. . . . They are of Arab origin, and are called Timuris, a name which they are said to have derived from the great Timur, who originally deported them from their native country in a rage because they had plundered his mother when on a pilgrimage to Mecca, and who then handed them over as subjects to an eminent Seyid, to whom also he gave his own daughter in marriage. There are settlements of Timuris in other parts of Khorasan, notably near Nishapur and Sebzewar; but the bulk of the tribe are found in the three border districts, now under discussion."

Of the concluding sections, which deal with the northeastern part of Iran, Curzon (1892a, vol. 1, p. 198) writes that "it is in the Meshed district which extends to the Heri Rud that we first en-

counter" various tribes of mixed origin and alien religion. "Round the capital the Iranian element is in the ascendant; but as we approach the frontier we come across colonies or detachments who belong in race and religion to the Chehar Aimak (lit. Four Settlements), or wandering tribes of the Afghan border.<sup>1</sup> These are the Jamshidis and Hazaras. The former are of Persian origin, but the greater part of the tribe long ago left Persian territory and settled in Afghanistan. The remnant were brought back after the siege of Herat in 1857, established at Kanegosha, near Meshed, and required to furnish a mercenary force to the Persian Government. . . . They are of Persian descent and speak the Persian language. . . . The Hazaras, on the other hand, never were a Persian race. They belong to the Turanian family, as their Mongolesque features, their crooked eyes, and paucity of beard indicate. Some of them are settled in the Meshed district, but the greater number further south at Mohsinabad, in the district of Bakharz. By far their most extraordinary feature is that, though Persian neither in blood, religion, nor affinity, they speak the Persian tongue. They profess the Sunni Mohammedan faith. . . ."

At Kalat-i-Nadiri, which lies eighty kilometers north of Meshed, Curzon (1892a, vol. 1, p. 139) says that "the inhabitants are Turks chiefly of the Jallayer and Benjat tribes, with a few Arab and Kurdish families as well. Their total number does not exceed 1,000. They are to be found in two villages, situated in the valley by which the stream which I followed enters and traverses Kelat, and in six hamlets upon the uplands or higher elevations."

In the Asterabad district settled the Kajars,<sup>2</sup> according to Curzon (1892a, vol. 1, p. 392), a people who "are not content with any more modest descent than from Japhet, the son of Noah. Even if we question the authenticity of so illustrious a pedigree, it is yet indisputable that for 700 years the Kajar tribe have been heard of in history. A chieftain of that race ruled the country from Rhey [Rayy] to the Oxus, as deputy for one of the Mongol descendants

<sup>1</sup> "The Chehar Aimak were originally, as their name implies, four tribes, viz. The Jamshidi, Firuzkuhi, Timuri, and Taimuni. Later on, two other tribes, the Hazara and Kipchak, were included in the designation. The Firuzkuhis, Taimunis, and Kipchaks, the two first of whom are said to be of Persian origin, are now not found in Persia. Members of the other four branches are. Dr. Bellew's classification is different. He gives the original Chehar Aimak as the Timuri, Taimuni, Dahi, and Suri; the Jamshidi and Firuzkuhi as subdivisions of Timuri, and the Hazaras as synonymous with the Dahi."

<sup>2</sup> "*The Dynasty of the Kajars*, translated from an Oriental Persian MS. by Sir Harford Jones Brydges, 1833. Compare Morier, *Journal of the R.G.S.*, vol. vii, p. 231."

of Jenghiz Khan. Timur is said to have banished them to Syria, but afterwards to have suffered them to return. Later on they espoused the cause of the Sefavi Shahs and assisted in raising them to the throne, in return for which service they were included in the Kizil-bash or seven Red-Head tribes, so called from the scarlet head-covering which they were permitted to wear. According to one account the mother of Shah Ismail himself was of Kajar blood."<sup>1</sup>

Passing westward we come to Tehran, the capital city, where, according to Curzon (1892a, vol. 1, p. 333), estimates of the population varied from 175,000 to 220,000. He remarks that there are about 4,000 Jews and 1,000 Armenians in the city.

To the north lie the maritime provinces of Mazanderan<sup>2</sup> and Gilan,<sup>3</sup> where dwell some of the most interesting peoples of Iran. It is probable that within these small village communities there exist at the present time remnants of ancient migrations to the coast from Central Asia. Curzon (1892a, vol. 1, p. 364) gives the population for these two provinces at from 150,000 to 250,000. Fraser, he says, described the inhabitants as "stout, well-formed, and handsome, the children being particularly beautiful. Of the two, he reported the Mazanderanis as the darker and swarthier. . . . The Mazanderanis have been commonly denounced as the Boeotians of Persia. . . . The natives are said to be descended from the ancient Medes and speak a dialect of Persian, which differs slightly in the two provinces, and a third form of which, with more Pehlevi words than in either of the others, is spoken in the highlands of Talish."<sup>4</sup>

This concludes the extracts from Curzon, which have been arranged geographically so as to be of greater value to the physical anthropologist. The index to Chapter III (pp. 601-651) will assist the reader in finding references to particular areas or tribes.

1894.—N. P. Danilov resided for five years in Iran as the medical officer attached to the Russian Imperial Embassy in Tehran. Ex-

<sup>1</sup> "So says Mr. Watson in his *History of Persia*; but I have always understood that the mother of Shah Ismail was Martha, the daughter of Uzun Hasan, chieftain of the White Sheep, and his Christian wife Despoina, who was a daughter of Kalo Johannes, Emperor of Trebizond."

<sup>2</sup> "Mazanderan signifies *Maz* (a Pehlevi, or old Persian word for mountains) and *anderun* (within, the inner part, whence its application to the women's quarters in a house), i.e. the hollow between the mountains and the sea." (Curzon, 1892a, vol. 1, pp. 354-355.)

<sup>3</sup> "Marco Polo (cap. iv) called the Caspian 'Mer de Gheluchelan' (i.e. Ghel ou Ghelan), and the silk 'Ghelle.'" (Curzon, 1892a, vol. 1, p. 355.)

<sup>4</sup> "As long ago as the tenth century El Istakhri said: 'In Taberistan they have a peculiar dialect, neither Arabick nor Persian; and in many parts of Deilman (Dilem) their language is not understood.'"

tracts from his elaborate and detailed report contain anthropometric data obtained for the most part from soldiers. The text, which was obtained from the library of the Peabody Museum of Harvard University, was translated and summarized by V. N. Rimsky-Korsakoff for my selection of relevant data.

Danilov (cols. 10-19, 26-28) points out first that in prehistoric times the Aryans in different parts of Persia came into contact with peoples differing from them in physical characters. For example, in southern Iran they acquired a darker skin, thicker lips, and curlier hair than in the northern region. In the later periods the Aryans mixed with Semitic stocks, namely, Assyrians, Arabs, and Jews, and with peoples inhabiting Asia Minor and Greece, as well as with Turkish and Mongolian tribesmen.

Furthermore, environment undoubtedly had an effect on the physical type. In many cases dissimilarities in language, customs, or religion are not correlated with anthropometric differences. Danilov, considering it superfluous to give a list of the nomad tribes, indicates only the main subdivisions.

The inhabitants of Azerbaijan are occupied mainly in agriculture, horticulture, and cattle-breeding. Robust, relatively tall, and possessing dark hair and dark eyes, they speak an Azerbaijani dialect of the Turkish language, and are therefore usually called the Azerbaijan Tatars. They do not, however, resemble the true Asiatic Tatars. One can even assume that they have retained a purer and more uniform physical type than the other tribes. They are Shiah Mohammedans.

Khamseh province is inhabited by tribes having the usual Iranian characteristics, as well as by semi-nomadic tribes, who have certain Mongolian traits in the breadth of the face, breadth of the nasal bridge, and an increase in head breadth as compared with head length. Danilov examined only a few members of the Babali tribe.

The Talish, who live in the Caspian Sea region, speak a Persian dialect. The Gilanis and the coastal Mazanderanis differ but little in language and physical characters. Of medium stature, with hair and eyes somewhat lighter in color than the inhabitants of the Iranian Plateau, they are characterized by paleness of skin and sluggish movements which are probably due to the fact that they live and work in the unhealthy boggy regions of many rice fields. The mountainous region of Mazanderan includes two types of natives; one robust and very hirsute, the other slender and dis-

tinguished by a thin, emaciated face, slightly curved nose, pointed chin, abundant dark hair, and black eyes. It should be noted that at various times this region was inhabited by Jews, Armenians, Kurds, and Afghans.

In addition to some nomad tribes the basic group of Khurasan is the Tajiks, whose cephalic index is quite different from that of the Iranians, since they are typical brachycephals and in this respect resemble more the Armenians, Jews, Assyrians, and Mongols.

The Ilats or nomadic tribes are distributed among the settled population of Iran. The Kurds who inhabit Kurdistan and the Kermanshah province must be included among the Iranians because of their similarity in language and head form. The Kurds of central Iran differ from other tribes in their haughty bearing, aquiline nose, and more prominent malars. They represent a transitional stage between nomad and settled tribes.

As far as one can judge from the very small number of observations on the Lurs, their religion and physical type indicate that they belong to the purest Irani tribes. The Bakhtiaris, who are of mixed origin, are characterized by a short head and in this respect are second only to the Tajiks. The Susians, who are hybrid Negritos, inhabit the region northwest of Shiraz. While the Assyrian-Chaldeans and Armenians of western Iran are brachycephalic, the Gabrs, fire-worshipers related to the Indian Parsis, are dolichocephalic. The Turkic tribes have mixed to such an extent with other peoples that it is difficult to place them in a separate anthropological group, and their subdivisions show marked differences. Certain nomad Turkic tribes in southern Iran probably have mixed with the Negritos and thus acquired some of their characteristics, such as a very broad and slightly flattened, short nose, rather dark skin, and very small stature; they call themselves "Siah" i.e. blacks [cf. Wilson, 1932a, p. 34].

Another Turkic tribe, which has retained its Turkic name Khelladz (Khalej?), has settled not far from Tehran in the Mezlegansk region and is included in the tables under the name of Mezlegants. The majority are dolichocephals. Since short heads have almost entirely disappeared the suggestion is that they have become considerably mixed with the Iranians.

In general, it can be said that the settled tribes of central Iran belong to the same type, in which the Iranian element predominates, having acquired Turkic-Mongolian elements in the north and Negrito elements in the south, as well as mixing with other types



in some localities. The measurements also include a special group, the Ishtahardis, who speak an old Persian dialect, which the neighboring tribes do not understand. They are relatively tall in stature and inhabit the region surrounding Ishtahard, sixty-five kilometers southeast of Kazvin. He adds that there are many discrepancies in the nomenclature of the tribes adopted by various authors. For example, the tribe Ajemis actually does not exist. In Arabic, *adzham* means "foreign" and the Arabs used this term to designate all those who were not Arabs, Ajemis simply meaning Persians, the urban population of Iran.

Among the 152 individuals examined the skin color was yellow-brown. Individuals not subjected to the influence of the intense sunlight, for example, prisoners or hospital cases, were much paler. The same could be said with regard to women inhabiting the cities, who were more protected from the sun than the men.

Arranging his observations according to Broca's scale,<sup>1</sup> Danilov obtained the following results:

Nos.	Number of individuals
23+33, 33, 40, 45.....	82
46+47, 47.....	34
33+47, 46.....	6
54, 23.....	23
44.....	1
39.....	1
Total.....	147

The observations were recorded on the covered parts of the body, the exposed areas being somewhat darker. As far as possible the numbers have been arranged in groups.

The color of the head and beard hair could be determined for only fifty-four individuals due to the fact that the natives dyed their hair red with henna. With only one exception the hair was dark in color, ranging from No. 43 to No. 48, the majority belonging to the latter category. Five individuals possessed hair color No. 43 with a reddish tinge. In one Ishtahardi the color was No. 43, the beard dark red (No. 44). Blond individuals seldom occurred, and he saw only one albino, who was treated by the natives with a certain amount of respect.

<sup>1</sup> According to A. Hrdlička's "Anthropometry," p. 59, footnote, Broca's scale for matching skin color was printed originally in his "Instructions générales pour les recherches anthropologiques" (Mem. Soc. d'Anthr., Paris, 1864, vol. 2; 2e éd., 16 mo., Paris, 1879); reprinted on larger scale by A. Hrdlička in "Directions for Collecting Information and Specimens for Physical Anthropology" (Bull. U. S. Nat. Mus., Pt. R. No. 39, Washington, 1904).

With regard to hair quantity, 69.1 per cent had considerable body hair. Among individuals under thirty years the amount was submedium, hair on the chest appearing rarely before this age. The arms and legs were usually only slightly hirsute.

Hair quantity	Number of individuals	%
Submedium.....	47	30.9
Medium.....	98	64.5
Very heavy.....	7	4.6
Total.....	152	100.0

According to his observations the Kurds (84.2 per cent) and the Mezlegants (81.8 per cent) were the hairiest groups, while the Persians (60.9 per cent) were the least hirsute.

Only after the age of thirty could the beard be called medium. At the age of fifty the natives usually had long beards. Beard quantity was recorded as absent (21.1 per cent), submedium to medium (23.9 per cent), and heavy (55.0 per cent). The mustache was generally trimmed. Small children seldom had their hair cut; in adults it was usually shaven so that only on the temples there remained some hair (*zolf*), painstakingly trimmed by the more fastidious young men. These locks to some degree resembled Jewish whiskers, except that they were shorter.

In the majority of the individuals (87.5 per cent) the hair was wavy, in 10.4 per cent straight, and in only 2.1 per cent was it curly, a feature absent among the Azerbaijanis and among the Ishtahardis. The following table gives the percentages of hair form in each of the three categories.

Group	HAIR FORM		
	Straight %	Wavy %	Curly %
Azerbaijanis.....	20.6	79.4	...
Ishtahardis.....	...	100.0	...
Kurds.....	...	94.7	5.3
Mezlegants.....	10.0	85.0	5.3
Persians.....	14.6	82.9	2.5

Eye color was more variable than hair color. Danilov did not see any individuals with either dark or light blue eyes, and in most cases (94.7 per cent) the eyes were various shades of dark brown. In 79.5 per cent of the individuals the eye color was either No. 1 or No. 2 on Broca's scale, 13.2 per cent had brown eyes of a lighter shade, 2 per cent (3 individuals) had gray eyes, 3.3 per cent had eyes with a greenish tinge and one individual (0.7 per cent) had green eyes. A darker circle was noted on the iris of 11.3 per cent of the brown-eyed individuals.

Thickness of the lips was recorded in the following percentages: submedium (13.2), medium (57.9), and thick (28.9).

Group	LIP THICKNESS		
	Submedium	Medium	Thick
	%	%	%
Azerbaijanis.....	23.5	52.0	23.5
Persians.....	6.5	52.2	41.3
Kurds.....	5.3	68.4	26.3
Ishtahardis*.....	12.9	68.4	22.6
Mezlegants.....	18.2	59.1	22.7

\* These percentages add up to 103.9.

Group	TEETH*							
	SIZE			CONDITION			OCCLUSION	
	Large %	Medium %	Small %	Good %	Wear %	Bad %	E. to E. %	Over %
Kurds.....	5.6	72.2	22.2	47.4	36.8	15.8	77.8	22.3
Azerbaijanis.....	23.5	58.8	17.6	58.8	23.5	17.6	79.4	20.6
Ishtahardis.....	16.1	54.8	29.0	58.1	22.6	19.4	83.9	16.1
Mezlegants.....	18.2	40.9	40.9	31.8	40.9	27.3	86.4	13.6
Persians.....	31.1	66.7	2.2	67.4	17.4	15.2	91.1	8.9
Total groups.....	21.3	59.3	19.3	55.9	25.7	18.4	84.7	15.3

\* Since Danilov quoted the number of individuals in each category the percentages have been calculated to conform to the other tables.

Observations revealed that 21.3 per cent of the individuals had large teeth, 59.3 per cent medium, and 19.3 per cent small teeth. The Persians had the largest teeth and the Mezlegants the smallest; in the latter tribe the teeth are set far apart. The condition of the teeth was good in 55.9 per cent of the cases, some wear was recorded in 25.7 per cent, and in 18.4 per cent the teeth were carious. The teeth of the Persians deteriorate for the most part as a result of scurvy, possibly due to the high elevation above sea level. With regard to the bite, 84.7 per cent had edge-to-edge and 15.3 per cent had a slight over-bite. No case of marked over-bite was recorded.<sup>1</sup>

With regard to subcutaneous adipose tissue the Persians generally fell into the medium classification, while many individuals among the laboring classes and in the cavalry regiments of the army were relatively thin or submedium. In the wealthy classes thick-set individuals often occurred.

Group	MUSCULATURE		
	Submedium	Medium	Heavy
	%	%	%
Azerbaijanis.....	14.47	79.63	5.9
Ishtahardis.....	19.40	80.60	...
Kurds.....	21.10	78.90	...
Mezlegants.....	27.30	63.70	9.0
Persians.....	34.80	65.20	...

In the chapter on stature Danilov used all the data which he could find in literature, so that his conclusions are based on measure-

<sup>1</sup> The high percentage of edge-to-edge occlusion suggests that Danilov used a standard different from that now commonly employed.

STATURE

Range	Kurds				Azerbaijanis						
	Daniilov	Chantre	Nasonov	Pantiukhov	Total	%	Daniilov	Chantre	Pantiukhov	Total	%
140-142	..	..	..	..	..	.....	..	..	..	..	.....
143-145	..	..	..	..	..	.....	..	..	..	..	.....
146-148	..	..	..	..	..	.....	..	..	..	..	.....
149-151	..	..	..	..	..	.....	..	..	..	..	.....
152-154	..	..	..	..	..	.....	..	..	..	..	.....
155-157	..	..	..	..	..	.....	..	..	..	..	.....
158-160	..	..	..	..	..	.....	..	..	..	..	.....
161-163	..	..	..	..	..	.....	..	..	..	..	.....
164-166	..	..	..	..	..	.....	..	..	..	..	.....
167-169	..	..	..	..	..	.....	..	..	..	..	.....
170-172	..	..	..	..	..	.....	..	..	..	..	.....
173-175	..	..	..	..	..	.....	..	..	..	..	.....
176-178	..	..	..	..	..	.....	..	..	..	..	.....
179-181	..	..	..	..	..	.....	..	..	..	..	.....
182-184	..	..	..	..	..	.....	..	..	..	..	.....
185-187	..	..	..	..	..	.....	..	..	..	..	.....
188-190	..	..	..	..	..	.....	..	..	..	..	.....
191-193	..	..	..	..	..	.....	..	..	..	..	.....
Totals.....	19	118	18	7	162	100.00	34	88	25	147	100.00
Mean.....	164.2	168.6	168.6	168.7	168.33	.....	169.9	170	165.6	169.6	.....
Maximum.....	172	188	180	176	188	.....	182	191	181	182	.....
Minimum.....	158	152	158	160	152	.....	162	158	150	150	.....
Fluctuation....	14	36	22	16	36	.....	20	33	31	32	.....

STATURE—Continued

Range	Ishla- hardis	Mezic- gants	Persians	Total of Danilov's Series	Lurs	Bakhti- aris	Sus- sians	Persians Ajemis	Total of Houssay's Series	Fedch- enko's Series	Pantiu- kho'y's Series	Chantre's Series	Total	%	No.	%
140-142	..	..	..	..	..	..	1	..	1	..	..	..	1	0.65	1	0.22
143-145	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
146-148	..	..	1	1	..	..	..	..	..	..	1	..	2	1.30	2	0.43
149-151	1	1	..	2	..	..	..	..	..	..	1	..	3	1.95	4	0.86
152-154	1	..	1	2	..	..	..	..	..	..	..	..	2	1.30	4	0.86
155-157	2	..	2	4	1	..	2	1	4	..	..	..	8	5.19	9	1.94
158-160	2	5	6	13	..	..	..	..	..	1	1	1	16	10.39	39	8.42
161-163	6	5	8	19	..	..	2	..	2	1	1	1	24	15.58	48	10.37
164-166	8	4	6	18	..	..	1	1	1	1	1	4	25	16.23	80	17.28
167-169	4	2	11	17	1	..	2	1	4	1	4	..	26	16.88	94	20.30
170-172	3	2	6	11	2	2	..	..	6	2	6	3	28	18.18	87	18.79
173-175	1	2	1	4	1	1	1	..	3	..	..	..	7	4.55	43	9.29
176-178	1	1	4	6	..	..	..	..	..	..	1	..	7	4.55	28	6.05
179-181	2	..	..	2	..	..	..	..	..	..	1	..	3	1.95	14	3.02
182-184	..	..	..	..	..	..	..	..	..	..	2	..	2	1.30	6	1.30
185-187	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0.43
188-190	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0.22
191-193	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0.22
Total....	31	22	46	99	5	3	11	2	21	6	19	9	154	100.00	463	100.00
Mean.....	165.2	164.3	165.3	165.1	168	171.5	163.3	161.5	165.4	165.8	168.7	165.0	165.7	.....	167.8	.....
Maximum..	181	177	178	181	175	175	174	167	175	172	183	171	183	.....	191	.....
Minimum..	151	150	148	148	157	170	140	156	140	158	148	159	140	.....	140	.....
Fluctuation.	30	27	30	33	18	5	34	11	35	14	35	12	43	.....	51	.....

ments of 463 Persians, Azerbaijanis, and Kurds, recorded by the following observers: Danilov (152), Chantre (215), Pantiukhov (51), Nasonov (18), Houssay (21), and Fedchenko (6).

The columns of the tables (pp. 100-101) giving the total number of individuals in each stature category show that most of the men fell in the medium groups; there was, however, a wide range (52) between the extreme limits, maximum 191 (an Azerbaijani), minimum 140 (a Persian-Susian). In general the decrease from the average figures toward the extreme limit was quite normal. The general distribution, however, was more regular toward the upper limits than toward the lower limits where the regularity was less marked due to the small stature of all the Persians.

With regard to the cephalic index Danilov (col. 45) supplemented his data on 152 men with those of other investigators, so that he had in all a total of 561 individuals.

## CEPHALIC INDEX

Range	KURDS		AZERBAI- JANIS		ISHTA- HARDIS		MEZLE- GANTS		PERSIANS		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
69.2-71.2	.	....	2	5.9	.	....	.	....	1	2.2	3	2.0
71.3-73.3	2	10.5	7	20.6	..	....	2	9.1	2	4.3	13	8.6
73.4-75.4	2	10.5	9	26.5	2	6.4	5	22.7	11	23.9	29	19.1
75.5-77.5	7	36.8	6	17.6	3	9.7	6	27.3	10	21.7	32	21.1
77.6-79.6	4	21.1	5	14.7	11	35.5	8	36.4	8	17.4	36	23.7
79.7-81.7	2	10.5	1	2.9	7	22.6	1	4.5	4	8.7	15	9.9
81.8-83.8	1	5.3	2	5.9	2	6.4	.	....	3	6.5	8	5.2
83.9-85.9	.	....	1	2.9	3	9.7	.	....	4	8.7	8	5.2
86.0-88.0	.	....	1	2.9	3	9.7	.	....	2	4.3	6	3.9
88.1-89.0	1	5.3	.	....	..	....	.	....	1	2.2	2	1.3
Totals . . .	19	100.0	34	99.9	31	100.0	22	100.0	46	99.9	152	100.0
Mean . . . . .	77.7		76.0		80.4		76.5		78.4		77.9	
Maximum . . . . .	89.0		87.8		87.8		79.8		88.4		89.0	
Minimum . . . . .	72.8		69.5		75.0		72.4		69.2		69.2	
Fluctuation . . . . .	16.2		18.3		12.8		7.4		19.2		19.8	
Classification									C.I.	Observer		
Subdolichocephals (x-75.00)												
Gabrs . . . . .									70.1	.....		
Lurs . . . . .									73.6	.....		
Dolichocephals (75.01-77.77)												
Persians . . . . .									75.7	Houssay		
Persians . . . . .									75.7	Pantiukhov		
Azerbaijanis . . . . .									76.0	Danilov		
Mezlegants . . . . .									76.5	.....		
Persians . . . . .									76.8	Fedchenko		
Kurds . . . . .									77.6	Pantiukhov		
Kurds . . . . .									77.7	Danilov		
Kurds . . . . .									77.7	Chantre		

Classification	C.I.	Observer
<b>Mesocephals (77.78–80.00)</b>		
Persians . . . . .	77.8	} Chantre
Azerbaijanis . . . . .	78.1	
Kurds . . . . .	78.1	
Azerbaijanis . . . . .	78.1	.....
Persians . . . . .	78.4	.....
Kurds . . . . .	78.5	Nasonov
Azerbaijanis . . . . .	79.4	von Erckert
<b>Subbrachycephals (80.01–83.33)</b>		
Ishtahardis . . . . .	80.4	.....
Azerbaijanis . . . . .	80.6	Pantiukhov
<b>Brachycephals (83.34–x)</b>		
Persians . . . . .	83.5	} Duhousset
Kurds . . . . .	86.7	
Bakhtiaris . . . . .	88.4	

The mean cephalic index for 561 individuals is 78.2, while that of the Kurds and Azerbaijanis is 78.1. The majority of the Persian series falls into the mesocephalic classification with a stronger tendency toward dolichocephaly than brachycephaly. Of the total combined series (561) only 144 (25.7 per cent) were subbrachycephals or brachycephals whereas 272 (48.5 per cent) were dolichocephalic or subdolichocephalic.

Examination of the seriations reveals that there are but slight variations within the dolichocephalic groups whereas in the brachycephalic series the reverse is the case. The summary follows:

(1) All the tribes measured can be placed in the mesocephalic group,<sup>1</sup> a factor which is due to the varying degree of admixture of the brachycephalic element.

(2) The more isolated tribes which have undergone less admixture have more or less retained their dolichocephalic type.

(3) The regularity of the dolichocephalic series in contradistinction to the brachycephals indicates that the dolichocephalic is the basic type of head form in the population of Persia and that the brachycephalic element constitutes an admixture introduced at some later date into the original population. The latter survives partially as a separate anthropological entity with the loss of ethnographical differences.

All the individuals measured (col. 59) had a small minimum frontal diameter, the mean being 105 (range 90–120). In this table the data are seriated as follows:

<sup>1</sup> This statement does not seem to accord with the figures in the preceding table.

## MINIMUM FRONTAL DIAMETER

Range	KURDS		AZERBAI- JANIS		ISHTA- HARDIS		MEZLE- GANTS		PERSIANS		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
90-92	..	....	..	....	..	....	..	....	1	2.1	1	0.7
93-95	1	5.3	..	....	..	....	..	....	..	....	1	0.7
96-98	1	5.3	2	5.9	1	3.2	..	....	..	....	4	2.7
99-101	2	10.5	1	2.9	5	16.1	3	13.6	6	13.1	17	11.2
102-104	5	26.3	12	35.3	12	38.7	8	36.3	13	28.3	50	32.9
105-107	6	31.5	6	17.7	11	35.6	4	18.2	12	26.1	39	25.7
108-110	4	21.1	9	26.5	1	3.2	3	13.6	11	23.9	28	18.4
111-113	..	....	1	2.9	..	....	1	4.6	3	6.5	5	3.2
114-116	..	....	2	5.9	1	3.2	2	9.1	..	....	5	3.2
117-120	..	....	1	2.9	..	....	1	4.6	..	....	2	1.3
Total . . . .	19	100.0	34	100.0	31	100.0	22	100.0	46	100.0	152	100.0
Mean . . . . .	104		106		104		106		103		105	
Maximum . . .	110		120		114		117		112		120	
Minimum . . .	95		97		96		99		90		90	
Fluctuations .	15		23		18		18		22		30	

The majority (58.6 per cent) fall within the range 102-107 with a regular decrease in the number of individuals toward both extremes. Fedchenko obtained the following figures for 6 Persians: mean 107 (range 102-109). Houssay gives some strange figures for the minimum frontal diameter on 5 Lurs (57), 2 Ajemis (75), 3 Bakhtiaris (76), and 11 Susians (60). It is difficult to understand how he could obtain such small figures for normal adult males.

Turning to the bizygomatic breadth, we have the following table from Danilov (col. 93).

## BIZYGOMATIC BREADTH

Range	KURDS		AZERBAI- JANIS		ISHTA- HARDIS		MEZLE- GANTS		PERSIANS		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
122-124	..	....	..	....	..	....	..	....	3	6.5	3	2.7
125-127	1	5.6	..	....	..	....	1	4.5	2	4.3	4	2.0
128-130	..	....	2	6.5	..	....	..	....	..	....	2	1.4
131-133	1	5.6	3	9.7	4	12.9	1	4.5	4	8.7	13	8.8
134-136	5	27.7	3	9.7	10	32.3	7	31.9	13	28.3	38	25.7
137-139	4	22.2	6	19.4	5	16.2	4	18.2	8	17.4	27	18.2
140-142	6	33.3	9	29.0	9	29.0	2	9.1	9	19.6	35	23.6
143-145	..	....	7	22.5	1	3.2	2	9.1	5	10.9	15	10.2
146-148	1	5.6	..	....	1	3.2	3	13.6	2	4.3	7	4.7
149-150	..	....	1	3.2	1	3.2	2	9.1	..	....	4	2.7
Total . . . .	18	100.0	31	100.0	31	100.0	22	100.0	46	100.0	148	100.0
Mean . . . . .	138		139		138		139		137		138	
Maximum . . .	148		149		151		150		146		151	
Minimum . . .	127		130		131		126		122		122	
Fluctuations .	21		19		20		24		24		29	

The mean was 138 with a maximum limit of 151 (Ishtahardis) and the minimum 122 (Persians). The majority of the individuals (67.6 per cent) fall into the median categories (134-142). While



the decrease toward both extremes is apparent this is irregular, suggesting the admixture of broad-faced and narrow-faced types.

In comparing his general mean for the Iranians with the mean obtained by Ivanovskii, who measured different Kalmuck tribes as the most striking representatives of the Mongolian type, Danilov notes that the Kalmuck mean (158) is 20 mm. greater than that obtained by him.

People	No.	Bizygomatic breadth	Observer
Persians.....	10	138.0	} Pantiukhov
Azerbaijanis.....	10	142.0	
Kurds.....	7	140.0	} Fedchenko
Persians.....	6	127.0	

Danilov (col. 93) observes that the marked discrepancy in the bizygomatic breadth obtained on six Persians by Fedchenko may well be due to differences in anthropometric technique.

The bigonial breadth (col. 99) tends to be small; the mean was 102 (range 85-127). The groups have been seriated as follows:

Range	BIGONIAL BREADTH											
	KURDS		AZERBAI-JANIS		ISHTA-HARDIS		MEZLE-GANTS		PERSIANS		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
85-88	..	....	..	....	2	6.5	..	....	2	4.4	4	2.6
89-92	2	10.4	1	2.9	2	6.5	..	....	2	4.4	7	4.6
93-96	5	26.3	6	17.7	5	16.1	4	18.3	11	23.9	31	20.4
97-100	4	21.1	3	8.8	5	16.1	3	13.6	6	13.0	21	13.8
101-104	3	15.8	4	11.8	5	16.1	6	27.3	10	21.7	28	18.4
105-108	1	5.3	12	35.3	5	16.1	3	13.6	7	15.2	28	18.4
109-112	3	15.8	3	8.8	5	16.1	3	13.6	6	13.0	20	13.2
113-116	..	....	5	14.7	2	6.5	3	13.6	2	4.4	12	7.9
116+	1	5.3	..	....	..	....	..	....	..	....	1	0.7
Totals....	19	100.0	34	100.0	31	100.0	22	100.0	46	100.0	152	100.0
Mean.....	101.4		104.2		101.7		103.1		101.0		102.2	
Maximum...	127		116		116		113		116		127	
Minimum...	90		90		86		94		85		85	
Fluctuations.	37		26		30		19		30		42	

As usual the median groups are represented by a greater number of individuals than the other groups.

People	No.	Bigonial breadth	Observer
Persians.....	6	107.0	} Fedchenko
Persians.....	10	110.0	
Kurds.....	7	111.0	} Pantiukhov
Azerbaijanis.....	10	114.0	

Danilov summarizes (col. 135): The peoples of Iran are slightly above medium stature (167.8), based on 463 individuals. The head is of medium size both in absolute dimensions and in its relation to the stature; it is elongate-oval in shape with a medium glabella-

occipital length and a rather small head breadth. The mean cephalic index for 561 individuals is 78.2 (range 68-94). True brachycephals are relatively scarce, the majority of the Persians being either mesocephals or dolichocephals. The forehead is low and narrow. The face is long and oval with a small bigonial breadth and a narrow breadth between the zygomatic arches. The nose is of medium dimensions. The lower part of the face (menton-subnasale) is well developed.

The eyes, which are set close together, are large and the iris is dark, generally brown, in color. The hair is usually wavy and dark chestnut or black in color. The body hair is well developed. In general musculature the Persians are robust with a correspondingly large lung capacity. There is, however, a marked narrowness in the breadth of the pelvic girdle. The trunk, arms, and legs are relatively long in relation to the stature.

Among other peoples inhabiting more or less adjacent regions, the Afghans and Asiatic Gypsies resemble the inhabitants of Iran in the size of the head and the Arabs and Jews in the dimensions of the arms and legs.

In some individuals the head breadth and the breadth of the face were relatively large, which, together with a small stature, seemed to indicate an admixture of Turkic or Mongolian elements. On the other hand, mainly in southern Iran, he noted individuals whose stature was below medium, and who possessed a darker skin, more wavy hair, and a wider and shorter nose, which was possibly the result of mixing with the Susians, who are probably related to the Negroes or Negritos. Since he measured only 152 individuals representing the more numerous tribes in the northern part of the country, Danilov states that the data obtained are insufficient and one cannot make definite conclusions with regard to the differences between various tribes inhabiting Iran or determine the influence of the physico-geographical conditions of the locality.

In the Appendix Danilov (col. 137 et seq.) writes regarding Persian and Gabr skulls that anthropological literature contains little Persian craniological data, mainly because it is almost impossible to obtain such skulls, since the Persians venerate the remains of their ancestors and anyone who disturbs them is subject to severe persecution. In consequence European museums probably have not more than ten to fifteen Persian skulls.

Danilov succeeded in securing five skulls from the cemetery of "Kala-Gebri," located in the mountains southeast of Tehran. They

were found on the surface of the ground and only one was taken from an underground vault, the entrance to which was closed by large stones. The body with which this skull was associated was only partially deteriorated.

The skulls were presented to the Anthropological Museum of the University of Moscow. Craniometric studies of these skulls, carried out by A. A. Ivanovskii, an assistant in the Anthropological Museum, revealed that one skull (No. 1) belonged to a woman, another skull (No. 2) was that of a youth, and three skulls (Nos. 3, 4, 5) belonged to male adults. No. 3 was the skull of an aged male.

On the basis of the data given by Danilov (cols. 139-144) the skulls are described as long, medium in breadth, and high, with medium horizontal and vertical circumferences, the temporal part of the latter being greater than the frontal, and with a small transverse circumference. They are extremely dolichocephalic. Among the Gabrs the head breadth and the bizygomatic breadth are moderately wide. In general, however, the facial breadth is small, slightly wider in the bizygomatic breadth, and elongate. The neck is thick, especially in the region of the nuchal muscles. The interorbital breadth is medium with a megaseme orbital index. The nose is leptorrhine, and the palate medium in size, with a slight degree of prognathism. No artificial cranial deformation was observed.

In comparing these skulls with Turkoman and Turki (Ivanovskii, 1891a, pp. 93-128) and 200 Mongol skulls, described by Ivanovskii (1892, pp. 263-325), he notes that the Gabr skulls resemble the former to some degree but they apparently have no Mongoloid characters whatsoever. Ivanovskii (1891b, pp. 100-224) has summarized the craniometric data of the ancient and modern inhabitants of the Caucasus. He states that among the ancient crania the proportion of the cephalic indices was as follows: 59.9 per cent dolichocephalic, 16.4 per cent mesocephalic, and 23.7 per cent brachycephalic. The majority of the skulls had a high vault, medium wide forehead, pronounced nuchal muscles, broad palate, narrow face, medium high orbits, and a narrow nose. The Gabr skulls have almost identical physical characters.

Danilov (col. 145) writes that measurements on 873 individuals of the present population of the Caucasus belonging to 15 different tribes showed that 11 per cent were dolichocephals, 16 per cent mesocephals, and 73 per cent brachycephals. The Natukhuits are

dolichocephals, the Kurds and Ossetes,<sup>1</sup> as measured by von Erckert, mesocephals and all other Caucasian tribes are brachycephals. Thus the Gabr skulls were similar to the skulls of the ancient inhabitants of the Caucasus. According to Quatrefages and Hamy the skulls of the Afghans and Hindus are also somewhat similar.

Obviously, on the basis of such brief craniological data, Danilov concludes, one cannot make definite statements regarding the characters of Persian skulls. Nevertheless, taking into account the data obtained by other investigators, as well as his own observations on living individuals, Danilov believes that one can assume that the skulls of Persians, especially those of the Gabrs, are dolichocephalic, hypsicephalic, with small malars, a narrow nose, and a long face.

Danilov (cols. 53-55) gives a long list of cephalic indices, grouped under his arbitrary divisions of subdolichocephals, mesocephals, subbrachycephals, and brachycephals. Danilov does not record the name of each observer. The following selection has been made for purposes of comparison.

#### CEPHALIC INDICES

Brachycephals (83.34-x)	
Assyrians . . . . .	89.6
Georgians . . . . .	86.0
Uzbeks from Ferghana . . . . .	86.0
Armenians . . . . .	85.6
Tadzhiks from Ferghana . . . . .	85.5
Uzbeks from Zaravshan . . . . .	85.5
Georgians . . . . .	84.5
Uzbeks from Kuldzha . . . . .	84.0
Uzbeks from Samarkand . . . . .	84.0
Tadzhiks from Zaravshan . . . . .	84.0
Subbrachycephals (80.01-83.33)	
Uzbeks from Zaravshan . . . . .	83.0
Turkomans . . . . .	83.0
Tadzhiks from Samarkand . . . . .	83.0
Mesocephals (77.78-80.00)	
Crimean Tatars (Perekop) . . . . .	79.5
Tats (Daghestan) . . . . .	78.7
Persians . . . . .	78.4
Kurds . . . . .	78.1
Azerbaidzhanis . . . . .	78.1

1895.—The following extracts are from Brinton's outline of the protohistoric ethnography of Asia between the thirtieth and fortieth parallel of north latitude and west of the fiftieth meridian east of Greenwich.

Brinton (p. 2) considers that the alleged primitive Dravidian or Negritic Black race as depicted on the monuments at Susa are

<sup>1</sup> This does not agree with my measurements on 107 North Ossetes, who are brachycephalic.

more likely to have been portraits of slaves or captives than of an old resident population, a factor which may explain "the somewhat Negroid traits of the modern Susians." He adds (p. 3) that "the 'Asiatic Ethiopians,' mentioned by Herodotus and some other early writers, were not Negroid. They are described as having straight hair, and it has been shown by Georges Radet (*Révue archéologique*, vol. 22, 1893, pp. 209 et seq.) that some of them at least were Semites."

He gives little credence to the idea of locating members of the alleged primitive Hamitic (Cushite) stock on west Asian soil, an idea derived from Genesis x.

1895.—Brinton (pp. 4-5) questions the theory that an alleged "Turanian" (Sibiric or Sinitic) Race extended over western Asia and central and southern Europe in prehistoric times. The only groups of Mongols now in the limits of ancient Iran, the Hazara and the Aimak and a few others, "drifted there in the mighty inundation of Ghengis Khan in the fourteenth century of our era." Brinton (p. 5) continues: "Physically the protohistoric peoples of western Asia nowhere display clear traits of the well-marked type of the Sibiric stock. Judged either by the portraitures or by the cranial remains in the oldest cemeteries, they were meso- or dolichocephalic, with straight eyes, oval or narrow faces, distinct nasal bridges, etc."

Brinton (pp. 11-17) suggests that the Caucasian, Aryan, and Semitic stocks were the three great divisions of the White race, who dwelt in western Asia in prehistoric and protohistoric times.

Brinton (p. 32) draws the following general conclusions:

"1. That there is no evidence of a prehistoric, non-Eurafrican race in western Asia. Its soil has always been possessed either by the Caucasian, the Semitic or the Aryan branches of the White race.

"2. There are distinct signs that the Caucasian stock in prehistoric times extended over large areas south of their present homes, and were driven north by the attacks of the Aryans and Semites.

"3. The chains of the Amanus on the west, the Masius on the north and the Zagros on the east have been from immemorial eras the limits of durable ethnic impressions by the Semites.

"4. From the Zagros to the Pamir, the Aryan stock occupied or controlled the land at the dawn of history. Medes and Proto-Medes were alike Aryans.

"5. The civilization of Babylonia arose from some branch or blend of the White race, and not from any tribe of the Asian or Yellow race, still less from the Dravidian or Black races.

"6. The Anatolian group of Asia Minor were allied to the Gallo-Celtic tribes of central Europe, and preceded by probably several millennia the Hellenic migrations into Asia."

1895.—Charles de Ujfalvy notes that the words "Eranian" and "Iranian" cause some confusion and consequently discriminates between the "Eranians of the northeast" and the Eranians of the plateau of Iran, or Iranians. This distinction, he states, is necessary in order to separate the white aborigines of Bactria, the Trans-Oxus, Sogdiana, and Ferghana from the Iranians (Persians, Afghans, etc.), and adds that among the Iranians there occurs only a dark type, while among the others a blond type has undoubtedly played a part in their formation.<sup>1</sup> In a footnote (p. 44) he adds: "We call Eranians the Iranians of Bactria and those Galtcha tribes of the Pamir and north of the Hindu Kush."

An attempt was made to utilize the figures on the stature and cephalic index as given by Ujfalvy but the numerous errors and inconsistencies in the text and in the tables and graphs have forced me to discard his data.

1896.—According to General A. Houtum-Schindler (see p. 48) "from a few cranial measurements which were taken by Duhousset, Khanikoff, Houssay, and others, it has been attempted to divide the inhabitants of Persia into Arians, Turks, Mongolo-Arians, Mongolo-Semites, etc., but 'the cephalic indices cannot serve as a starting-point in the classification of human races' (De Quatrefages), and all attempts to make racial distinctions of the different tribes in Persia by cephalic indices are, I think, a failure. Taking language as a basis of classification, we may say that most of the inhabitants of Eastern Persian Irak are Persians, and that the types in the hilly districts are singularly pure. In the cities, particularly in Teheran, there is much admixture of Turkish blood. Some families of Kom [Qum] and Kashan call themselves Arabs, but have now very little Semitic blood in them. Armenians are settled in Teheran and Julfa, near Isfahan; Jews in Teheran, Kashan, and Isfahan; and a few Zoroastrians, known in Persia as Gabrs or Gebrs, in Teheran. On account of scarcity of water and sparse vegetation the *nomads* are not very numerous. There are the Turkish Khalej, Shahseven, and

<sup>1</sup>"Cf. Expedition scientifique et française en Russie, en Sibérie et dans le Turkestan, 2 vols., Paris, 1879."

Beiat tribes, speaking the so-called Azerbaijanlu dialect of Turkish with Jaghatai forms, and residing in winter in the plains about Teheran, Kom, Avah, and Savah; the Khojavend and some other *Leks* in the plains northeast of Teheran; the *Lur* tribe of the Zends near Kom; and the *Kurdish* tribe of the Pazeki in Veramin and Khar, east of Teheran, the three last speaking Persian dialects with Luri and Kurdi forms.

“The Shahseven is a comparatively new tribe, formed in the first quarter of the seventeenth century by Shah Abbas I. in order to break the power of the thirty-two Kizilbash tribes, whose chiefs had since the year 1500 held command of the army and all the important governments. Many Kizilbashes enrolled themselves in the new tribe, and caused in some instances the extinction of their own. The new tribe was called Shahseven, *i.e.* Shah-loving, because it was considered to be the special guard of the throne . . . . The most important of the Kizilbash tribes, all Turks, were the Ustajallu, Shamlu, Kajar, Afshar, Dhulkadr, Inanlu, Takallu, Beiat, and Khalej. Of the *Ustajallu* and *Dhulkadr* very few now remain and reside in Azerbaijan. The *Shamlus*, *i.e.* Syrians, who were brought in the fourteenth century by Timur from Syria where they had settled in the previous century after Jengiz Khan’s conquests, now exist partly as a branch of the Shahseven, and partly as a separate tribe called *Baharlu*. The Baharlu were originally a branch of the Shamlus, but on the latter losing identity, they formed a separate tribe. They now number about twenty-five hundred families, half residing in Fars, half in Azerbaijan. In Fars they are generally known as Arabs, probably on account of their having come from Syria. The *Kajars* are now represented by the Shah, the members of the royal house and twelve branches, residing in the north of Persia, principally in Mazandaran and Astrabad. The *Afshars* form a large tribe of twelve thousand families, residing in Azerbaijan. . . . It is probable that the Afshars came to Persia in the eleventh century. The *Inanlus* are at present the most important branch of the Shahseven, and their chief is generally considered the chief of the tribe. The *Takallu* tribe was broken up by Shah Tahmasp in 1531, and merged into other tribes. A few families kept the name, but as a tribe they disappeared from history. In the genealogical tables of Rashid ed din (written at the beginning of the fourteenth century, Rashid died 1318), the *Khalej*, or more correctly, Kalej (Other forms of this name are Kilij, Khilij. The Khalej of Persia spring from the same stock as the Khilij, Khilji,

Ghilji, or Ghilzai, of Afghanistan, but the latter left Central Asia several centuries before their Persian brethren, and are mentioned by Eastern writers as living in Afghanistan as early as the beginning of the tenth century.) are mentioned as one of the Turkish tribes descended from Ughuz Khan. The tribe joined Jengiz Khan about the year 1200, assisted him in conquering the countries west as far as the Mediterranean, and settled afterwards in Asia Minor. A part of them later on settled in Persia, and in 1404 we find them living in the district which they now occupy near Savah, and being ordered by Timur to swell the forces of Amir Shah Malik and Pir Ali Sulduz in Rei (Rozet es Safa). Parts of the tribe reside in Fars, Kerman, and Azerbaijan. The *Beiats* are mentioned in Rashid ed din's tables among the 'so-called Tartar tribes.' They are Turks, and also came with Jengiz Khan, some settling in Asia Minor, others in Persia. At the end of the reign of Shuja' ed din Khurshid, Attabeg of Little Luristan (d. 1224), they were occupying a district on the north of Burujird and Khorremabad ('Akrad-nameh,' by Sheref ed din), and there they are now. Some of the tribe also occupy districts in Fars and Khorasan, others joined the Kajar tribe, and form the subdivision of the Shambeiatlu.

"The Khojavends and other Leks, as Nanakellis and Kellehkuhs in Eastern Persian Irak, are considered aboriginal Persian tribes, but, curious to say, most of them speak Turkish, or perhaps, more correctly, a mixture of Turkish and Persian. Other Leks speak dialects resembling Kurdi.

"The Zends are Lurs, and were hardly known before Kerim Khan, who was of that tribe, and was king of Persia from 1757 to 1779. With the capture of Lutf Ali Khan in 1795 by Agha Muhammed Khan Kajar, the Zend dynasty ended, and the tribe was broken up; there are still extant about a hundred and fifty or two hundred families of Zends near Kom, Hamadan, Malayer, and in the Bakhtiari country, all occupying sub-ordinate positions.

"The *Pazekis*, or Pazukis, were once a powerful tribe, residing near Erzeroum, and several of their chiefs are mentioned in Sheref ed din's 'Akrad-nameh.' The tribe was broken up in the latter part of the sixteenth century, some families of it migrating to Persia. About a thousand families reside in Veramin and Khar, south-east and east of Teheran. Some of them speak Kurdi, some Turkish."

With regard to the population, Houtum-Schindler (pp. 117-119) states: "Shehr i Isfahan comprises the town on the left side of the Zayendehrud and the gardens in its immediate neighborhood . . .



The population of the town is about eighty thousand, rather more or less (His Imperial Highness Zill es Sultan graciously supplied me with a volume of statistics referring to the Isfahan province). From these statistics it appears that a census was taken of the population of the town and all the villages of the province in 1882. The people were counted twice, once by some officials specially appointed for the purpose, and again, independently but simultaneously, by the chief of the various mahallehs, parishes, and villages. The two series of figures arrived at were practically the same, viz. for Isfahan only, excluding the Armenian colony of Julfa on the right bank of the river: Census I. 9,616 houses, with 37,597 males and 36,188 females, or 73,785 inhabitants altogether; Census II. 9,572 houses, with 37,462 males and 36,064 females, or 73,526 inhabitants altogether . . . .”

MEANS OF CENSUS I AND II		
Houses . . . . .		9,594
Mussulmans {	males . . . . .	34,599
	females . . . . .	33,172
	<hr style="width: 50%; margin: 0 auto;"/>	
Jews {	males . . . . .	2,930
	females . . . . .	2,953
	<hr style="width: 50%; margin: 0 auto;"/>	
		67,771
		<hr style="width: 50%; margin: 0 auto;"/>
		5,883
		<hr style="width: 50%; margin: 0 auto;"/>
Total population [for Isfahan]. . . . .		73,654

“Assuming that the population increases  $\frac{3}{4}$  per cent per annum, which I have found elsewhere to be the usual ratio, the present population, eleven years after the census, would be 79,726, but as many people have immigrated from the surrounding districts during the last ten years, the population may be put down as close on 82,000.”

1899.—Ripley, writing in 1899, dealt very fully with the racial strains of southwestern Asia and their effect upon the people of Iran (pp. 442-452). “Obviously, Asia Minor, Mesopotamia, and Persia can not be left out of account in our review of the Oriental peoples of Europe. . . . To it [this region] have converged from every direction great currents of immigration or invasion: Turkish-Tatar, from the steppes of Asia; European, from Greece; African, from Egypt. In the convergence of these currents upon this point we find, of course, a plausible explanation for its early pre-eminence in civilization. Corresponding difficulty in distinguishing the several ethnic elements is a necessary corollary of this fact.

“The distribution of language offers positively no clew to the problem. The Azerbeidjian Tatars, forming a major element in the population of Persia, are positively Iranian in every trait,

although their language is Turkish...no other alternative is offered to the linguist than to class these people as Turks. The Kurds, on the other hand, are mainly inhabitants of Asiatic Turkey, but they are Iranian in their affinities, both linguistic and physical. The Armenians, judging by their language which seems to be Aryan,<sup>1</sup> might reasonably be expected to stand between the Greeks and the Persians. As a matter of fact, they are far more closely related physically to the Turkomans than to these other Aryan-speaking peoples. Language fails utterly to describe the racial situation.

"This extensive region is to-day occupied by two distinct racial types...<sup>2</sup> The first of these in this part of the world we may provisionally call the Iranian. It includes the Persians and Kurds, possibly the Ossetes in the Caucasus, and farther to the east a large number of Asiatic tribes, from the Afghans to the Hindus. These peoples are all primarily long-headed and dark brunets. They incline to slenderness of habit, although varying in stature according to circumstances. In them we recognize at once undoubted congeners of our Mediterranean race in Europe. The area of their extension runs off into Africa, through the Egyptians, who are clearly of the same race. Not only the modern peoples, but the ancient Egyptians and the Phoenicians also have been traced to the same source. By far the larger portion of this part of western Asia is inhabited by this eastern branch of the Mediterranean race.

"The second racial type in this borderland between Europe and Asia we may safely follow Chantre in calling Armenoid, because the Armenians most clearly represent it to-day. It is less widely distributed than the Iranian racial type. Outside of Asia Minor, it occurs sporadically among a few ethnic remnants in Syria and Mesopotamia. Throughout the Anatolian peninsula it forms the underlying substratum of population, far more primitive than any occupation by the Turks. This type is possessed of a most peculiar head form, known to somatologists as hypsi-brachycephaly... The head is abnormally flattened at the back. It rises sharply from the neck, while, as if at the expense of this foreshortening, the height of the skull is greatly increased. This disguises, of course, the real breadth of face peculiar to this type, as contrasted with the Iranians. Artificial compression is at once suggested by such head forms as these. It is undoubtedly present, either consciously per-

<sup>1</sup>"Cf. note in Keane's *Ethnology*, p. 411. Whether Armenian be Iranic, Semitic, or unique, it is surely Aryan."

<sup>2</sup>"Chantre's monumental *Recherches dans l'Asie Occidentale*, Lyon, 1895, is our authority. Cf. especially his summary on pp. 234-244."

formed or else as a product of the hard cradles. That the shortness of the head is not entirely artificial can not be doubted, or else we have a case of inheritance of acquired characteristics. For even in absence of such deformation the same sugar-loaf cranial form occurs (Chantre, 1895 [*vide supra*], pp. 38-67). Along with this peculiarity of head form are other bodily characteristics differentiating these people from the Iranian type. The body is heavier built, with an inclination—among the Armenians at least—to obesity. There are not very great differences in pigmentation between the two racial types. Both are overwhelmingly brunet. The rare blonds of the Caucasus are even more scarce hereabouts; although Chantre found eleven per cent of blonds among them, the great majority were very dark. Only as we enter the Himalayan highlands, among Galchas and their fellows, do lighter traits in hair and eyes appear.

“Two rival peoples—Kurds and Armenians—contend for the mastery of eastern Asia Minor. The first of these, the Kurds, are difficult to classify culturally. The lower classes are sedentary, dwelling in villages, while the chiefs live in tents, wandering at will. There are nearly two million of them in all, two thirds in Asiatic Turkey, the rest in Persia, with a few thousand in Caucasia. The Armenians claim that these Kurds are of Median origin, but the better opinion is that they are descendants of the Chaldeans. Their affinity to the Syrian Arabs can not be doubted (Chantre, 1885, vol. 2, p. 214). These Kurds have remained relatively untouched by the Mongol or Turkish invasions in the retirement afforded by the mountains of Kurdistan. Both in their language and their physical traits they are Iranian. Chantre,<sup>1</sup> studying them in Asia Minor, reports as to their hard features and savage aspect. Their own derivation of ‘Kurd’ is from a word meaning ‘excellent’; but the Turkish equivalent for it, ‘wolf,’ seems more aptly to describe their character. They are very dark, with eyes of a deep-brown tint; the women darker, as a rule. . . . The nose is straight or convex; rarely concave. The head is long and exceedingly narrow (index 78.5), with a face corresponding in its dimensions. The effects of lateral compression of the skull are plainly apparent in our portrait. In stature they are of moderate height. As a whole, owing to their wide extension, nomadic habits, and lack of social solidarity, these Kurds are a heterogeneous people. . . .

<sup>1</sup> “1895 [*vide supra*], pp. 75 *et seq.*; with data on 332 subjects. Nasonof, 1890, is also good.”

"There are about five million . . . Armenians in all, somewhat over half of them being inhabitants of Turkey, with the remainder in Russian Caucasia and Persia. Anthropologically, these people are of supreme importance as an example of purity of physical type, resulting from a notable social and religious solidarity. They rival the Jews again in this respect. One of this nation can almost invariably be detected at once by means of his peculiar head form . . .<sup>1</sup> Even in places where they have been isolated from the main body of the nation for centuries they adhere to this primitive type. . . .

"That the Armenoid or hypsi-brachycephalic racial type of Asia Minor is not entirely a matter of artificial selection would appear from its prevalence in out-of-the-way places all over Asia Minor . . . Von Luschan<sup>2</sup> finds it among a number of primitive tribes in Anatolia, noticeably among the so-called Tachtadsky. These people, now few in numbers, inhabit the mountainous and remote districts in Lycia. Their name, 'woodcutters,' designates the occupation in which they are mainly engaged. . . .

"Quite like the Tachtadsky physically are another people, known as the Bektasch, or 'half Christians,' who form the town population in some regions. Down in the mountains of northern Syria the same stratum of population crops out among the Ansariés, or 'little Christians.' According to Chantre (1895 [*vide supra*], pp. 139-148), these people are anthropologically indistinguishable from the other Armenoid types. Generally speaking, all these peoples are found only in regions of isolation—in marshy, mountainous, or remote districts. On the coast and in the larger towns a type akin to the long-headed Greek is more apt to prevail. For these reasons, von Luschan concludes that the Armenoid type is the more primitive, and that it represents the earliest inhabitants of the peninsula. That it is older than the Turks no one can doubt. Yet we are inclined to agree with Sergi [*Origine e diffusione della stirpe mediterranea*, p. 58 (Rome, 1895)] that it is not necessarily the very earliest. In fact, there is evidence to show a still more ancient type, like that found in the Greek necropoli. This latter is quite Mediterranean in its racial affinities; probably of the same origin as the dolichocephalic Iranian peoples who still predominate to the south and west.

<sup>1</sup> On the Armenians, Ripley refers to Chantre, 1895 [*vide supra*], pp. 37 et seq.; F. von Luschan and E. Petersen, "Reisen in Lykien, Milyas, und Kibyrtis," p. 212 (Vienna, 1889); Khanikoff, 1866, p. 112; and Tvaryanovitch, "Materialy K Antropologii Armian," 1897.

<sup>2</sup> "1889 [*vide supra*], pp. 198-213. Cf. also Vambéry, [Das Türkenvolk in seinen ethnologischen und ethnographischen Beziehungen] 1885, p. 607."

“Summarizing the anthropological history of Asia Minor, we draw the following conclusions: First, that the Mediterranean or Iranian racial type represents the oldest layer of population in this part of the world. This . . . is true of Europe also. A second racial element, subsequently superposed, is that of the Armenoid or brachycephalic type. . . . Finally, on top of all has come the modern layer of immigrant and more or less nomadic Turks and their fellows. The possibility of connecting one of these, our second or Armenoid type, with the ancient Hittites can not fail to suggest itself. Possibly it was Pelasgic. Von Luschan suggests it. Sergi believes the Pelasgi and Hittites were both Asiatic in origin. Who knows? . . . For our immediate purposes the importance of the Armenoid group is derived from the fact that it, with the Caucasian one, is the only connecting link between the Alpine racial type of western Europe and its prototype, or perhaps we had better say merely its congener, in the highlands of western Asia. The tenuity of the connecting link between the two is greatest at this point. Were it not for the potent selective influences of religion, complete rupture by the invading Tatar-Turks might conceivably have taken place. As it is, the continuity of the Alpine race across Asia Minor can not be doubted.

“In Persia there is no such clear segregation of racial types as we have observed between Armenians and Kurds, who are as impossible of intermixture as oil and water. . . . Marked topographical features are also lacking on the great plateau of Iran. A wholesale blending of types has consequently ensued among the modern Persians. Three distinct ethnic influences have been at work, however, producing what we may call varieties, or subtypes, of the pure Iranian. This latter is found only in two limited districts: one among the Farsis about Persepolis, just northeast of the Persian Gulf; the other among the Loris, or ‘mountaineers,’ somewhat farther to the west, over against the Kurds. Of these, the former are the ideal Aryans(?) of the earlier philologists. Their skin is described as fair. They are slender but finely formed. This trait is quite noticeable in comparing them with the Turkomans or Tatars. The hair and beard are abundant, of a dark chestnut colour. Thus they are blonds only by comparison with their darker neighbours on every side. Real blonds, with blue eyes, are very rare; we have Houssay’s word for that. The Loris are taller and much darker, often with black hair. Let us add that they are also acutely dolichocephalic, with smoothly oval faces

and regular features, thus in every detail corresponding to the criteria necessary to adjudge them Mediterranean by race.

“Three subvarieties of this ideal Persian type lie in the several directions of Africa, central Asia, and India. The first of these is Semitic. It occurs all along the line of contact with the Arabs, producing as a natural consequence a distinctly darker population toward the southwest. The second subvariety forms the great mass of the nation. It results from an intermixture with the pure Iranian of a Turkoman or Tatar strain. Such are the Hadjemis and Tadjiks, for example, who predominate in the east and northeast. The Azerbeidjian Tatars . . . also fall within this class. Although they speak Turkish, they are in reality distinctly Iranian by race. . . . The hair is coarser, inclining to black; the face is broader, with greater prominence of the cheek bones, than in the pure Iranian. The heads at the same time become broader, especially toward the northeast; and what Bryce calls the ‘slim, lithe, stealthy, and cat-like Persian,’ is transformed into the bigger and more robust Turkoman. Instead of Turkoman, dare we say an Alpine strain of blood is here apparent? . . .

“Finally, our third subtype of the Persian occurs toward the southeast, among the so-called Suzians, about the mouth of the Persian Gulf. . . . Is not the strain of negroid blood at once apparent? Notice the flattened and open nose, the thick lips and the black hair and eyes. We have reached the confines of India. Here we meet the first traces of the aboriginal population underlying the Hindoos. It includes all the native Indian hill tribes, and extends away off over seas into Melanesia. . . .

“East of Persia the several racial types which have almost imperceptibly blended into the modern population of that country divide at the western base of the central Asiatic highlands. This great barrier, as we have already pointed out in our chapter on the head form, marks one of the most sudden racial transitions in the world. At its eastern end along the Himalayas, it divides the pure Mongols in Thibet from the Hindoos and the negroid hill tribes of India. Farther to the west, the Hindu-Koosh Mountains in Afghanistan have forced apart the two racial types which we have traced all the way here from Europe. North of the mountains in Turkestan one racial type—the Alpine—occurs among the Turkomans. We can not too strongly emphasize the fact that these peoples in the Aral-Caspian Sea depression are by no means Mongol

as a whole. South of the Hindu-Koosh extends the eastern branch of the Mediterranean race, among the Afghans and Hindoos. . . .

“It is curious to note that among the peoples north of the Hindu-Koosh broad-headedness increases as one penetrates the mountains, while on their southern slopes the opposite rule obtains. From either side, therefore, purity of types—and these, too, of a very different sort—increase toward the watershed which lies between them. How different a phenomenon from that afforded by the gradual transitions of type on the Iranian plateau! Can it longer be affirmed that in approaching the highlands of Asia we are tracing our European racial types back to a common trunk? Facts all belie the assumption. Two at least, of the racial elements in the peoples of Europe are as fundamentally different here in the heart of Asia as all through central Europe. In other words, in our progress from Europe eastward, instead of proceeding toward the trunk, rather does it appear that we have been pushing out to the farthest branches of two fundamentally distinct human types.”

1902.—P. M. Sykes (1902c, pp. 342–343) observes that “everywhere the low-lying country, especially in its more inaccessible parts, is inhabited by a very dark race; Bashagird, Paskuh, and the Kalagan valley being particularly noticeable in this respect. At first, in my ignorance I attributed this to imported slave blood, but the whole of the *Garmsir*, as the hot country is termed, possesses a similar type of population, except where, in comparatively recent times, invading tribes have occupied the more fertile tracts, and very frequently, migrate to the uplands during the summer.

“M. Dieulafoy, who discovered the famous frieze of the black archers at Susa, which dates from the time of the Achaemenian dynasty, mentions the existence of *negroid* skulls in the Parthian necropolis of the Memnonium, which confirm the classic writers.

“Of these Herodotus is of course *facile princeps*, and it is most interesting to know that the seventeenth satrapy of Darius included Ethiopians of Asia, who, it is to be observed, had straight as opposed to curly hair.

“The seventeenth satrapy was roughly Baluchistan of to-day, where we have an Aryan immigration which I shall discuss later, and also the dark Brahui tribe, which is certainly of Dravidian origin, as regards their language.

“In appearance the Brahui is darker, shorter and more thick-set than the Baluchi. According to their own legends, they were poor

shepherds, who came to the assistance of their Hindu raja in the seventeenth century, and finally conquered the country.

“Whether the straight-haired Ethiopians were these Brahuis, and whether there was one Dravidian race stretching from India to the Shatt-el-Arab, it is hard to say, but this seems the most likely theory and is supported by classic and medieval writers. Among the latter the great geographer Yakut mentions the Khuzis as an abject, black to copper-coloured, race, inhabiting what is now known as Arabistan, albeit the term Khuzistan still lingers.”

With regard to the gypsies, Sykes (p. 344) writes: “The question of their origin is such a vexed one that I propose simply to give a *précis* of the information that I gathered about this interesting people. In Persia they bear different names in different provinces, generally however speaking of themselves as *Fiuuj*, which is said to be Arabic. In Kerman they are known as *Luli*,<sup>1</sup> but in Baluchistan as *Luri*. In Fars *Kaoli*, a corruption of *Kabuli*, is their usual appellation, although *Gurbati* is also used. In Azerbaijan we find the name *Kara Chi*; in Khorasan *Krishmal*, a corruption of *Gheir-i-Shumar* or ‘Out-of-the-Reckoning,’ and, to go further afield, in the Chengyani of Turkey we find an approximation to, or the origin of, the European *Zingari*.” Sykes remarks that “their features are certainly not those of the Persian peasant.”

1914.—Alexander Finn, former British Consul-General to Persia, in a paper for the Persia Society (pp. 32–33) divides the inhabitants of that country into the following classes:

“1. Descendants of ancient Persians, including Parsis, representatives of the Medes. (There are only some 10,000 of these Zoroastrians in the whole land—a few score at Tehran; they are mostly gardeners. . . .)

“2. Turks and Turkomans, descendants of the Parthians.<sup>2</sup>

<sup>1</sup> For vocabulary see pp. 345–349; also JRAI, vol. 30, pp. 302–311, 1906. In Central Asia the word is *Liuli*. Cf. *Man*, 1902, 126.

<sup>2</sup> According to Finn (p. 32): “When I read my paper before the Persian Society, Professor Hagopian questioned my accuracy as to the Turkomans being the modern representatives of the Parthians, claiming that his people (the Armenians) were their descendants.

“On referring to the Historian’s History of the World, I find:

“*Armenians*, IV, p. 588.—In the second half of the second thousand years B.C. there was an immigration into Asia of Phrygio-Thracian tribes, the ancestors of the Armenians.

“*Parthians*, VI, p. 138.—Tacitus says that Tiberius suffered Armenia to be seized by the Parthians, i.e. between 14 and 37 A.D.

“*Turkomans*, XVIII, p. 615.—Transcaspia. The country is inhabited by Turkomans, a branch of the Turkish race, who have been identified with the old Parthians.”



"3. Arabs who came over at the time of the Mohammedan conquest.

"4. Others, such as Indians, Armenians, Jews, Afghans, etc."

1915.—The reader is referred to Sir Percy Sykes' two volumes entitled "A History of Persia" as a source book for the wealth of information therein contained. Certain sections which throw light on anthropological problems have been abstracted and follow in this section. The second edition (1921) has been used.

"The present population of Iran," according to Sykes (1921, vol. 1, pp. 13-14), "is estimated to be about ten millions,"<sup>1</sup> divided into "nine million Shias, nine hundred thousand Sunnis, eighty thousand Christians (Armenians, Nestorians, Greek Orthodox, Roman Catholics, Protestants), thirty-six thousand Jews, and ten thousand Zoroastrians." There may be "perhaps two million Persians living in the Russian, Turkish, and Indian empires. Before the era of sea transport there is no doubt that the cities of Persia were generally larger and more prosperous than at present, as the greater caravan traffic must have provided a living for thousands of families along the main routes apart from the benefits conferred on the agricultural class. Moreover . . . it is at least possible that the rainfall was heavier and the agricultural capabilities of the country were greater at earlier periods than to-day. Again, certain districts such as Astrabad are suffering from being overrun by nomads. But after making these allowances it is difficult to believe that the plateau has ever been more than sparsely peopled, and in my opinion it is an error to suppose that in respect of population it ever resembled modern Europe. It is impossible to make an accurate estimate; but, if we consider the much larger volume of traffic which passed across 'the Highway of the Nations' before the era of sea transport, and the fact that Persia was generally the seat of a great empire, even although the capital was rarely on the plateau, I am inclined to suggest that fifteen millions may have lived in the country which now supports but two-thirds of that number.

"The Persians were governed," Sykes (1921, vol. 1, p. 140) states, "by the members of seven noble families, among whom the Achaemenians were originally first among equals; but, in course of time, they became the royal family. The other chiefs became subjects, but preserved, among other privileges, the right of access to the monarch and formed his council."

<sup>1</sup> "Vide article on 'Persia' in 11th edition of the *Encyclopaedia Britannica*."

Sykes (1921, vol. 2, p. 392) adds that "no picture of Persia would be complete without reference to its tribesmen, who may number one-fourth of the entire population. The ethnographical medley is great, with Kurds, Turkoman, Timuris (of Arab origin), Hazaras, Baluchis, Turks, and Arabs in Khorasan alone; but, although these are of different origin and in many cases speak different languages, their customs are similar. They usually live in black tents woven from goat's hair cloth, and gradually graze their flocks towards the mountains in the spring, returning to the plains in the autumn. They practically never marry outside the tribe and are consequently pure bred, hence the immutability of their separate customs. Nominally Moslems, these free sons of the *dasht*, as the untilled land is termed in Persia, obey nobody except their chief, who in cases of importance summons a council composed of the elders of the tribe."

"During the course of my journeys in Persia," Sykes (1921, vol. 1, pp. 170-171) relates, "I have frequently observed encampments of a dozen or more black tents. . . . Their occupants, whose livelihood depends on their flocks, are forced, and have been forced for untold generations, to move from district to district in search of pasturage, which is ever meagre in these lands of scanty rainfall. In the winter the flocks sometimes suffer terribly even when the camp is pitched in a well-protected spot; but when spring has come, the *Iliat* or Tribesmen, as they are generally termed to-day—albeit the word is a Turkish one—make for the mountains. There they graze the higher parts in the summer, descending again as the autumn sets in to their winter grounds, where they probably sow their crops. . . ."

"It is reasonable to suppose that the Medes and Persians to a great extent led a similar life; and, inasmuch as the climatic and social conditions have not materially changed, we cannot go far wrong if we assume that they were just such a free, warlike, manly race as are the nomads to-day, some of whom at any rate are their descendants. This view of their character was held by the Greeks themselves; and, if the Greeks won deathless fame in their defence of Hellas, surely some share of it was earned by the gallant Persians."<sup>1</sup>

Regarding the Qashqais, Khamseh, and Qajar tribesmen, Sykes (1921, vol. 2, pp. 477-478) gives the following information. The

<sup>1</sup> Sykes (1921, vol. 1, p. 170) quotes Herodotus (ix, 62): "The barbarians many times seized hold of the Greek spears and brake them; for in boldness and warlike spirit the Persians were not a whit inferior to the Greeks." See also Wilson, 1929, p. 11.

Qashqais, who are of Turkoman origin, retain the Turkish language. "Nowadays the tribe is about 130,000 strong. The Kashqais move farther than any other tribe in their annual migration from their *Kishlak*, or winter quarters, to their *Yilak*, or summer quarters, their winter migration extending to Gelahdar near the Persian Gulf, and their summer movement reaching more than 200 miles northwards to the vicinity of Kumishah where they are in touch with the Bakhtiaris. Several of the districts into which Fars is divided were entirely in the hands of the Kashgais, who thereby controlled a population of 100,000 villagers. . . . The leading tribes are Darashuri, Kashkuli, Farsimadan, Shishbuluki, Safi Khani, and Gallazan Oghri."

Sykes (1921, vol. 2, p. 479) continues: "Second only in importance to the Kashgais were the Khamseh or 'Five' tribes, which graze over a huge area of country to the east of that occupied by the Kashgais. The tribesmen migrate to the vicinity of Bandar Abbas and Lar in the winter, and move northwards to the neighbourhood of Niriz and Dehbid for the summer. The five tribes are termed Arabs, Ainalu, Baharlu, Baseri, and Nafar. The Arabs, who form more than one half of the tribe, and are subdivided into two branches of Sheibani and Jabbareh, emigrated originally from Najd and Oman, but the other four divisions are mainly of Turkish descent. The common language is Arabic with a mixture of Persian, Turkish, and Luri. The tribe is 70,000 strong."

Turning to the third or Qajar tribe, Sykes (1921, vol. 2, p. 277) states that this is of Turkish origin. "Settled for a long time in Armenia, it was brought to Persia by Tamerlane. As already mentioned, it was one of the Kizilbash tribes which supported the Safavi dynasty. Shah Abbas divided the Kajars into three sections. Of these, one was established at Merv, a second in Georgia, and the third—which was subdivided into the Yukhari-bash and Ashaghabash, or 'upper' and 'lower' branches—on the River Gurgan."

Among other small groups are the gypsies. Sykes (1921, vol. 2, p. 11) describes the revolt of the Jatt in the following words: "Under the orders of Walid I., at the beginning of the eighth century of our era, a large number of Jatt, termed Zott by the Arabs, had been transported with their buffaloes from the lower Indus to the marches of the Tigris.<sup>1</sup> As soon as they were firmly

<sup>1</sup>"I would refer to the deeply interesting *Mémoire sur les migrations des Tsiganes à travers l'Asie*, by Professor de Goeje. Some years ago I collected vocabularies of the Gypsy dialect in both the Kerman and the Khorasan provinces; vide *Journal Anthropological Institute*, vol. xxxii, 1902, p. 339 and vol. xxxv, July-December, 1905."

established there they began to rob and kill . . . . Mamun's generals were unsuccessful in dealing with the elusive scourge, and Motasim's first care was to send Ojaf, a trusted Arab general, to subdue this alien people. Ultimately, in A.H. 220 (834), Ojaf succeeded in his task by cutting their communications. The Zott surrendered, and after being exhibited in boats to the delighted citizens of Baghdad . . . were exiled to Khanikin on the Turkish frontier—now a stage on the Teheran road—and to the frontiers of Syria, whither they proceeded, taking with them their buffaloes.”

Regarding the exposed frontier of Khurasan, Sykes (1921, vol. 2, p. 174) writes of another tribal group: “Abbas transported from Kurdistan some thousands of Kurds, with their families and flocks, and settled them to the north of Khorasan, where they acted as wardens of the marches. The newcomers were unable to hold their own in the fertile lands to the north . . . but in the valley of the Atrak they dispossessed the Geraili Turks and made good their position. To-day they are a flourishing community, still speaking their own language, and generally ruled by their tribal chiefs.”

Sykes (1921, vol. 2, pp. 70-72) describes in graphic detail the Mongol invasion of Persia which must have left its mark on sections of the modern population. In the words of the *Tarikh-i-Jahan-Gusha*:

They came, they uprooted, they burned,  
They slew, they carried off, they departed.

“No invasion in historical times can compare in its accumulated horrors or in its far-reaching consequences with that of the Mongols,<sup>1</sup> which swept across the entire width of Asia annihilating populations and civilizations, and from which Eastern Europe did not escape. . . . Neither Central Asia nor Persia,<sup>2</sup> nor to some extent Russia, has as yet recovered from this human avalanche of seven centuries ago. . . .

“The Mongols, or, as they were more generally termed, the Tartars,<sup>3</sup> were divided by the Chinese writers into three classes,

<sup>1</sup> “The special authorities for this period are D’Ohsson’s *Histoire des Mongols* and Sir Henry Howorth’s *History of the Mongols*. The former especially is based on trustworthy Moslem authorities, among them being Ibn-ul-Athir and the *Tarikh-i-Jahan-Gusha*, or ‘History of the World-Conqueror.’ ”

<sup>2</sup> Mongoloid traits occur among the modern peoples of the Iranian Plateau (Pl. 11, Figs. 1-4).

<sup>3</sup> I have used the form *Tatar*, but Sykes uses *Tartar*, explaining in a footnote: “The correct form is Ta-ta, the ancient name of the Mongols. The sound, however, so closely resembled the classical *Tartarus* that we find Matthew Paris, the Emperor Frederic II., Innocent IV., and St. Louis all playing on the

known respectively as the White, Black, and Wild Tartars, whose civilization decreased with the remoteness of their habitat from the humanizing influence of the sedentary population of China. . . .

“The true Mongols have almond-shaped eyes; they are beardless and generally short in stature, but a virile race, and, though clumsy-looking on foot, are born riders.”

Sykes (1921, vol. 2, pp. 216-218) gives some details regarding the peoples of Afghanistan, which “owing to its physical characteristics, has been the haven of refuge of aboriginal clans driven off the fertile plains. . . . The dominant population . . . is termed Pathan, or ‘Speakers of Pashtu,’<sup>1</sup> towards the borders of India, and in the west Afghan, or Aoghan, a word the derivation of which is obscure. Longworth Dames points out that Pathan is the real name, and that the term Afghan, first applied by foreigners, appears to be of literary origin; it has now been adopted as a polite designation by the upper classes.

“The two great tribes are the Durranis, the present ruling tribe, and the Ghilzais, or more correctly Ghalzais (termed Ghilji by Bellew). . . . These tribes may be roughly described as inhabiting eastern and southern Afghanistan respectively. To the north of the Hindu Kush the population is mainly Uzbeg; the heart of the country is inhabited by Mongol Hazaras, Taimani and Chahar Aimak, and the Herat province by Aryan Tajiks, while east of Kabul, in Wakhan, Roshan, and above all Kafirstan, there is an ethnological collection of peoples of the greatest interest, consisting of ancient Aryan tribes and broken clans which have taken refuge in these inaccessible mountain valleys. The population, of perhaps five millions altogether, may be divided into two equal classes, of Afghan and non-Afghan elements. . . . The Afghans are racially of Aryan origin and link India to the east with Persia to the west. The Afghans and Uzbegs are Sunnis, whereas the Persian element and the Hazaras are Shias. Moreover, Pashtu being rather a dialect than a language, the written language and literature are Persian, which is spoken by all Afghans of consideration.”

word, the Emperor ending off his letter to Henry III. of England with *ad sua Tartara Tartari detrudentur*. Consequently the form Tartar was generally adopted. The Mongols themselves derive their name from *mong*, meaning ‘bold.’ The form ‘Moghul’ has been applied to the Mongols by Moslem writers and is frequently used, more especially with reference to the great dynasty founded in India.”

<sup>1</sup> “Pashtu or Pakhtu is the name of the *language*. The *people* are called Pashtun or Pakhtun in the singular. The plural of this, Pashtana or Pakhtana, has given rise to the form Pathan.”

Of the Ghilzais, Sykes (1921, vol. 2, p. 218) remarks that they are a mixed race.<sup>1</sup> "Today they number perhaps one hundred thousand families," and at one time "were the most powerful tribe in the province of Kandahar."

This concludes the anthropological passages selected but there remain the various angles to the problem of the identification of the earliest inhabitants of Elam, Sumer, and Akkad.

Sykes (1921, vol. 1, pp. 50-53) contributes some suggestions regarding the origin and interrelation of these ancient peoples. He commences this dissertation by referring to the various names of Elam or Elamtu, with its classical form Elymais, signifying "mountains." "The Assyrians came into contact with Elam in its mountain section, and as in ancient times its plains were far less extensive than to-day and the mountains predominated, this name needs no further comment.

"The people of Susa termed their country Anzan-Susunka, and distinguished the various tribes given below. Strabo and the historians of Alexander similarly distinguish Susiana or Susis, the plain country, from the mountains of Cossia (or Kissia), Paraetakine, Mardia, Elymais, and Uxia. The book of Ezra too, distinguishes between the Susanechians, or inhabitants of the plains round Susa, and the Elamites, or hill people (Ezra iv. 9: 'Susanchites, the Dehavites, and the Elamites'). Under the Persians the province was known as Ouvaja. Finally, in medieval times it was called Khuzistan or 'The Country of the Huz or Khuz,' and this name still lingers on the map although the province is now termed Arabistan.

"Dieulafoy and de Morgan, who both headed expeditions to Elam, and who studied the question most exhaustively on the spot, concur in the opinion that there was a very ancient occupation of the Susian plain by Negritos, and that, so far as is known, these were the original inhabitants . . . . Again, there is the fact that in the most ancient bas-reliefs, figures of Negritos appear with frequency. More especially is this the case in the famous stele of Naramsin . . . where the monarch, who is of Semitic type, is portrayed as leading Negritos to victory. Some years ago, during the course of my travels, I was puzzled by the extremely dark populations of Basha-gird and Sarhad, very remote and mountainous regions bordering on Persian Baluchistan. The solution may be that the whole country

<sup>1</sup> "The Ghilzais are generally believed to be identical with the Khalaj mentioned by Idrisi, but Longworth Dames considers this very doubtful (*vide* his article 'Ghalzai' in Part XX. of *Encyclopaedia of Islam*)."

was originally peopled by Negritos, the Anariakoi or Non-Aryans of the Greeks, who probably stretched along the northern shores of the Persian Gulf to India, and that their descendants have survived in those distant parts . . . . Hall would derive the dark section of the inhabitants of Elam and the Sumerians from this stock, and, in my opinion, this would appear to be the soundest view to take of a very difficult problem.

“But Elam, in addition to the rich alluvial plain, also included the hill districts to the north and east, and here there is no question of a Negrito race. Consequently there were in effect two races inhabiting Elam—the Negritos of the plains, who were very dark, and the white hill-men. This would appear to have been vaguely recognized by the Greeks.<sup>1</sup> They describe Memnon, who came to the aid of Troy, as the offspring of a white mountain woman Kissia and of black Tithonos. He leads an army of Susians and Ethiopians—Tithonos is the Ethiopian god Didun—to the assistance of Priam . . . . In another passage (*Odyssey*, xi: 522; iv: 188) he [Memnon] is given the epithet of swarthy . . . . When the Greeks found a black population in Elam, they would naturally compare it to the Ethiopians, of whom they knew through Egyptian sources, and this explains the transfer of Tithonos to Persia.

“At a rather later period there was first a Sumerian, and then a considerable Semitic influx, which in time, as in Babylonia, dominated and absorbed the earlier inhabitants of the country. As far as Babylonia is concerned, this Semitic invasion was mainly peaceful and perhaps should be described rather as penetration: but in the case of Elam, probably owing to the mountain fastnesses, no permanent conquest was effected by the Semitic kings of Akkad, and it was not until the establishment of the second Sumerian Empire by the later kings of Ur that Elam became really subject to Babylonia, and then only for a short time.

“Apart from the general ethnological divisions given above, Elam was the home of several tribes among whom were the Hussi or Uxians, and the Hapartip; the Umliyash, who inhabited the district between the Kerkha and the Tigris; and the people of Yamutbal and of Yatbur, whose districts lay between the Tigris marshes and the mountains.

“The Hussi or Kussi are the Uxians of the Greeks . . . . Their name survives in Khuzistan. The Hapartip or Hapirtip appear on

<sup>1</sup>“*Vide* Strabo xv., 3, 2: also Herodotus v. 54, where Susa is termed ‘the city of Memnon.’ Hesiod calls him the Ethiopian king.”

the rock sculptures of Mal Amir, and are perhaps the Amardians or Mardians of the Greeks, whom Herodotus mentions as nomadic Persian tribes ranged with the Dahae, Dropini, and Sagartii under the banners of Cyrus."

Sykes (vol. 1, pp. 61-62), having shown that Elam was closely connected with Sumer and Akkad, traces the growth of these three states and thus outlines the development of Elam and its relations with Babylonia.

"It is now known that there were two races inhabiting Sumer and Akkad which were distinct not merely in race and speech, but also in personal appearance. The Sumerians shaved both the head and face, whereas the Semites grew their hair and wore a beard . . . .

"There has been much discussion as to whether the Sumerians or the Semites were the earlier inhabitants of Babylonia; but the question may now be regarded as definitely settled in favour of the Sumerians.<sup>1</sup> They, however, were themselves perhaps preceded by a proto-Elamite race which made the pottery that so much resembles the primitive ware of Susa. And so far as the evidence goes, it would appear that, at the earliest period of which there is any record, Semites had been long settled in the north of the country, the land of Akkad, by the side of the Sumerians . . . .

"Now this legend [of Oannes] has generally been held to point to the arrival of a higher race by sea, and, as the Semites ultimately predominated, it has been argued that it was they who entered Babylonia from the south. But King . . . looks upon this legend as merely implying that the shores of the Persian Gulf were the earliest centre of the Sumerian civilization, and believes that, as there are but slight traces of Semitic influence in Sumer during the earlier periods, the Semites came from the north-west and not from the south; and this view holds the field at present.

"Of the Sumerians themselves, and whence they came, until quite recently the earliest traces of cultural development consisted of the remains of a bronze age culture. It was therefore held that the arrival of the Sumerians in the Euphrates valley was sudden, and that they had brought their culture with them from the country to the south-east of the Caspian, where finds of treasure with Sumerian figures and pottery had been discovered . . . . But fresh light has been thrown on this very important subject by American dis-

<sup>1</sup> I disagree entirely with this statement. The archaeological evidence from the North Arabian Desert and from Kish suggest that the earliest inhabitants of Mesopotamia were dolichocephalic and therefore presumably of Semitic-speaking stock—probably the direct descendants of the Proto-Mediterraneans.



coveries at Nippur, the recently published tablets giving us some ten dynastic lists which precede the earliest of the hitherto known lists. We must therefore modify our previous view, as we now hold the proof that, before the close of the third millennium, the Sumerians had strong traditions, if nothing more, which pointed to Babylonia being in their possession at the dawn of history. In other words, we must look for the cradleland of their civilization in Babylonia." (Cf. King and Frankfort.)

The next question concerns the origin and traditions of the Aryans of Persia. According to the *Vendidad* (ch. I) "the first of the good lands and countries which I created was the Aryanem-Vaejo." (See also G. Rawlinson, vol. 3, p. 165, footnote 2.) Sykes (1921, vol. 1, pp. 95-99) gives the following description of the country in relation to the Aryan problem:

"Leaving these plains, with their comparatively old and developed civilization, we ascend to the Iranian plateau, where, just as the physical characteristics differ, so also do the inhabitants. Upon reaching the plateau we have passed from areas dominated by Semitic influence to a country where the Aryan is the ruling race, although deeply influenced by the more civilized powers of Babylonia and Assyria. The history of the ancient world is henceforth destined to be a struggle between the Semitic races of the South and the Aryan races of the North, which finally ended in the complete victory of the northern races (*vide* Breasted, p. 172).

"The 'Indo-European' question, more commonly termed the Aryan question (although the term Aryan is strictly applicable only to the Indo-Iranian group), excited controversies without number at a time when the study of these absorbing problems was in its infancy. The original idea was that from some primitive home swarms of Aryans peopled the uninhabited parts of the northern hemisphere. We have travelled far from those early conceptions and know that the world was already, at the time we speak of, inhabited by other races. Consequently, it is now generally admitted that it is more correct to speak of a '*family of Aryan languages* and perhaps of a primitive *Aryan civilization*, which had preceded the separation of the different Aryan dialects from their common stock' (*vide* Deniker, p. 318) . . . .

"The identification of the centre from which the Aryan races issued is a point on which the greatest diversity of opinion has prevailed; yet there are some indications to guide us. The Aryans were evidently inhabitants of a land with a continental climate, as

they recognized only two or three seasons. Their language shows that they were steppe-dwellers, that there was a marked absence of mountains and forests, and that only a few hardy trees such as the birch and the willow were known. Now we know that the Aryans came from the north, and, as nomads range widely, it is the view of some that their home may be sought in the vast region of the steppes to the far north of Khorasan—then, in all probability, more fertile—and in the adjacent and similar, but better-watered, plains of Southern Russia. Others regard the district to the southwest of the Caspian Sea as the original home. In any case, the question is not one for dogmatic pronouncement.

“The Aryans of the Iranian branch, with whom we are here concerned, were the first to be civilized and to acknowledge one god, and consequently they have special claims on our interest. They possessed a tradition that they quitted their ancient home because the Power of Evil made it ice-bound and uninhabitable. Perhaps this may mean that they were irresistibly urged forward by a change of climate, just as aridity possibly caused the hordes of Mongolia to swarm westwards, and incidentally to blast the civilization of the countries they overran.

“Special legends<sup>1</sup> refer to a lost home termed Aryanem-Vaejo.<sup>2</sup> When cold compelled them to leave this terrestrial paradise, they moved to Sughda and Muru (the classical Soghdiana and Margiana), the former being Bokhara and the latter the modern Merv. Locusts drove them from Sughda and hostile tribes forced them to Bakhdhi, ‘the country of lofty banners,’ which was later known as Balkh. From Balkh they proceeded to Nisaya, which has been identified with Nishapur, but in my opinion erroneously; for the district of Nasa or Nisa to the south of Askabad fits in much better. Haroyu (Herat) and Vaekereta (Kabul), ‘the land of noxious shadows,’ were reached in the farther stages of the migration. Later, the chroniclers divided these countries into two groups, namely, Arahvaiti (Ara-chosia), Haetumant (the Helmand), and Hapta-Hindu (the Panjab) to the east; and Urva (Tus), Vehr-Kana (the Gurgan), Rhaga (Rei),<sup>3</sup> Varena (Gilan), and other districts to the west. This grouping may well have been devised to explain the Indian and Persian divisions of the Aryan.

<sup>1</sup> Sykes (1921, vol. 1, p. 97) calls attention to Farjand I of the *Vendidad*.

<sup>2</sup> For Zendavesta reference to the Aryanem-Vaejo, see G. Rawlinson, vol. 3, p. 165, footnote 2.

<sup>3</sup> Rhages, modern Rayy at Shah Abdul Azim near Tehran.

“The site of Aryanem-Vaejo has been placed in the northern portion of the modern province of Azerbaijan; but de Morgan points out most pertinently that, if the northern or any other part of Azerbaijan had been the original Aryanem-Vaejo, the Aryans would have been brought into contact with the tribes inhabiting what is now Armenia, who knew the art of writing and were comparatively civilized. In truth we cannot fix this centre with precision, although, owing to the discovery of Tokharic,<sup>1</sup> the most ancient form of Indo-European in Siberia, the south-western portion of that vast land may well be held to have claims that merit deep consideration. The entire legend, as it has come down to us, is too detailed to be very ancient, and it is quite possible that, at the time when it assumed its final form, Azerbaijan was regarded as the Aryanem-Vaejo, and the original home in the north was forgotten. Nevertheless, Avestan scholars set much store upon it; for there can be little doubt that it is based on tradition from the remote past.

“It is believed that the Medes migrated into Persia from Southern Russia, and finding the kingdom of Urartu or Ararat too strong to be attacked, avoided it, and gradually occupied the western side of the Iranian plateau. Another Aryan branch, that of the Persians, entered Eastern Persia from the steppes to the north of Khorasan and, traversing the province of Kerman, occupied Fars, from the neighbourhood of the valley of the Zenda Rud, possibly already held by the Medes, to the Persian Gulf. Their western frontiers would touch those of the tribes under Elamite influence. A third migration took a south-easterly direction from Aria or Bactria, the invaders crossing the Hindu Kush and conquering the Panjab. Behind these three great bodies we hear of the Hyrcanians, who inhabited the modern district of Astrabad; and behind the Persians came the Carmanians, whose name survives in Kerman; the Gedrosians of the littoral of Baluchistan; the Drangians and Arachosians, inhabiting the northern districts of Baluchistan and part of Southern Afghanistan respectively; and, finally, the Margians of Merv and the Bakhtrians of Balkh.

“Among the cuneiform inscriptions recently discovered at Boghaz Kyoï, the ancient Pteria, and the capital of the Hittites, are some which contain treaties between the Hittites and the Mitannians, a people whose aristocracy at least was of Aryan race.

<sup>1</sup> Sykes (1921, vol. 1, p. 97) refers to H. Meyer, “Geschichte des Alterthums,” vol. 1, p. 801.

On one of these, oaths taken by the Vedic deities, Indra, Varuna, and the Násátya-twins (Asvins), show most clearly not only that the Mitannians venerated these gods, but that by 1350 B.C., the date of the document, the Iranian and Hindu elements of the Aryans had not yet become differentiated . . .

"De Morgan holds that the Aryan invasion of Bactria took place before 2500 B.C., and that the Medes entered North-western Persia about 2000 B.C. The fact that . . . the Kassites were an Aryan tribe which founded a dynasty about 1900 B.C., and were heard of during the First Dynasty of Babylon, helps to date this migration more definitely than could be done until the identity of the Kassites, who were probably a Median tribe, had been established.

"The ancient inhabitants were, in all probability, partly dispossessed, partly driven into the hills, and partly permitted to live side by side with the conquerors. If we consider the heavy losses which the defending tribes must have sustained, the wide area affected, and its mountainous character, this appears to be a reasonable hypothesis, and history shows it to be in accordance with the procedure of most conquering nations. It is also corroborated by Herodotus, who gives the names of the tribes that were welded into a nation as the Busae, the Paraetaceni, the Struchates, the Arizanti, the Budii, and the Magi (cf. Herodotus I, 101). It is possible that the first four of these were Aryans and that the Budii and Magi were Turanians. The last-named tribe was found by the invaders to be possessed of a form of worship which, fused with that of the Aryans, developed, under the influence of Zoroaster, into the religion which still bears his name.

"The Aryan invaders were a primitive pastoral folk owning horses, cattle, sheep, goats, and the watch-dog . . . Gradually they settled down and, learning agriculture, founded villages and towns; and for a long time they continued to be a number of loosely organized clans, independent of one another but usually ready to unite in case of danger."

1919.—On June 24, 1919, Jivanji Jamshedji Modi read a paper before the Anthropological Society of Bombay describing the physical character of the Arabs and their relations with the peoples of ancient Iran. Included was a discussion of Seligman's report (pp. 724-731) on the Arabs, followed by a summary of the relations between the ancient Persians and the ancient Arabs,

which he divides into three periods: (1) the Prehistoric;<sup>1</sup> (2) the pre-Mohammedan; (3) the period after the Arab conquest of Persia.

According to Maçoudi<sup>2</sup> (vol. 2, p. 142), states Modi (1919, p. 733), "some Arabs derive their genealogy from Kahtan, and others, especially the poets of the tribe of Nizar considering themselves above the Kahtanides of Yemen, invoke their relationship with Persia.

"The Pahlavi Bundelesh seems to support this view of the relationship of some Arabs to the Persians. This book presents an old Iranian view of the genesis or the creation of the world . . . The very first primitive being or human form of existence was one Gayomard, who was sexless. His first progeny (Mashi and Mashyani) had sexes combined in one body. From this pair, there came forth seven pairs, whose average age was 100 years. From these were descended 15 races.<sup>3</sup> In all, at first, there proceeded one by one, 25 species. From one Fravak, a descendant of the primitive human being, Gayomard, there descended two persons, one Taz and another Hoshang. The first, Taz, was the progenitor of the Tazis or the Arabs. The second was the progenitor of the Iranians, and, as he was called Peshdad, the line of rulers that descended from him came to be known as the Peshdadians. Thus, we see from this very old Iranian tradition that the Arabs and the Persians, the Semites and the Aryans, had, at first, as it were, a common stem in Western Asia."

In connection with his discussion of the Arabs, Modi (1919, p. 734) interpolates an interesting derivation of the word Iraq which he says is so called "from *Iraq*, i.e. 'a double stitch in the bottom of a leather bottle,' because it received the waters of the Euphrates, the Tigris, and other rivers," adding in a footnote, "Iraq-i-Azam [Irāq-i-'Ajām], i.e. Persian Irak, is the country about Media, the country of Kurdistan and the surrounding districts. The Iraq-i-Arab is Babylonia, Chaldea, etc."

"Firdousi's very first reference to Arabia [Modi, pp. 737, 738] suggests that the art of writing went to Persia from outside. King Tehmuras is spoken of as learning some languages at the hands of some Divs, by which word we must understand some extraordinary

<sup>1</sup> See also Modi, 1916, pp. 577-592.

<sup>2</sup> Modi quotes the translation by B. de Meynard and P. de Courteille.

<sup>3</sup> "The Pahlavi Bundelesh, Chap. XV. For some detailed outline of the Iranian Genesis according to the 'Bundelesh,' *vide* my paper on 'The Antiquity of Man' before this Society (Journal, vol. X, pp. 577-592); *vide* my Anthropological Papers, Part II, pp. 229 *et seq.*"

foreigners. They taught, among other languages, the art of writing the Tazi (Arabic) language. In the early part of the Shah-nameh, Firdousi speaks of the Arabs as the Tazis and of their language as the Tazi language . . .

"We know that Arabs have been held to be good sailors from very early times. In the trade of the West with the East, the Arabs had a great hand. We have a reference to the Arabs being sailors in Firdousi's account of the reign of Faredun. When Faredun crossed the Tigris, it was the Arab sailors whom he asked to supply boats to him and his army."

According to Modi (p. 755) Firdousi writes "that when Alexander the Great, after defeating Persia, marched towards India the help of whose king Dara [Darius] had sought, and fought with Four (Porus), he had the Arabs of Syria, Hedjaz, and Yemen serving in his army."

"So, in the beginning of the Christian era," Modi continues (p. 739), "the Arabs of Yemen left their country, and in search of their bread and butter went northward. Some, *viz.*, the Azdites, founded on the river Euphrates the cities of Hira and Anbar and ruled over Damascus.

"The Taziks," Modi (1919, pp. 747-748) elaborates further, "who now-a-days form a special group, one of the two principal ethnical groups of Persia, are the descendants of these Persianized or Zoroastrianized Arabs. Dr. Luschan speaks of them as 'the descendants of the old Persians.' Dr. Bellew says that in Afghanistan, even now, the Taziks are known as the Parsiwan. This very name points to their relationship with the ancient Persians . . .

"We saw above that some Taziks or Arabs, following the lead of Pat-Khosrab, followed the Mazdayaçnan religion. In one of the later Parsi prayers (the Nirang-i-Sarosh Yasht), among the Zoroastrian people, on whom blessings are invoked, the Taziks also are included, but they are specially spoken of there as Tazian-i basta-kustian, i.e., the Tazis who put on the Zoroastrian sacred thread. Their association even in a Zoroastrian prayer shows that some of the Arabs had come into much closer contact with the ancient Persians. So there is no wonder if their physical characteristics were thereby influenced to some extent."

1919.—In "Sino-Iranica" Laufer (p. 185) writes: "We now know that Iranian peoples once covered an immense territory, extending all over Chinese Turkistan, migrating into China, coming in contact with Chinese, and exerting a profound influence on nations of other

stock, notably Turks and Chinese. The Iranians were the great mediators between the West and the East, conveying the heritage of Hellenistic ideas to central and eastern Asia and transmitting valuable plants and goods of China to the Mediterranean area. Their activity is of world-historical significance, but without the records of the Chinese we should be unable to grasp the situation thoroughly. The Chinese were positive utilitarians and always interested in matters of reality: they have bequeathed to us a great amount of useful information on Iranian plants, products, animals, minerals, customs, and institutions, which is bound to be of great service to science."

Laufer (pp. 188-189) continues: "My main task is to trace the history of all objects of material culture, pre-eminently cultivated plants, drugs, products, minerals, metals, precious stones, and textiles, in their migration from Persia to China<sup>1</sup> (Sino-Iranica), and others transmitted from China to Persia (Irano-Sinica) . . . . As to Iranian plants of which the Chinese have preserved notices, we must distinguish the following groups: (1) cultivated plants actually disseminated from Iranian to Chinese soil; (2) cultivated and wild plants of Iran merely noticed and described by Chinese authors; (3) drugs and aromatics of vegetable origin imported from Iran to China." (See Hooper and Field.)

1924.—Turning to Haddon (p. 143), we quote several extracts which apply to our particular problem.

"On looking at a map of Western Asia one finds that east of the Siyah Koh and west of the Paropamisus mountains there are gaps in the east to west mountain masses which, in the latter especially, afford an easy south to north passage. During the periods of glaciation the belt of cyclones would tend to convert present steppes into more or less forest areas and the present poor steppes would have been grass-lands and the salt deserts and marshes were probably large fresh-water lakes. Under such conditions even eastern and central Persia would have been a very desirable land and well fitted for human habitation."

Of the present population Haddon (pp. 102-103) writes that "apart from intrusive Kurds, Arabs, Armenians and smaller groups there are two large ethnical groups in Persia, the settled Tajik, the old type which is preserved in the Parsi who migrated to India

<sup>1</sup> According to some unpublished notes by Laufer, "from A.D. 722-747 no less than ten embassies from Persia arrived in China with presents. In A.D. 750 they offered dance rugs interwoven with asbestos fibers."

in A.D. 640, and the Persians. The lowland Tajik are more mixed and have a tendency to be fairer than the Hill Tajik or Galcha. These may be regarded as the original inhabitants, but in Susiana there are traces of a dark-skinned population who, from the monuments, indicate a Pre-Dravidian, or possibly an Ulotrichous stock. From the Eurasian steppes came Proto-Nordics, who became known in history as Medes and Persians, but Semitic (Arab) migrations have modified the type of the Persian as did incursions of Turki tribes. Two groups of Persians are recognisable: (1) the slender dolichocephalic Farsi about Persepolis, who are fair in skin, with abundant hair and beard of a dark chestnut color; real blonds with blue eyes are rare; these appear to be largely Proto-Nordic; (2) the Lori [Lurs], who are taller, much darker, and often with black hair, are very dolichocephalic, with oval face and regular features, and would seem to belong to a branch of the Mediterranean race or to a race very similar to it. The Ihlut are Turkoman, but long-continued intermarriage has produced a great many mixed types, such as the Kajar."

Haddon (p. 86) also points out that "a somewhat indefinite group, the *Irano-Mediterraneus*, has been recognised; it is mesocephalic, leptomesorrhine and from medium to very tall stature. It includes Persians in general, Azerbaijani of Persia and the Caucasus who are more or less crossed with Turks, Hajemi of Persia, Susians, Yezidi of Mesopotamia [Iraq], ?Fellahin of Palestine, ?Samaritans, certain Jews, etc. There has been much mixture in this group: thus the Susians have the broadest nose, but this may be due to an alien ancient strain; the Samaritans have the narrowest heads and noses and tallest stature, but here there is generally believed to be a Nordic strain. There is no reason to doubt that there is a substratum of population in this group with a C.I. of about 76, an N.I. of about 61-63, and a stature of about 1.633 m. (64¼ in.), which may very well be termed Mediterranean, as other characters conform to that type; these may be regarded as the laggard representatives of a group that mainly wandered westwards."

In summarizing the brachycephalic elements of the population Haddon (p. 27) writes: "Pamiri (Iranian), *Homo alpinus* of Lapouge. Hair brown, usually dark, sometimes light, always abundant and wavy or curly, full beard, brown, ruddy or even light; white-rosy or bronzed skin; stature above the average, 1.66-1.707 m. (65½-67¼ in.); brachycephalic (C.I. 85 and over); long oval face; nose



leptorrhine (N.I. 62.6-72), prominent, aquiline to straight; eyes straight, medium in colour, some light and occasionally blue.

“Galcha, Tajik, Wakhi, etc., of Persia, the Pamirs and neighbouring areas, and extending in a north-easterly direction to Manchuria.”

In addition to his definitions on Iran types Haddon (pp. 103-104) suggests relationship with the peoples of Turkestan, Afghanistan, and Baluchistan.

“The Duab of Turkestan is the country between the Amu-darya (Oxus) and Syr-darya (Jaxartes), and runs up into the Pamirs. The bulk of the population consists of the settled so-called Sarts, a mongrel people with Uzbek, Kirghiz, Tajik and other elements. The nomad Kirghiz are well represented. Pure Uzbek are few in number and form a kind of racial aristocracy. The Turkoman, who occupy the territory between the Duab and the Caspian, just extend into the Duab. The Tajik are mixed but have preserved themselves more or less from the last (Uzbek) invasion. In the mountains are the Galcha, the purest of the Pamiri; a pure and ancient type of Jew is common in the towns. Representatives of various Central Asiatic tribes and Gipsies are also found.”

Haddon (p. 97) also points out that “the Turkish dominance of the Oxus region in the middle of the sixth century A.D. resulted in a westward migration of Turki tribes across northern Persia into Asia Minor. The Seljuk Turks effected a permanent occupation of that region in the latter part of the eleventh century and this was followed by the dominance of the Osmanli Turks who after Orkhan’s death in 1359 spread to the Balkan Peninsula. Hordes of Turkoman nomads followed the Turks and in succeeding centuries other Turkomans, Afshars and Kurds followed. It must be remembered that the term Turk in Asia Minor and in Europe does not now necessarily imply Turki origin, as it is applied to individuals of other races who at various periods have been converted, forcibly or otherwise, to Islam.”

Among the brachycephalic leiotrichi Haddon (p. 31) gives the following summary: “Turki. Hair dark, much on face; yellowish-white complexion, with a slight tendency to brownish; stature medium to tall, 1.675 m. (66 in.), with tendency to obesity; a cuboid, very brachycephalic high head (C.I. 85-87); elongated oval face, broad cheek-bones; straight, somewhat prominent nose; dark non-Mongolian eyes, but frequently the outer part of the margin of the eyelid is folded; thick lips.”

"Original home, western Central Asia. An eastern group comprises the Yakut of the Lena basin and certain so-called Tatars. A central group contains the Kirghiz, Kazak, Uzbeg, etc., mainly of Russian Turkestan; the Kirghiz group is said to be a blend of Pareoan with Turki (C.I. 84-88; N.I. 69-78); stature 1.638-1.676 m. (64½-66 in.). A western group is composed mainly of the Turkoman east of the Caspian, and of the Osmanli in Asia Minor and European Turkey."

With regard to Afghanistan, Haddon (p. 103) says that this country "is essentially the homeland of the Indo-Afghan race, but in the north, the ancient Paropamisus, are the tall Hazara, C.I. 85, N.I. 80.5." The Hazara, according to Haddon (pp. 31-32), belong to the Centralis, subdivision of the brachycephals, together with the Taranchi of eastern Turkestan, the Torgod or Torgut of Zungaria, and the Telenget of the Altai region.

Haddon (p. 22) classifies the Indo-Afghan as having "black wavy hair; very light transparent brown complexion; stature variable, 1.610-1.748 m. (63½-68¾ in.); dolicho-mesocephalic (C.I. 71.3-77.5); face long, features regular; nose prominent, straight or convex, usually leptorrhine and finely cut; dark eyes."

Passing now in a southerly direction to Baluchistan, Haddon (p. 103) writes that "the Baluchi (Baloch) are generally regarded as akin to the Afghan, but the latter is essentially dolichocephalic, whereas the former are on the borderline of meso- and brachycephaly, and so it may be advisable to call their type Indo-Iranus. The puzzling Brahui speak a Dravidian type of language, but from their physical measurements and appearance they are Baluchi: Brahui of Sarawan, C.I. 81.5, N.I. 70.9, st. 1.659 m. The Chuta and Bandiya have even a stronger grade of brachycephaly than the Hazara, but their nasal indices respectively are 58 and 58.9, or markedly leptorrhine; they therefore are of Pamiri stock."

Among the dolicho-mesocephalic Asiatic leucoderms Haddon (p. 86) classifies "the *Indo-Iranus*," which "is comprised of the Baluchi, Achakzai-, Pani- and Kakar-Pathans, Tarin, Dehwar and Brahui, who are on the border-line between meso- and brachycephaly, C.I. 80-82.8, and lepto-mesorrhiny, N.I. 67.8-74.3; the stature is from medium to tall, 1.642-1.722 m. . . . This may be regarded as an intermediate or a mixed type."

1925.—A. H. Sayce, late distinguished Oxford Assyriologist, suggested (pp. 73-74) that the "Madai are possibly the Medes,<sup>1</sup> the

<sup>1</sup> R. W. Rogers (p. 12) ventures to equate the Manda with the Madai, or Medes. See also E. S. Drower ("E. S. Stevens"), pp. 11-13.

Mada of the Assyrians. We first hear of them in the cuneiform records under the name of Amada, about B.C. 840, when their country was invaded by the Assyrian monarch. They were at that time settled in the Kurdish mountains, considerably to the east of Lake Urumiyeh. Some fifty years later, however, we find them in Media Rhagiana, where they are called no longer Amada but Mada. It was from the latter form of the name that the Greeks took the familiar 'Mede.' The Medes proper were an Aryan people who claimed relationship to the Aryans of Northern India and the Aryan populations of Europe, and one of the tribes belonging to them was that of the Persians, who had established themselves further south, on the eastern shores of the Persian Gulf. But in classical times the older inhabitants of the regions into which the Medes migrated were classed along with them under the general title of 'Medes,' so that the name ceased to be distinctive of race. The confusion was doubtless assisted by the resemblance between the Assyrian name of the Mada and that of the 'Manda,' or 'nomads.' The name of Manda was originally applied to the Sanskrit-speaking nomads of Asia Minor, and is first met with in the Hittite texts of the second millennium B.C. The Babylonians included in it all the northern populations who at various times invaded Mesopotamia, and in later days used it to denote not only the Medes but also the Scythians of classical history.

"But whatever justification there may have been for speaking of a Semitic family of languages," continues Sayce (pp. 107-108, 120-121), "there was none for speaking of a Semitic race. To do so was to confound language and race, and to perpetuate the old error which failed to distinguish between the two . . ."

The true Semite has hair which is "glossy-black, curly and strong, and is largely developed on the face and head. The skull is dolichocephalic. It is curious, however, that in Central Europe an examination of the Jews has shown that while about 15 per cent. are blonds, only 25 per cent. are brunettes, the rest being of intermediate type, and that brachycephalism occurs almost exclusively among the brunettes. It is difficult to account for this except on the theory of extensive mixture of blood.<sup>1</sup> Whenever the race is

<sup>1</sup> "See Fligier, 'Zur Anthropologie der Semiten' in the *Mittheilungen der Wiener anthropol. Gesellschaft*, ix, pp. 155 sq. In the Caucasus the Jews are hyper-brachycephalic, but as brachycephalism characterises the Caucasian populations intermixture would fully explain the fact. According to Reclus (vi. p. 225) the Suabian colonies in the Kura valley in the course of two generations became assimilated in general type to their Caucasian neighbours, dark hair and eyes included. On the other hand, the Russian colony planted in the time of the

pure, the nose is prominent, and somewhat aquiline, the lips are thick, and the face oval. The skin is of a dull white, which tans but does not redden under exposure to the sun. There is usually, however, a good deal of colour in the lips and cheeks. The eyes are dark like the hair."

Sayce (pp. 115-116, 122) continues that "even in Biblical times the Jewish race was by no means a pure one. David, we are told, was blond and red-haired,<sup>1</sup> which may possibly indicate an infusion of foreign blood. At all events he surrounded himself with a body-guard of Cherethites or Kretans,<sup>2</sup> and among his chief officers we find an Ammonite, an Arabian, and a Syrian of Maachah. . . .<sup>3</sup>

"Physically he [the Jew] has a strong and enduring constitution. The Jews have survived and multiplied in the mediaeval towns of Europe under the most insanitary conditions, and if we turn to the past we find the reigns of the Assyrian monarchs averaging an unusually long number of years. Diseases that prove fatal to the populations among whom the Jews have lived seem to pass them over, and like the natives of Arabia they resist malaria to a remarkable degree.

"'The children of Shem,' we are told 'were Elam and Asshur, and Arphaxad and Lud and Aram.' Elam, 'the highlands,' was the mountainous country east of Babylonia, of which Susa or Shushan was the capital. Its population was non-Semitic and their language was agglutinative (p. 93)."

With what seems to me an unwarranted degree of positivism Sayce (p. 95) writes: "Since the Sumerians, however, came into Babylonia from the north-east, as is shown, among other reasons, by the fact that the same ideograph denotes both 'mountain' and 'country,' it is in that direction that we shall have to look for such traces of connected languages as may still exist. It was this pre-Semitic population, and not the Semitic intruders, to whom the origin of Chaldaean culture and civilisation was due."

1926.—From "Les Races et les Peuples de la Terre" of Deniker I have selected and translated the following passages.

Empress Katherine, on the shores of the Gygaean Lake, near Sardes, remains unchanged, with tall stature, blond complexion, pale blue eyes and light yellow hair."

<sup>1</sup> "1 Sam xvii. 42. Compare Ruth i. 4, iv. 13."

<sup>2</sup> "We learn from Sennacherib that the body-guard of Hezekiah which defended Jerusalem against the Assyrians similarly consisted of 'Urbi or Arabians.'"

<sup>3</sup> "2 Sam. xxiii. 37, 35, 34."

The Iranians occupy the plateau of Iran and neighboring regions, especially toward the east. Physically, the stock is composed of the Assyrian race mixed with Turkic elements in Persia and in Turkey, with Indo-Afghan elements in Afghanistan and with Arab and Negroid elements in southern Persia and in southern Baluchistan.

Among the Iranian peoples the most important, both from a numerical and historical aspect, are the Persians, who can be divided into three geographical groups: if a line be drawn from Asterabad to Yezd and from there toward Kerman, one has to the east the Tajiks, to the west the Ajemis,<sup>1</sup> between Tehran and Isfahan; and the Farsis between Isfahan and the Persian Gulf. The Tajiks also occur in western Afghanistan, northwestern Baluchistan, Afghan Turkestan, right up to and even beyond the Pamirs (Galtcha). Similar to the Tajiks in physical characters are the Polus, north of the Kuen-Lun, the Sarts of Soviet Turkestan and some two million Azerbaijanis in the Caucasus where they were introduced by the Persians in the seventeenth century (pp. 505-506).

The Tajiks, who are brachycephalic (84.9) and above the average stature (169), show traces of Turkic admixture.<sup>2</sup> The Ajemis and part of the Parsees who are dolichocephalic (77.9) and medium in stature (165), are of Assyrian or Indo-Afghan<sup>3</sup> type (p. 507).

Deniker (p. 508) states that the Baluchis (Biloch) belong to the Indo-Afghan race, but are mixed with Arabs in the south, with Jats and Hindus in the east, with Turks in the northwest and with Negroes in the southwest. The Makranis are a mixture of Indo-Afghan, Assyrian, and Negro races. The Rind of Makran, who are said to be pure Baluchis, are only Arabs of the Katratani<sup>4</sup> tribe. The Brahui nomads of the eastern region, especially near Kelat, resemble Iranians.

1926.—W. Ivanov (p. 148) describes the Khurasan peasant as being "generally tall and well built, having a brachycephalic type of head, with thick hair and a fair complexion. He is hard-built and very enduring. The facial angle is very high, though it hardly ever attains that point of beauty, not rarely seen in Western Persia,

<sup>1</sup> "The Ajemis of the Caspian littoral bear the name of Talych and Mazanderanis."

<sup>2</sup> "There are several types of Tajiks. Cf. Chantre (*Recherches anthropologiques en Transcaucasie, Asie-Mineure et Syrie*, Lyons, 1895), who measured thirty-two individuals: stature 175.0, C.I. 79.0."

<sup>3</sup> "See H. d'Allemagne, *Du Khorassan du pays des Bakhtiaris*, Paris, 1912."

<sup>4</sup> "Möckler, *Origin of Baluch*; *Proc. As. Soc. Bengal*, 1893, p. 159."

the face with regular and minutely cut features resembling the ancient Greek sculptures."

He gives a list of the tribes and subtribes of Kurds and adds that the "Khurasani Kurds are much taller and stronger, but their features are not so finely cut, and the facial angle is not as high as the one seen in the West. They resemble Lurs more than the western Kurds in their physical type, although fair-haired individuals are much rarer among them." In a footnote (p. 152) he adds that "the impression concerning this may not be correct, because the adults dye their hair with henna and always keep the head covered. But it seems that in Kurdistan proper one sees more numerous fair-haired children than in Khurasan; in the West they may be mistaken for Europeans."

Ivanov considers that the nomad Baluchis, who are of Iranian origin, in physical characters "differ considerably from Persians and Kurds. They are usually much smaller, their features are not so regular, and their facial angle is often very sharp."

Ivanov (pp. 153-157) lists six tribes:

The Timuris, who live close to the Afghan frontier, are divided into eight principal tribes.

The Turks, "who have a microcephalic head-form, are middle-sized, having sharp facial angles and irregular features."

The Barbaris of Mongolian origin are emigrants from Afghanistan. In European literature they are called the Hazara. Ivanov observes that "in their physical type they are pure Mongols, recalling the Kalmucks, the Qirghiz, and other people of Central Asia. They are a short, strongly built people, having a comparatively fair complexion which is only seen on the rare occasions when they wash. The faces are typically Mongolian, whilst the beards are thin and coarse."

The Jews are found only in Meshed, since nothing is left of the large Jewish communities who lived in the cities of Khurasan in the early periods.

The Arabs, who live as nomads, are "to-day the purest type of Persia . . . . They are probably descendants of local Arab settlers . . . . Their physical type has not preserved anything resembling a real Arab, and a member of the tribe can always pass for a Persian."

Gypsies,<sup>1</sup> under the name of Qirishmal, Jat, Kozengi, etc., are nomads whose physical features show a wide range of divergence.

1927.—From William H. Worrell (pp. 20-21) we have these views regarding the country and peoples. "In its present condition at least, Persia is not a land to attract migrations. When, at different times, Aryan or Turanian hordes moved into it from the north-east, they could hardly have been attracted by fertility or moisture superior to that of the northern steppes. They must have been set in motion by drought and over-population, and so moved onward without purpose. In this respect they differed from the Semitic nomads who from time to time invaded the Fertile Crescent from Arabia; for here there must always have been the report of better conditions in a land 'flowing with milk and honey.' It was always through Persia that Aryans and Turanians came to the Fertile Crescent: sometimes the one, sometimes the other, and sometimes the two joined in loose confederation."

In discussing the arrival of the Aryans, Worrell (pp. 121-122, 124) states that this occurred just after 2000 B.C. and that "after settling for a time in Persia and Turkestan(?), the branch which is called 'Aryan' in a narrower sense separated into two groups, one, the Iranian, remaining in Persia, and the other, the Indian, making its way through the mountains into India, there to be modified in spite of itself by an unidentified race, the Dravidians. At about the same time the Aryan barons of Mitanni established themselves in Armenia. By the middle of the eighteenth century the Aryan dynasty of the Kassites had taken possession of Babylonia . . . .

"Aryan-speaking Nordic nomads roamed the steppes of Russia, and Turanian-speaking Mongol nomads ranged over the grass-lands of western Siberia, with the Ural mountains between them as a natural barrier. From remote times the two were in contact. In the Finno-Ugrians they have blended racially and linguistically. Both races have repeatedly invaded the Near East by way of Persia; and the Persian people and their language must have been influenced by the contact, in spite of the eternal difference which the Persian makes between 'Iran' and 'Turan.' "

Worrell (p. 44) believes that there has long been an intimate contact between the Caucasian and Mongoloid peoples. "While the Aryan-speaking Persians show strong racial consciousness in

<sup>1</sup> For ethnology and language see also JASB, vol. 10, 1914, pp. 439-455; vol. 16, 1920, pp. 281-291; and vol. 18, 1922, pp. 375-383.

their distinction between Iran and Turan, they must have received repeated infusions of Turanian blood. It was through Persia that the Yellow invaders always came. Some of the invading hordes appear to have been undigested mixtures of White and Yellow tribes (Scythian, Parthian). The Sumerians and the Elamites may have been of this mixed ancestry.

"In the ninth century B.C.," Worrell (pp. 125-126) adds, "Iranian nomads appeared in Anzan, the later Media. Their capital, Ecbatana (Hagmatana, Hamadan) is mentioned by Tiglath Pileser (c. 1100 B.C.) as subject territory: but apparently this was only a boast. After repeated allusions to them in Assyrian inscriptions of the eighth and seventh centuries, and a reference in 2 Kings xvii. 6, we hear that a certain Medic chieftain, Phraortes (Fravartish), in 647 B.C. united Medic and Persian tribes, after some sort of revolt against Assyria. In 614 Cyaxares (Huvakhshatara) the Mede unsuccessfully attacked Nineveh, and in 612 took it with the help of Nebopolassar. He was succeeded by his son, Astyages, in 585(?), who was overthrown by the Persian, Cyrus (Kurush) in 550. Henceforth the seat of power shifted from north-western to south-western Persia . . . ."

"'Pars' is the province on the eastern side of the Persian Gulf from which both the Achaemenian and Sasanian dynasties came, and from which Persia takes its name. At about 630 B.C. the people of Pars moved out of their province and founded the kingdom of Anshan in what was ancient Elam."

1928.—In order to show the extension of Iranian influence<sup>1</sup> I have selected some passages from "A History of Persian Navigation" by Hadi Hasan, published in London. Hadi Hasan (p. 79, footnote) quotes Yule, "Cathay and the Way Thither" (vol. 1, p. 88, London, 1915): "The Arabs were known by the Chinese as the *Tazi* or *Ta shi* (*Ta shi* is but a transcription of the Persian *Tazi* or *Tajik*); the Arabs were, therefore, made known to the Chinese by the Persians; this fact seems to prove the priority of the travels of the Persians." Hadi Hasan comments "but not necessarily the priority of Persian travel *by sea*." Hadi Hasan (pp. 80-81, footnotes) adds that "the Western Iranians, or Persians proper, are everywhere throughout Central Asia known exclusively as Tajiks, and in West Irania as

<sup>1</sup> See also P. Pelliot, "Influences iraniennes en Asie centrale et en Extrême-Orient," Paris, 1911; Berthold Laufer, "Chinese Clay Figures," Part I, Field Mus. Nat. Hist., Chicago, 1913; A. P. Bogdanov; Read; Stein, 1937, 1938b; Gordon Childe, 1933; Pope, 1933; and Modi, 1916.



Tats, possibly a contracted form of the same word."<sup>1</sup> "*Tajik* is the Middle Persian form of the Aramaic *ṭaiyāyē*, properly 'Arab of the tribe of Tai.'<sup>2</sup> The change in meaning is explained by the fact that once the Muhammadan Tai Arabs were regarded by one body of Persians as representatives of the Arab world; their name was extended to all Arabs and thus came to mean 'Arab' or Muslim . . . . D'Ollone draws conclusions from the mention of the *ta-shi* 'Arabs'—Muslims under the T'ang and of the *Hui-ho* under the Liao and Chin dynasties; but this only points to a knowledge of the Muslims of the West, and is no proof of Muslim immigration."<sup>3</sup>

1928.—Hitti (pp. 18–23) sums up the evidence for the Persian origin of the Druzes and refers in the following extract (pp. 22–23) to the Persian tribes transplanted into Syria: "That the Indo-Iranian elements in the blood of the historic Druzes are varied and multiplied can be safely assumed, not only on the ground of probable beginning and intermarriages in their earlier home, Mesopotamia, but on the ground of possible admixture in Syria itself where many Persians had been domiciled prior to the rise of Druzism. Al-Baladhuri, the most judicious of the early Arab historians, informs us that Mu'awiyah (660–680 A.D.), among other Umayyad Caliphs, transplanted on different occasions quite a number of Persian and Mesopotamian tribes into the districts of Ba'labakk, Hims, Sur (Tyre) and elsewhere in order, evidently, to take the place of the Byzantines who had evacuated Syria subsequent to its conquest by the Moslem Arabs. In the shuffle to which these Persian tribes were later subjected in Syria, it is possible that some tribes landed in Wadi-al-Taym, which, according to a passage in ibn-al-Athir, recorded under the events of 523 A.H./1128 A.D., was included in the district of Ba'labakk. According to the same passage, Wadi-al-Taym was then swarming with diverse heterodoxies, such as the 'Nusayriyyah, Durziyyah and Majus' (Magians-Manichaeans or some Zoroastrian sect). The modern Shi'ah of Syria, popularly known as 'Matawilah,' may go back to one or more of these transplanted Persian tribes. Racially, therefore, the Druze people were a mixture of Persians, 'Iraqis, and Persianized Arabs, and were thereby admirably fitted for the reception of the Druze dogmas and tenets of belief."

Elsewhere, Hitti (p. 15) states that von Luschan "makes the Druzes, Maronites, and Nusayriyyah of Syria—together with the

<sup>1</sup> "A. H. Keane, *Asia*, Vol. II, p. 490, London (1909)."

<sup>2</sup> At the present time Mohammed Abu Tai of the Huwaitat lives in Trans-Jordan, his headquarters being at Al Jafar, about forty miles east of Ma'an.

<sup>3</sup> "Martin Hartmann, article on China, in the *Encyclopaedia of Islam*."

Armenians, Tahtajis, Bektashis, 'Ali-Ilahis and Yezidis of Asia Minor and Persia—"with their enormous high and short heads and narrow and high noses"—the modern representatives of the ancient Hittites."

1929.—L. H. Dudley Buxton (p. 623) writes that the Turkomans are "a group of the Iranian Turks, found in Persia, Khiva, Bokhara, in the Caucasus, and in Transcaspia, and probably numbering about 1,000,000. They include the following clans, Chaudor, Yomut, Goklan, Akhal, Merv Tekkes, Sarik, Salor, and Ersari . . . All of them are Muslims. Some of the Turkomans of the steppes appear to preserve the old Proto-Nordic physical type, but in most places they have absorbed the physical type and much of the culture of the people amongst whom they live."

1929.—In Baluchistan according to Sir George MacMunn (p. 7) there are "scattered tribes of nomads, called Rekis (or desert people), the Muhammadani being the most numerous. They are probably of Arab origin." The Naushirwanis, "a purely Persian group . . . passed into Baluchistan within historic times. They appear to be identical with the Tahuki or Tahukani who are found in Perso-Baluchistan, and are a fine manly stock . . . Almost everywhere recognizable is the underlying Persian population (Tajik), which is sometimes represented by a locally dominant tribe, but more frequently by the agricultural bondsman. Such are the Dehwars or Dehkans, and the Durzadas who extend all through Makran. The Arabs have naturally left their mark on the ethnography of Baluchistan. As they occupied all southern Baluchistan and Seistan from a very early date, and finally spread through the Sind valley, where they remained till the 12th century, their genealogical records have become much obscured . . . The Dravidians (Brahuis), who are chiefly represented by the Kambaranis and Mingals or Mongals (the latter doubtless of Tatar origin), spread through southern Baluchistan as well as the eastern hills, and are scattered throughout the mountain tracts of Kharan . . . Peoples of Arab extraction intermixed with peoples of Dravidian and Persian stock are all designated by the general term Baluch."

1930.—Speaking of his own people, Sirdar Ikbal Ali Shah (pp. 20-21) says: "The population is estimated about ten million. The people are divided into two great classes, dwellers in towns or villages and nomads or dwellers in tents. The latter include Arabs, Kurds, Lurs, Gypsies, and Turks. Of the population about ninety per cent are Mohammedans of the Shiah sect . . ."

“Tehran, which has an estimated population of 220,000, became the capital in 1788. It is on a riverless plain at the southern foot of the Elburz Range, about seventy miles from the Caspian Sea. Tabriz with a population of about 220,000, in the north-west, near the Turkish and Soviet frontiers, is the commercial metropolis. Ispahan, with about 90,000 inhabitants, the former capital, stands in a fertile plain in the centre of the country, and is the second commercial city. Meshed, containing about 75,000 inhabitants, is the capital of Khurasan, and a place of pilgrimage, being one of the holy cities of the Moslem faith. Yezed (45,000), in the centre of the country, is the chief seat of the Parsees and Guebers. Kerman (70,000), in the interior, is a meeting place of trade routes between the Persian Gulf and Central Asia. Shiraz, in the southwest, is traditionally famed for its roses, wines and nightingales.”

He adds (p. 152) that the Sumerians were “of Mongolian origin<sup>1</sup> and probably their remnants to-day are to be found in parts of Turkey and Afghanistan.”

1930.—Bernard E. Read (p. 59) describes the contacts between the Far East and Iran in the following words: “The Iranian people situated in Central Asia were the earliest known group to establish extensive contact between China and the West. From the expeditions of Sir Aurel Stein there has been shown good evidence of the contact through the Tarim basin of Hellenistic culture and Chinese civilization. From the Chinese side there is clear record of the following expeditions westward (1) B.C. 138. During the Han dynasty under Emperor Wu ti there was the military mission to subdue the Huns by Chang Ch’ien. This led later to trade expansion into the River Oxus region in Bactria, and what are now Bukhara, Samarkand and Forghana. Chinese silk began to appear in Greece and Rome through Parthia and Syria . . . (2) A.D. 97. Pan Ch’ao succeeding in establishing contact with Syria and the Persian Gulf.”<sup>2</sup>

1932.—From Sir Arnold T. Wilson’s book extracts have been culled to illustrate his observations on various anthropological problems. Wilson (1932a, p. 360) gives the population of the important towns:

Towns	Population	Towns	Population
Tehran . . . . .	320,000	Shiraz . . . . .	54,000
Tabriz . . . . .	240,000	Kermanshah . . . . .	50,000
Meshed . . . . .	152,000	Hamadan . . . . .	50,000
Isfahan . . . . .	127,000	Kashan . . . . .	50,000
Resht . . . . .	70,000	Kazvin . . . . .	50,000
Abadan . . . . .	70,000	Yezd . . . . .	50,000

<sup>1</sup> This seems to me a very strange theory. On the other hand it is possible that direct descendants of the Sumerians may dwell in Mazanderan or Gilan.

<sup>2</sup> Cf. also Arne, 1934, and 1938b.

He states (1932a, p. 28) that "of common racial tradition there is not a trace in Persia. A typical Persian does not exist, because there are within the limits of the Empire many distinct types, easily recognized, though they originally represent geographical and climatic areas rather than different racial origins. Yet no other race, except perhaps the English, has such a mixture of blood in its veins. The original inhabitants of Persia, whose descendants are to be found comparatively unaltered in Gilan and Mazanderan, on the shores of the Caspian, in forest country, were replaced in some areas, and in others assimilated, by Aryan-speaking Nordic nomads from Eastern Russia, and by Turanian-speaking Mongolians from Western Siberia. This took place as early as 2000 B.C., and continued for many centuries (cf. Worrell) . . ."

"The immigrant elements," according to Wilson (1932a, pp. 69-70), "are the outcome of four great nomadic movements during the past fourteen centuries. The first was that of Arabs in the seventh century, the second that of the Turks who in the eighth century began to move westwards from Mongolia. The third was a similar movement of the Seljuks<sup>1</sup> in the eleventh century, the fourth and greatest was that of the Mongolians under Chengiz Khan and his heirs in the thirteenth century. These movements were succeeded from time to time by minor incursions, or by slow infiltrations. It is probable, for example, that the extensive colonization of Southern Fars and Khuzistan by Arab tribes was subsequent to and independent of the original invasion of Persia by Arabs in the sixth century. It is certain that during the past ten centuries the Baluch element has increased its westerly extension in the south-east corner of Persia. There appears to have been a moderately peaceful penetration of the mountains of south-west Persia by Arabs from time to time in the fifteenth and subsequent centuries, and the ebb and flow of Kurds from what is now Turkish territory and of Turks into Azerbaijan from the mountainous region west of the Zagros watershed is a matter of history."

To illustrate the mixing of types through infiltration of foreign elements Wilson (1932a, pp. 33-34) relates how the "ruling monarch . . . was wont to reward chiefs of border tribes who had done good service by grants of land in places distant many hundreds of miles from their home lands . . . The results of this practice were to be

<sup>1</sup> According to Sykes (1921, vol. 2, p. 28) "the Seljuks were a branch of the Ghuzz Turks, from whom, however, they kept distinct. Their founder was Turak (signifying a bow), the father of Seljuk, who with his tribe crossed from Turkestan into Transoxiana and embraced Islam with deep fervour."

found in every province: some of the leading tribes in Luristan and Fars are of Arab origin; Kurdish tribes will be found in Luristan, in Fars, and Khurasan; Turkish tribes in Luristan and Fars. Afghan families have taken root in Kermanshah, Isfahan, and Kerman, and on the border of Baluchistan. The present monarch has followed the example of his predecessors, and groups of tribesmen from Luristan and Azerbaijan have been transported as far east as Khurasan.

“Though African slaves have never entered Persia in large numbers, there are thousands of families between Kermanshah and Kerman whose progenitors were *Kaka siah*—‘black brothers’—first the slaves and later the trusted retainers of local chiefs. They have left their mark on the Gulf population of every degree, though the number of female slaves imported is negligible.

“Finally, the very widespread practice of giving brides in settlement of blood feuds, or with a view to ensuring friendly relations between tribes, often of different races, is in effect a species of exogamy which, practised principally by leading families in every part of Persia, has undoubtedly had the effect of maintaining a high standard of intelligence among the nation’s leaders. The practice is, indeed, of high antiquity. Even the rulers of the Safavid dynasty, who were of typically Persian descent, brought to the nuptial bed damsels of Turkish and Arab as well as of Persian race. There was, in fact, no sort of prejudice against mixed marriages.”

Wilson (1932a, pp. 315–316) points out that “Alexander recognized the military value of the Persians, the only race he was willing to treat as racial equals. He married the young daughter of a Persian noble, Roxane,<sup>1</sup> who was, in the judgment of his companions, next to the wife of Darius, the most beautiful woman that they had seen in Asia. . . .

“He encouraged mixed marriages between his Macedonians and Persian women: to those of his men, some ten thousand in number, who had taken the step without previous instructions he gave wedding presents. He arranged for eighty nobles of his court to be married to Persian princesses and daughters of magnates, by the Zoroastrian rite at Susa. In such circumstances it is not surprising that he was able to raise an army of young Persians—the *Epigoni*, thirty thousand strong. He had hitherto organised his army in parallel Persian and Macedonian formations: he now arranged for mixed corps, comprising men of both races, and even admitted Persians to the Royal Bodyguard.”

<sup>1</sup> According to some authorities Roxane was a Sogdian princess.

"Though Huxley's third evolutionary centre, the Mongolian," Wilson (1932a, p. 378) states, "was at one period in history dominant in Persia, it is no longer a strongly marked feature in the physical make-up of the race. Mongolism and Achondroplasia are rare, and other manifestations of aberrant action of the thyroid gland or of the endocrine or hormone system have very seldom come under the notice of doctors.<sup>1</sup> Racial segregation has not been effective in Persia for at least six thousand years: physical barriers have never been of importance since Achaemenian times: migration has been the rule, not the exception. 'Human prejudices,' says Keith (referring to race-feeling), 'usually have a biological significance.' In Persia the source of race-feeling is primarily economic. De-racialization is proceeding rapidly—its place is being taken by the growth of nationalism."

Wilson says (1932a, p. 29) that six different languages are currently spoken in Persia, "namely, Turkish, Kurdish, Arabic, Luri, Brahui, and Persian, each sub-divided into numerous widely-differing dialects, such as Sedehi, Simnani, and Luri."

The linguistic stock in Iran presents certain problems and Wilson (1932a, pp. 68-69) submits the following opinions:

"The nomads of Azerbaijan speak Turkish, and those of Kurdistan speak in their several dialects; the nomads of Luristan speak a tongue which shows traces of the ancient Pahlawi tongue of pre-Islamic Persia. Some of the tribes of Fars speak Turkish, others a dialect in which Arabic is predominant. The Turkmans of Khurasan speak Turki, and those of Baluchistan Brahui. . . . Some are immigrants from Arabia, others from Turkistan; a few are Caucasian in origin, others are from Turkish territory, but the majority are in all probability autochthonous."

"Though the great majority of the population," adds Wilson (1932a, pp. 29-30), "follow the Shi'ah confession, there is a strong Sunni element in Kurdistan and Azerbaijan, as well as in Persian Baluchistan, totalling perhaps 800,000, and there are numerous and collectively important minorities of Christians and Parsees, whilst Sufism and Bahaism had at one time a strong hold upon the educated classes, and exercised a greater influence than Islam, which has never played the same part in the national life of Persia as it did in Arabia.

"The Zoroastrian culture of Persia successfully resisted assimilation by the Arab invaders in the seventh century. . . . One reason may have been that the Arab armies were unaccompanied by their

<sup>1</sup> See page 39, where giantism is recorded by Herodotus.

women; they married into the country and the children tended to follow maternal traditions. No doubt a new type was produced, unlike either conqueror or conquered."

1935.—Herzfeld (1935, pp. 6-10) points out that "in the composition of the population of Iran, a great and decisive change takes place after the beginning of the first millennium, and with it begins Iran's historical role, in contrast to the prehistoric character of the preceding civilization. The new people that bring the change are the *Aryans*. We meet with their first traces in Mesopotamia about 1450 B.C. There appears a kingdom of *Mitanni*, the population of which speaks and writes an aboriginal language, whereas the rulers, according to their names, were *Indo-Aryans*. On their behalf, a little later, the Hittite political treaties are sworn to, not only by Hittite, Mitanni, and the gods of other nations concerned, but by Mithra and Varuna, Indra and the Twins, Nasatyas.

"At first they were believed to be the ancestors of the Indo-Aryans and the Iranians, the Aryans themselves. But their language has been found out to be not only Indo-Aryan, but even, against expectation, to contain early Prakrit elements. Now the original home of the Aryans is known. It is *Eranvej*, the land of the two rivers Oxus and Iaxartes, Khwarizm and Samarkand. The only possible way of reaching Mesopotamia from there is through Iran. And the only possibility of reconstructing the events is by comparing them with an historical parallel, rather well known, the migration of the *Saka* about 130 B.C. These, too, were Aryans, their last remnant, who did not emigrate on the earliest occasions, occupying the same land from time immemorial down to the middle of the second century B.C., when great movements, originating in Central Asia, forced them to leave their home. Hence the same event happened three times: the first group of the Aryans to emigrate were the Indo-Aryans, the second the Iranians, the last the Saka. After a short migratory period in what is now Russian Turkistan, they entered Iran through the natural northern gate of the highland, near Sarakhs, towards Herat. Only shortly before, Mithradates I had created the Arsacid empire in Iran, now ruled by one of his successors, Phraates II Arsakes Theopator, just entangled in a war with Antiochos VII Eusebes. The Saka overran the whole newly-established empire of Iran. Groups of them separated from the main body and successfully founded the Saka dynasty of Adiabene, capital Kirkuk, possibly at the same time, between 128 and 125 B.C., also that of Charakene-Muhammera. After a short anarchic period in Iran, Mithradates II the Great

restored order; the Saka were allowed to settle down in the south-east, Arachosia, and Mithradates assumed, probably in 111 B.C., the title 'great king of kings.' The name of the Saka is retained to the present day in that of Sistan, old Sakastan, a small part only of their vast dominions. From Arachosia they entered India by the Bolan passes, and founded a short-lived empire, which extended as far as the gates of Delhi and Bombay.

"From this analogy we can judge the appearance of the Indo-Aryans in Mesopotamia. They started from the same land, they made the same stop in Arachosia, they eventually ended in the same land. Therefore the Mitanni dynasty, too, must have been a group of successful condottieri detached from the main body, when it passed through eastern Iran towards India. And the initial date of the dynasty contains also a date for the Indo-Aryan migration: the Saka did not wander for more than a few years. These movements must come to pass in a catastrophic way, since the immigrants come with all their flocks and are bound to find new pastures as soon as possible. So far as we can see, the Mitanni dynasty began c. 1450 B.C.: the Indo-Aryan migration must have happened between 1500 and 1450 B.C. Nothing more is heard of them; they disappear in unknown India. The expression 'Indo-Aryans' is anticipating: they no longer spoke Aryan, but they had not yet settled in India.

"In the same way the name of the Iranians, their nearest relatives, must be used anticipatorily. The name is derived from the geographical and political name *Aryanam Khshathram*, 'the Empire of the Aryans,' from which a new ethnicon *Erani* is derived. The Old Persian inscriptions do not mention that name, but the later official designation *Eranshahr* implies the old form, and in the Avestic writings it appears with a substitution of more poetical words for the official *Khshathram* 'empire.' The first mention as a political term is Eratosthenes' *Ariana*; the great geographer and librarian of Alexandria comprises under that name, in the second half of the third century B.C., those parts of the old empire which had at that time regained independence.

"The Iranians appear to us for the first time in the Assyrian annals of Salmanassar III, 836/5 B.C., when, between the Urmiya Lake and the high plain of Hamadan, he came into touch with two of the five great Iranian tribes that later form two of the five really Iranian satrapies of the Achaemenian empire: the *Amadai-Mada-Medes* and the *Parsuaš-Parsa*-Persians. The *Parthava*-Parthians become known a little later, but the eastern tribes of the *Bactrians*



in northern, the *Arachosians* or *Thamanaeans-Samana* in southern, Afghanistan appear only after Darius' time.

"The Assyrians did not distinguish between Medes and Persians, nor between them and the Parthians, when they first came to know the latter under Sennacherib and Esarhaddon. Like the Greeks, they call all of them Madai-Medes. It is a common rule: the generalization of an individual name that entered first into the horizon of a nation. Parsuaš is more exactly a district name. The passage that makes its situation clearest is that where Sargon enumerates (1) Ellip, i.e. Persian 'Iraq; (2) bit-Hamban, i.e. Kampana-Behistun; (3) Parsua; (4) Mannaia, south of the Urmiya Lake; (5) Urartu, west and north of the lake. Parsuaš may be defined as the present Ardalan and Garrus with the towns Sihna and Bijar. It seems to have been made an Assyrian province about 755 B.C.; for how long is doubtful.<sup>1</sup>

"The Iranian tribes at that period were not yet definitely settled; they were still moving. And, similar to the problem of the date of the older Indo-Aryan migration, this status indicates that their immigration cannot have happened a very long time before."

Herzfeld (1935, p. 2) adds that "although it is not generally admitted, I believe that the Elamites, their northern neighbors the *Kasse-Kossaeans*, farther in the east the *Ellipi*, to the north the *Lullubi* and *Guti*, and adjoining them the *Urartu*, which means all the peoples of the western border of the highland, and, from archaeological reasons, at least a great part of the inhabitants of that highland itself, belonged to one and the same ethnic and linguistic group, and that this group—again an opinion not yet strictly provable and not generally accepted—was related to the aboriginal inhabitants of Mesopotamia (a term excluding Iraq) and parts of Asia Minor, whether they are to be called *Mitanni*, *Hurri*, *Subaraeans*, or *Hittites*.

"If a name is wanted for the pre-Iranian population of Iran, it is advisable to speak of *Caspians*. This name we can trace in ancient times over many parts of the plateau, and it is still living in the name of the Caspian Sea, the Caspian Gates."<sup>2</sup>

<sup>1</sup> "Forrer, *Prov. Eintl. d. assyr. Reichs*, 1921, p. 89 f., thinks, on account of the letter Harper n. 165, that the writer Bêl-Ibni has been governor of Parsuaš and, since he appears later on, after 648, as *rab-rêšê*, that all the *rab-rêšê* have been at the same time governors of Parsuaš—an assumption under which Parsuaš would have still been an Assyrian province after 648 B.C. The deduction is not really convincing. A passage from the eighth campaign of Sanherib rather gives the impression that Parsuaš was lost then, in 690 B.C.; at any rate it was so in the beginning of Esarhaddon's reign. Cp. Sarg. cyl. 1. 14 f.; *Ann.* 8, 8."

<sup>2</sup> "This again is a matter of contest, but I consider the names Caspian and Kossaeon as identical: *κοσσαιοι* is the Greek transformation of Aram. *qussâyê*, pre-

1936.—George G. Cameron (pp. 15–19) admirably sums up the evidence regarding the ancient inhabitants of the country.

“For a modern anthropologist it is difficult, if not impossible, to imagine that the present-day inhabitants of Iran could make up a single ethnological family. From time immemorial the plateau has been subjected to invasion and counter-invasion, for, in spite of the difficulties its borders present, it must be remembered that Iran is as much a bridge between the Far East and the Land of the Two Rivers as is Palestine between Asia and Africa. Consequently, peoples of highly diverse origin have sheltered themselves under a single linguistic roof in Iran; and the southern part of the land today, as it must have been in ancient times, is pronouncedly piebald in an ethnic sense.

“The paucity of archeological and anthropological data has given rise to innumerable speculations concerning the people who dwelt in Iran at the dawn of written history. Some of these are based on philology alone—a dangerous and often misleading guide. Others are derived from cultural features and frequently disregard the effects of borrowing by peoples on the outer fringes of a cultural area, or the changes resulting when new immigrants adopt the cultural advances of indigenous populations. The best we can hope is to avoid the more obvious pitfalls while we state what appear to be the ascertainable facts.

“Physical anthropologists are certain that Mesopotamia was the eastern borderline for Semitic types of individuals and that the Semites, whom we know as the brown Mediterranean peoples who invaded Mesopotamia from Arabia, did not inhabit Iran at an early date.<sup>1</sup> When, therefore, the author of the tenth chapter of Genesis calls Elam a son of Shem, that is, a Semite, he is speaking not in anthropological but in geographical and cultural terms. Nor did Nordic peoples speaking an Indo-Iranian language dwell in Iran in early times; the earliest evidence indicating their entry is dated to the beginning of the second millennium B.C. and is based on the mention of Indo-Iranian deities among Kassite gods.

“There is some evidence leading to the belief that a protonegroid population once extended westward from India along the shores of

served in mod. *Ba-qsā*. Akk. *kaššū*, *kašē*, from which is derived Hekataios' *κισσιοι*, is the native name with Akk. endings; all of them presuppose genuine *kas*, from which the true plural would be *kasip* attested by Greek *κασπιοι*.”

<sup>1</sup> Since there were no geographic boundaries between Mesopotamia and ancient Iran I cannot endorse fully such a positive statement, especially in the light of so few archaeological or anthropological data.

the Persian Gulf. Individuals of that group seem to be portrayed on seventh century B.C. reliefs of an Assyrian king.<sup>1</sup> Greek authors speak of 'Ethiopians' in the southeast of the land;<sup>2</sup> their modern descendants possess copper skins, straight hair, and round skulls (cf. Dieulafoy, p. 28). It is, however, safe to say that these peoples never constituted an important or a large element in the population.

"So far as it is possible to determine, in ancient times there were longheaded races in Iran preceding the Nordic peoples. The basis for this belief is found in the appearance, in Mesopotamia, of a brown Eurafrican type of man. Our present evidence concerning him is indeed scanty, but seems to suggest a remote physical connection with India.<sup>3</sup> It is possible that these longheads themselves were Sumerians, or were related to them, for it has been said that one can still trace the ancient Sumerian face eastward among the peoples of Afghanistan and Baluchistan, even to the valley of the Indus.<sup>4</sup>

"The most important element, however, appears to have been roundheaded. In the present population of the plateau, at least in the eastern portion, there is a very striking group of roundheads, who are more numerous in the uplands than on the plain.<sup>5</sup> Some may be related to the Dravidians of India, in particular to the Tamil-speaking peoples, among whom there is a marked brachycephalic element. The stature of others is often rather tall, with frequently a marked correlation between this stature and fairness of skin. Such features might argue for an admixture with Nordics; but recalling the fairness of some European Alpines, we might also conjecture that these present-day peoples are the remnant of a proto-Alpine race. If the daring suggestion<sup>6</sup> that the so-called 'Armenoids' originated in

<sup>1</sup>"Cf. the upper register of the Ashurbanipal relief in E. Pottier, *Les Antiquités assyriennes* (du Musée du Louvre) (Paris, 1917), Pl. 23; for details cf. Victor Place, *Ninive et l'Assyrie*, Vol. III (Paris, 1867), Pl. 59, No. 1. Or see H. R. Hall, *Babylonian and Assyrian Sculpture in the British Museum* (Paris and Brussels, 1928), Pl. XLIV. Finally, cf. the Achaemenian reliefs from Susa in M. Dieulafoy, Pls. V and VI."

<sup>2</sup>"Herodotus VII, 70; Strabo XV, 1, 13, and 24."

<sup>3</sup>"Buxton in L. H. Dudley Buxton and D. Talbot Rice, 'Report on the Human Remains Found at Kish,' JRAI., LXI (1931), pp. 57-119, esp. pp. 84 ff."

<sup>4</sup>"Sir Arthur Keith in Hall and Woolley, *Al-'Ubaid* ('Ur Excavations,' vol. I, Oxford, 1927), p. 216. On this question cf. H. Frankfort, *Archaeology and the Sumerian Problem* (SAOC, No. 4), pp. 40-47."

<sup>5</sup>"Cf. Buxton, 1925, pp. 112 f.; W. Z. Ripley, *The Races of Europe* (New York, 1919), pp. 450 f.; R. B. Dixon, pp. 309-312."

<sup>6</sup>"G. Elliot Smith, *Human History* (London, 1930), pp. 167 f., and *The Ancient Egyptians* (new and rev. ed.; London, 1923), pp. 102-105; Buxton, [1925] pp. 107-13."

Turkestan be accepted, the hypothesis that the early inhabitants of Iran were primarily of this stock would be strengthened. Philology, dangerous as its evidence may be, concurs with this 'Alpine' theory and tentatively suggests that the extension of 'Caucasian' linguistic elements from far-away India on the east through Elam and the Zagros into Anatolia on the west is perhaps not without significance.

"Nevertheless, this view conflicts with the theory already stated and commonly held, that the brown Eurafrican variety of longheads in Mesopotamia was also the chief block of the earliest population in Iran. If this be accepted, we must assume, as indeed would not be difficult, that the 'Caucasian' linguistic affinities have transcended race and people, being spoken both by the *supposed* original roundheads of Asia Minor and by the dolichocephalic peoples of Iran.

"The present state of our knowledge leaves us at a complete stalemate. No theory, enticing as it may be, is acceptable; only with the help of physical anthropology shall we solve the problem."

1936.—Sir Aurel Stein's (1936, Plates I, II, III) published photographs of Torwali and Hunza men suggest the possibility of relationship with the peoples of northwestern Iran and northeastern Iraq. There are several Torwalis and Hunzas who could pass for Kurds, and based on the photographic and anthropometric analyses there appears to be some relationship. Furthermore, G. M. Morant in this same paper (p. 21) states that "the physical anthropology of the peoples inhabiting the valleys to the south and north of the Hindu-kush is of particular interest as they are said to possess characters which make them practically indistinguishable from some European races. Their presumed distinction from all other races of Asia has led to some startling conjectures, such as the one which assigns them to the *Homo alpinus* type."

1937.—According to Tallgren (p. 90) "strong influence was exercised in the Tarim basin not only by the Indo-Scythians, who had fled from the town of Taxila in India across the chain of mountains to Central Asia and spread Buddhism there, but also by strong Iranian elements of civilisation. From Iran and Bactria Indo-Iranian influence extended far to the east, and it is fairly certain that Iranian elements gained a footing, too, on the Upper Yenissey, in the latest, but flourishing 'Bronze Age' of the Minusinsk district."

1937.—V. V. Ginzburg (pp. 56-63) summarizes<sup>1</sup> previous opinions on the origins and physical characters of the Tadzhiks and quotes recent anthropometric and medical studies by Oshanin, IAsevich,

<sup>1</sup> This section was translated from the Russian text by Mr. Eugene Prostov.

Zimmerman, I Arkho, Vishnevskii, Korovnikov, Gagaeva-Vishnevskiaia, and others. Ginzburg (pp. 74-75) states that the mean stature of Mountain Tadzhiks is 165.83 and the sitting height 86.44, with a relative sitting height index of 52.18. The head is 152.50 in breadth with a cephalic index of 83.40 tending toward hyperbrachycephaly, due to artificial cranial deformation. The face is narrow, of medium height, and orthognathous. The nasal length is 58.14, breadth 34.40 with an index of 59.44. In profile 64.50 per cent are straight and concavo-convex, 11.47 concave, and 24.03 convex.

Some of the comparative material has been included in the tables (pp. 436-489).

1937.—Alexandre Baschmakoff (pp. 21, 23) includes among the modern peoples of the Caucasus three linguistic groups, the last of which speaks an Indo-Iranian language. While from an anthropological standpoint these elements cannot be considered pure Iranian there remain the Talych (91,000), Tat (74,000) and Persian (50,000), all of which are clearly Iranian dialects. On the other hand the number of individuals who speak these dialects as a mother tongue is barely 2 per cent of the total population of the Caucasus.

The Persians are a political group rather than an ethnical entity. In Transcaucasia are included foreigners under the jurisdiction of Iran, who in particular speak the Tatar-Azerbaijdzhani dialect, among whom a minority speak modern Persian as the mother tongue. According to Zagurski they are distributed as follows to the north and to the south of the Caucasus range:

District	Number of Iranis
Baku . . . . .	35,000
Daghestan . . . . .	9,000
Tblisi (Tiflis) . . . . .	2,000
Terek . . . . .	2,000
Batumi . . . . .	1,500
Total . . . . .	49,500

1938.—Ernst Herzfeld and Sir Arthur Keith have written a section entitled "Persia as a Prehistoric Centre" in "A Survey of Persian Art," which is due to appear during 1938-39. Through the kindness of Mr. Arthur Upham Pope I was allowed to read the manuscript and to quote the following brief extracts.

"The ethnic name 'Iranians'<sup>1</sup> designates the Aryan-speaking people after they had settled on the highland, and cannot be applied

<sup>1</sup> "The name Iran (Middle Persian: *Eran*; Old Persian: *Aryanam khshathram*) means 'the (land) of the Aryans'; from *Eran* in Middle Persian a secondary adjective, *ērani*, was derived, which replaced the Old Persian *arya > ēr*."

to any of its earlier inhabitants. The anticipatory use of 'Iran' as a geographical term which includes modern Armenia, Afghanistan, and Baluchistan is excusable, but to be exact we need a designation for the pre-Aryan inhabitants. For a number of reasons 'Caspians' is an acceptable name for the aborigines and also for the plateau in its wider extent."

Herzfeld and Keith suggest: "Hence, although no direct proof has yet been disclosed of crop raising in Iran anterior to the end of the Stone Age, there is strong circumstantial support for the hypothesis not only that the Caspians of the early fourth and fifth millennia were agriculturists, but even that they were the original agriculturists, and that the knowledge of agriculture spread from the Caspian plateau over the three adjoining alluvial lands: the Indus, the Syr and Amu Darya, and the Tigris and Euphrates."

In describing the features of the Aryans at Persepolis they write: "The heads and faces are rather broad, with thick, curly, black hair, large eyes, high foreheads, and prominent cheek-bones. The nose is decidedly hooked, narrow and high bridged, but with a strongly depressed tip and rather large wings, quite different from the Semitic type as represented in Babylonia, or the Armenoid type represented in Assyrian sculpture."

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This concludes our summary of historical references to the peoples of Iran or to their adjacent neighbors which seem to throw light on the racial origins of the modern inhabitants of Iran.

The reader is referred to the special index (pp. 601-651) on this chapter.

In the following chapter we shall deal with the more recent distribution of the tribes, subtribes and townfolk throughout the country.

#### IV. THE PEOPLES OF IRAN

The preceding chapter is a compilation of data on the peoples of Iran collected by writers as early as Herodotus and ending with contemporaneous opinions. However, no recent material similar to that obtained by Curzon has been published and to bring our tribal information up to date, various official and non-official sources of the past fifteen years, which must perforce remain anonymous, are quoted here in the form of a survey of the country, province by province. Under the policy of His Imperial Majesty Riza Shah Pahlavi, the tribes are being disbanded, so that within a relatively short span of time tribal divisions will no longer exist and the possibility of tracing the interrelationships of these people will be lost beyond recall. It is important, therefore, to record their present distribution and estimated numerical strength. Reliable census figures on nomadic peoples are not available and so far no serious attempt of this character has been made.

In presenting the material I have given a brief description of each area from the aspects of physical geography, geology, and anthropogeography, together with a list of the tribes and subtribes. The provinces have been treated in the following order: Northern and Northwestern provinces, Kashan, Luristan, Khuzistan, Isfahan, Fars, Laristan and Bandar 'Abbas, Kerman, Yezd, Khurasan, and Samnan-Damghan. The Bakhtiari *garmsir*, Baluchistan, and Seistan, have also been discussed separately.

##### NORTHERN AND NORTHWESTERN PROVINCES

This section includes the provinces of Tehran, Asterabad, Mazanderan, Gilan, Khamseh, Kazvin, Azerbaijan, Ardelan or Kurdistan, Kermanshah, and Hamadan.

East of the Sefid Rud below Manjil, located at the juncture of Gilan, Khamseh, and Kazvin provinces, stretch the great Elburz Mountains, culminating in Mount Demavend<sup>1</sup> (18,600 feet) and throwing off spurs toward the Caspian Sea. The mountain systems can be seen clearly on the map (Frontispiece) so that it will be unnecessary to describe them further here.

The Elburz Mountains give rise to countless perennial streams; those draining south onto the plateau, although vitally important for cultivation, are small, owing to the scantier rainfall on the southern slopes of the mountains. The only streams which bring

<sup>1</sup> Cf. W. T. Thomson and W. Ainsworth, 1838.

down any volume of water through the summer are the Hableh Rud, Jajrud, and Karaj. In winter their overflow reaches Qum Lake, but in summer they are used to irrigate the plains at the foot of the hills.

The majority of the Elburz streams flow northward down narrow tortuous ravines to the Caspian Sea, where they have formed fertile deltas, of which the plains of Mazanderan and Gilan are the largest. The longest river is the Haraz, with a course of 120 miles.

The Qizil Uzun, which pierces the Elburz chain near Manjil, rises in the mountains of Kurdistan (Ardelan). It drains an area of 25,000 or 30,000 square miles.

The area covered by the Northern and Northwestern provinces may be divided into two dissimilar sections: the Elburz Mountain region, including the Caspian littoral; and the Iranian Plateau, forming a rough triangle with its base from Mianeh through Manjil and Kazvin to Tehran.

From the watershed to 9,000 feet the land consists of rock and shale overgrown in summer with Alpine plants and grass. There are also small, isolated oak trees at this altitude, and the foothills and valleys between 2,000 feet and the lowlands are covered with thick forest, usually with a dense undergrowth of box, thorns, and ferns. The swampy nature of these lowlands has been intensified artificially by rice cultivation and by the construction, chiefly in Mazanderan, of large tanks of stagnant water and reeds, dammed up during winter to serve as reservoirs in summer for rice fields not irrigated from the rivers. The soil, containing neither stone nor gravel, has no surface drainage on the large plains and when flooded becomes a morass.

Wheat, barley, and lucerne are successfully cultivated throughout the area except in the Caspian lowlands, where the abundant water supply is utilized for rice, which is exported in great quantities. Millet is also raised in some districts. Peas, melons, beans, lentils, potatoes, lettuce, cucumbers, and marrows are widely grown. Fruit is plentiful.

The tribesmen make wine, chiefly at Kazvin, and distill *'araq* from raisins. In parts of the plateau the castor-oil plant and linseed are productive, and olives flourish in the Sefid Rud Valley. Cotton is grown in many places up to 5,000 feet. Tobacco of the *tutun* variety, introduced into Gilan in 1875, is cultivated more extensively every year. This may be a special variety although *tutun* is the common Arabic word for tobacco. Tea, another foreign crop in Gilan, has given good results. Gilan and Mazanderan produce silk.



Honey bees are kept in many villages. The honey is consumed locally and exported in small quantities to the towns.

Fine sheep are raised in all the hill districts, especially in Khamseh, the Elburz, and Mazanderan. These are of the fat-tailed variety



FIG. 8. Provinces of Iran.

except in Mazanderan, where the thorns would make short work of their tails. Mazanderan grazes a large number of cattle, which are of a small, sturdy, long-horned, humped breed, supplying excellent dairy produce. Water buffaloes are reared in the Caspian lowlands.

No other inland sea is as well stocked with fish as the Caspian. The principal varieties are sturgeon (*sag mahi*), perch (*safid mahi*), carp (*kupur*), bream (*subulu*), and salmon (*azad mahi*). These fish swarm at the mouths of the rivers which they ascend to spawn;

sturgeon and salmon in autumn and spring around the mouths of the mountain rivers, and perch, carp, etc., in winter at the mouths of the sluggish marsh streams.

Climate in the Caspian provinces is characterized by: (1) a moderate range of temperature, 90° being a maximum rarely exceeded in summer, while frost in winter is unusual; (2) diminution in the rainfall from northwest to southeast, the annual rainfall at Resht averaging from 50 to 60 inches and at Asterabad a little under 20 inches; (3) excessive humidity and heavy dews from June to mid-September due to evaporation, the naturally swampy nature of the soil being intensified by the flooding of the rice fields at this season.

On the Elburz Mountains the clouds from the Caspian, driven by the prevailing northwesterly winds, bring rains to the northern slopes. The rainfall is heaviest in the lowlands (*dasht*) and diminishes through the foothills (*miyanband*) to the dry mountains (*kuh*), which exhibit the general characteristics of the plateau climate except that they attract more cloud.

The humidity permeates everything and everywhere. Curzon (1892a, vol. 1, p. 387) remarks that there is not "in the same parallel of latitude a more unhealthy strip of country in the world."

The plain of eastern Mazanderan, owing to the lesser extent of rice fields, to the cultivation of a dry crop of cotton, and to less rainfall, is comparatively more salubrious, but Tunakabun, on the west, becomes a lake of rice swamps and is the most unhealthy district of the whole coast strip.

At the eastern end of the Caspian, snow in the lowlands is rare. In Gilan during average winters there are a few inches of snow, and sometimes heavy falls do occur.

The Elburz range shelters these provinces from land winds, and the prevailing winds come from various points of the north. A hot dry wind (*bad-i-garm*) blows at intervals between November and early June along the Caspian lowlands. An easterly wind (*dasht-i-bad*) brings fine weather, especially in spring, and a northwest wind (*gil-i-bad*), blowing principally in autumn and winter, quickly causes rain. This *gil-i-bad* is a stormy wind, but less so than the *khazri*, which comes straight off the sea, chiefly between the end of November and February, and, owing to the shallowness of the Caspian, raises enormous waves in the space of one or two hours. When the wind drops, the sea calms with equal suddenness.

The climate of the Iranian Plateau is not affected by the peculiar conditions of the Caspian provinces. Owing to its situation between

latitudes 38° and 35° the Plateau comes under the category of sub-tropical, but actually, because of the altitude, it is for the most part cooler than this classification would imply.

The general climatic conditions are as follows: (1) a small rainfall and intensely dry, clear atmosphere, which is, on the whole, stimulating and healthy; (2) regular seasons, but with sudden transitions from spring to summer and from summer to autumn; (3) a great range of temperature due to its inland (continental) position; (4) a southern sun powerful at all altitudes. These characteristics prevail throughout, and the climate differs only in detail and degree according to the altitude.

Sanitary conditions, now improving rapidly, have been extremely primitive. In 1918, famine followed by typhoid caused the deaths of about 100,000 persons in Tehran, while in Mazanderan cholera, not an endemic disease but imported from the Volga region, and typhoid decimated the population. Infant mortality in this area has been estimated at about 65 per cent. Smallpox is common, although with the increase of vaccination this disease is less frequent. Typhus and relapsing fever are most common in Khamseh and Azerbaijan. One form of the fever is carried by a large tick, *Argus persicus*, commonly known as the Mianeh bug or *gharibgaz* ("biter of strangers"; cf. Wells, p. 505). Scabies, dysentery, diarrhea, tuberculosis, and numerous ophthalmic diseases are common. Syphilis and gonorrhoea are said to affect at least 80 per cent of the population. Under the new régime, however, correction of these conditions is fortunately to be anticipated.

Tropical diseases are naturally more frequent in the Caspian lowlands than on the Iranian Plateau. *Anopheles* breed up to between 5,000 and 6,000 feet. Sandfly fever is prevalent. The "Baghdad boil," locally called *salak*,<sup>1</sup> occurs throughout this region.

Tehran is situated at an elevation of 3,810 feet above sea level on the plain to the south of the Elburz range, which is some ten miles distant. The town is near the southern end of the great gravel beds extending down from the base of the range, and is itself on a slope of some 282 feet from north to south. To the north along the foot of the mountains, which rise very steeply, and where streams come down from them, are situated numerous villages, termed collectively Shimran and now used as summer resorts.

<sup>1</sup> Sometimes spelled *salik*; known also as the "Delhi boil." Cf. General Index and Appendix E.

Mention is made of Tehran as early as 1179, but its importance dates from 1788 when Agha Mohammed Khan, the founder of the Qajar dynasty, selected it to supersede Isfahan or Shiraz as the capital of Persia. This was done chiefly because of its proximity to Mazanderan, the starting point from which he had conquered the country and whither he would retire if hard pressed. His choice was thus made on grounds of policy and strategy, and not with the object of selecting a site well suited for the foundation of a large city.

At that time Tehran was a typical small eastern town within mud walls with a circuit of some two miles. The population was 15,000. After becoming the capital it gradually gained importance so that by 1807 its population had risen to 50,000 and by 1870 to 120,000. The present Tehran dates from 1869, when Nasir-ud-Din Shah decided to enlarge his capital and give it a more imposing appearance. The old mud walls were pulled down and replaced by a moat and earthen rampart twelve miles in circumference, which was completed in 1874. This rampart has been gradually destroyed, however, as the earth has been used for building purposes and for making bricks.

A census taken by the police in 1919 gave 250,000 as the population. According to Ebtehaj the population in 1936 was 360,251. The birth rate is computed at 780 per month and the death rate at 580. Within the enceinte there were formerly 23,428 houses.

Tehran and the adjacent provinces comprise no large uninhabitable tracts like the salt deserts farther south, and compared to the whole area of Iran they are thickly populated, containing between one-quarter and one-fifth of the total population.

Most villages cultivate land and also own flocks. The proportion of the population which was purely pastoral, except in the Inanlu and Baghdadi tribes of Kharaqan, was, however, small. A considerable number of highland peoples migrate to the Caspian lowlands in winter, and conversely many Mazanderanis and Gilakis (people of Gilan) migrate to the hills in summer.

The distribution of population varies greatly, its density or sparsity depending on several causes, the most fundamental of which is water.

#### RACIAL GROUPS

The three main racial groups in the Northern and Northwestern provinces are as follows:

- (1) Persians (Farsi), who inhabit the Elburz Mountains south of the northern watershed and the plateau as far west as the Sefid

Rud. The majority of the inhabitants of Tehran and Kazvin comprise this group. The language spoken by these people varies little in dialect throughout Iran.

(2) Turki, who form the entire population of Garmarud and Khalkhal in Azerbaijan, Khamseh, and of Lower Tarum, together with other sections of Kazvin province roughly west of a line drawn from Manjil to Siadehan and northwest of the Siadehan-Hamadan road. Southeast of this road and southwest of a line from Siadehan to Robot Karim, including Kharagan, there is an admixture of Farsi, but Turki predominates. The town of Saveh is, however, wholly Farsi, although villages within a few miles of it are Turki. About one-third of the population of Kazvin and a smaller part of the population of Tehran are Turki. In the strip between the base of the Elburz and a line drawn from Siadehan to Robot Karim, i.e. intermediate between the Farsi and Turki areas, and in Veramin and Khar southeast of Tehran, Turkis are found mixed with Farsis in many villages. The Farsis, the original inhabitants, are more numerous. The Turki element is usually descended from tribes which have come and settled among them.

The Turki peoples are the descendants of hordes from Central Asia, particularly of the Ghuzz tribes, who invaded Iran during the Seljuk period in the eleventh and twelfth centuries. The Seljuks were followed by the Mongols and the rule of the Mongol Il Khans of Iran, who had their capitals at Maragheh, Tabriz, and Sultaniyeh<sup>1</sup> near Zenjan.

According to a strong local tradition the ancestors of the Khalej and Baiat Turks in the Saveh district came to these regions with the armies of the Mongol conqueror Tamerlane (Timur) at the end of the fourteenth century.

Two theories, however, exist as to the origin of the present Turki population: that they are descended from these Turks and Mongols; and that they are the offspring of the original inhabitants on whom the invaders imposed their language.

Apart from the dissimilarity in language the great difference in mental and physical characteristics between Turkis and Farsis suggests that there must at least be a considerable admixture of different blood in the former. These regions were devastated and depopulated by the invasions and probably the surviving remnants of

<sup>1</sup> At Sultaniyeh are ruins of the mausoleum of Khudabanda, the Il Khan, who founded this city in A.D. 1305.

the original population intermarried and were absorbed with their conquerors.

Turki landowners and peasantry alike are of good physique, with broader faces and heavier build than the Farsi.

Turki is the only language of the northern Turki districts and no Farsi is spoken or understood except by the upper class and a small proportion of the population of Zenjan. Farther south, where the population becomes mixed, some Farsi is also understood, but it is more usual to find a Farsi with a knowledge of Turki than vice versa. The Turki of these parts differs considerably from Ottoman Turkish, and there is also some variation between the Turki of Azerbaijan and the Turki of the districts around Saveh.

(3) The Mazanderanis and Gilakis in the Caspian provinces, who are separated by the northern watershed of the Elburz from the Farsi population of the Elburz valleys as well as from the Turki people of the Qizil Uzun Valley.

Both Mazanderanis and Gilakis are of Persian origin and the differences between them and the Farsis are due to their isolation, behind the Elburz, and to climatic rather than racial conditions.

They are of medium height, of pale, sallow complexion, in striking contrast to their dark eyes and long and abundant black hair and beards.

Mazanderani and Gilaki dialects vary considerably in different districts throughout the Caspian provinces. They are akin to Farsi in origin but have now become so distinct from it as to be quite incomprehensible to a man of Fars. Owing to the constant intercourse between people of the Caspian provinces and of the plateau, the language of the adjacent Elburz or plateau districts is generally understood in the Caspian provinces. Thus, Farsi may be used from Asterabad to the Sefid Rud Valley in Gilan; but northwest of this valley, where the Gilakis come into contact with the Turki people of Tarum, Turki begins to supersede Farsi, and in Talish very little Farsi is understood.

(4) In addition to the above racial groups, some Armenians and Jews and Chaldeans live in the towns, chiefly in Tehran, Kazvin, and Barfrush, and within the Farsi and the Gilaki and Mazanderani areas are found settlements of Turki, Kurdi, and Luri tribes.

In northwestern Iran the tribes were not indigenous, but, with the exception of some of the Turki tribes in Kharaqan and Saveh, were transplanted in comparatively recent times from their homes in

Azerbaijan, Kurdistan, or Luristan, by Shah Abbas, Nadir Shah, and Agha Mohammed Khan Qajar.

For defense against the Turkomans several tribes were settled in Asterabad and in the eastern part of Mazanderan by Agha Mohammed Khan Qajar, at the end of the eighteenth century. The Shahsavans found in Azerbaijan and scattered throughout Khamseh and Kharaghan to Saveh, are a combination of Azerbaijan Turki tribes united by Shah Abbas in the first quarter of the seventeenth century against rebellious Qizilbash tribes residing in those regions. Similarly, the Khwajahvand Kurdi tribe in Kujur, Pul, and Kalar-dasht, in the west of Mazanderan, were sent primarily to overawe the original inhabitants. Turki, Kurdi, and Lek tribes were transplanted by Nadir Shah to the Kazvin province within easy reach of Tehran, probably in order to break their power in their own country.

We list below a few facts concerning those tribes in the Northern and Northwestern provinces which possess certain anthropological interest. Most important among these are the Shatranlu of Kalkhal, and the Inanlu and the Baghdadi Shahsavans of Kharaghan and Saveh. During the past decade many of the tribes have become settled, and some smaller tribes have been transferred to new districts.

#### MAZANDERAN

Passing from east to west the three chief tribal groups in Mazanderan were the Abdul Maliki, Kurd-u-Turk, and Khwajahvand. These sedentary tribes have become more or less assimilated with the Mazanderanis. The Abdul Maliki and Kurd-u-Turk have lost their fine physique owing to the unhealthy climate of the Mazanderan plain. The Khwajahvand, who live in the hills, are more virile, but eat much rice and fall sick if transferred to the plateau climate and diet.

(1) The Abdul Maliki (Turki) dwelt between Ashraf and Farahabad in the western corner of the Gulf of Asterabad. This tribe was, according to reports in 1920, divided into the following sections, each with about 130 families: Faravand, Kalvand, Shaikhvand, and Zainavand.

By origin the Abdul Maliki were a Qashqai tribe settled by Agha Mohammed Khan in Shahriyar, near Tehran, about 1790, moved in the following year to Nur and Kujur, and to their present habitat to oppose Turkoman raiders about 1850. According to their tradition they then numbered 4,000 families, and were diminished to about 600 by the Mazanderan climate. They did not intermarry

with the Mazanderanis. They grew rice, cotton, and a little wheat and barley and were said to possess many cattle and ponies.

(2) The tribal sections referred to as Kurd-u-Turk were of mixed origin and were settled together by Agha Mohammed Khan Qajar to oppose Turkoman raiders. They consisted of Kurds transplanted from the Saujbulagh Mukri of Azerbaijan, of Turks from Khurasan and Veramin, and of Afghans who came via Khurasan. In 1920 the Kurd-u-Turk were engaged chiefly in cotton and rice cultivation. They owned some cattle and ponies, but not so many as did the Abdul Maliki. The Kurds,<sup>1</sup> who were composed of the Mudanlu and Jahanbeglu, lived in villages located mostly to the north of Sari. The Turks comprised the Usanlu, who lived near Sari, and the Giralili, who lived in the villages of Nika and Buluk of Bala Tejen, Afrar, Fandrinamarvar, Tulan Darreh, Qashgab, and Zargar. The Afghans lived near Kara Tappeh [Kara Tepe?] and Turijin.

(3) The Khwajahvand (Kurdi) dwell in the district of Tunakabun. In 1920 there were five sub-sections in the Kalardasht plain, the Sultan Quli Khani, Kakavand, Lek, Khwajahvand, and Dilfan. They owned about 1,500 houses. In Pul and Kujur, where the tribes possessed 1,400 and 1,000 houses respectively, the Khwajahvand were divided into only three groups, the Dilfan, Kakavand and Khwajahvand.

This tribe was originally brought from Garus and Kurdistan by Nadir Shah. A part returned to their native country at the end of the reign of Karim Khan Zend, and were brought back by Agha Mohammed Khan Qajar, to keep down the turbulent inhabitants of these districts.

This region is one of the most productive in the Elburz and the inhabitants possess considerable stock of sheep and cattle, and also raise large crops of wheat and barley and millet, which supply all the surrounding country.

#### GILAN

The only tribes in Gilan in 1920 were the Amarlu (Kurdi) and the Khamseh-i-Tavalish, sometimes referred to as the Talish. The Jangalis were in no way tribal.

<sup>1</sup> For additional references see B. Nikitine (pp. 73-80); "Iran League Quarterly," vol. 4, Oct., 1933, No. 1, pp. 31-41, 147-158; V. Minorsky, "Kurdes," in "Enc. of Islam," mainly linguistic; Dhun Behramgore T. Anklesaria, "The Kurds, their History, Language, Manners and Customs, and their Country," translated by Dr. Bletch Chirguh. According to "Iran League Quarterly" the population of Kurds in Irani Kurdistan was 3,300,000; but a Commission, presided over by Count Teleki, Prime Minister of Hungary, reported to the League of Nations on July 16, 1925, that there were only 700,000 Kurds in Persia.



(1) The Amarlu inhabited some 50 villages between Manjil and Pirakuh, namely, in the area enclosed by the Shah Rud, Sefid Rud, Siyah Rud, Chaka Rud, and on the east by a line from Shah Rud to Chaka Rud via Jarindeh and Pirakuh. They also occupied a few of the villages north of the Chaka Rud, adjacent to Dailiman, e.g. Diarjan, Golak. They were semi-nomadic between *qishlaq* villages in the side valleys north of Shah Rud and the small *yailaq* village of Damash and black tent camps on the ridge, dividing the Shah Rud from Siyah Rud and Chaka Rud.

There were approximately 1,600 houses. The tribe was brought from Kurdistan in the early eighteenth century by Nadir Shah, who also settled a part of it at Nishapur in Khurasan. They speak the Kermanji (Kurdi) dialect, Persian, and Gilaki.

The Amarlu tribe was divided as follows:

Section	Qishlaq	Yailaq
Shah Qulanlu.....	Khurgam.....	Dalfak
Baishanlu.....	Jarindeh.....	Damash
Shamkanlu.....	Manjil and Loshan area	
Bahadulu.....	Manjil and Loshan area	
Ustajanlu.....	Sedentary at Pirakuh	

The Amarlu tribe constituted about two-thirds of the population, the *ra'ayat* the remainder. The land belonged to the *Il* but was cultivated by the *ra'ayat*, who paid one-half to two-thirds of the produce to the *Il* as rent. The *Il* were pastoral and owned large flocks of sheep and some cattle. They had not intermarried with the *ra'ayat* and had retained their original primitive features and build.

(2) The Talish were partly of Turkish origin. In 1919 the following population estimate was recorded:

Buluk	Population	Religion
Talish Dulab.....	12,500	Sunni/Shiah
Asalim.....	4,000	Sunni
Shandarmin.....	6,000	Shiah
Masal.....	6,000	Shiah
Karganrud.....	15,000	Shiah/Sunni

#### KHAMSEH

The Khamseh tribes, all Turki, are of mixed origin but appear to have been brought from Ardebil and other parts of Azerbaijan and to have been mingled with the Qizilbash tribes, already in Khamseh, into the Shahsavan confederation.

Two decades ago a few minor tribes, Dilaqada, Karaborglu, and Rashvand, lived in Tarum, but the principal tribes of Khamseh were the Duvairan and Afshar, called Afshar Duvairan to distinguish it

from the Afshars of Sain Qal'eh in Azerbaijan and of Kharaqan in Kazvin.

(1) The Duvairan group, which was divided into 15 sections, lived in the Qizil Uzun Valley from Garus above Yangikand down to Qaplan Kuh bridge. Estimates of the number of houses varied from 1,500 to 3,000 and of the number of villages from 120 to 300.

The Duvairan were a strong Shahsavan tribe brought from Mughan and Ardebil by Fath Ali Shah, and settled in the fertile Qizil Uzun Valley for their *qishlaq*, with *yailaq* in the highlands west of the valley bordering on the Afshar district of Azerbaijan.

(2) The Afshar (Duvairan) living between Abharrud and Garus comprised the following sections: Badirlu, Jahanshahlu, Jumelu, and Qurasanlu. They had about 1,000 houses. The Afshar tribe, said to have moved from Azerbaijan simultaneously with the Duvairan, was divided into three independent sections: (a) the Afshar of Sain Qal'eh of Azerbaijan, (b) Afshar (Duvairan) of Khamsheh, and (c) Afshar in Kharaqan (Kazvin). The Afshar (Duvairan) branch was the weakest of the three, but it was said to have numbered originally 5,000 families. They used to migrate to *yailaq* above Sultaniyeh and farther northeast into the hills of Tarum, west of the Qizil Uzun. These *yailaq* were, however, appropriated as private property and the tribe became sedentary and agricultural. They also owned some camels, but fewer than formerly as the result of war and famine.

#### KAZVIN

I. The Chigini, Ghiasvand, Kakavand, Jalilavand, Bahtui, Rashvand, and Ma'afi were grouped together by the Persian government as the "tribes of Kazvin." With the exception of the Rashvand and Ma'afi, the *qishlaq* of these tribes were situated in Tarum, in the Shah Rud and Qizil Uzun valleys, and their *yailaq* on the hills southwest of these valleys, between the Kazvin-Manjil and Kazvin-Siadehan-Sultaniyeh roads.

(1) The Chigini (Luri), composed of six sections, were nomads who wandered between *qishlaq* in the Shah Rud Valley, and their *yailaq* in the hills southwest. There were from 800 to 1,000 families. They spoke Luri and Turki. The parent tribe is still in Luristan. They cultivated rice, wheat, and barley in the Shah Rud Valley, and wheat and barley in their *yailaq*. They also raised oxen, sheep, and goats.

(2) The Ghiasvand, neighbors of the Chigini, moved from their *qishlaq* in the Qizil Uzun and Shah Rud valleys to their *yailaq* above

Yuzbashi Chai. The number of their houses was estimated in 1920 at from 600 to 1,200. They were agricultural and pastoral.

(3) The Kakavand were divided into two sections: the Masikhani and the Namdarkhani. They occupied villages near, and northeast of Qurveh, the boundary of Khamseh and Kazvin on the Siadehan-Zenjan road, as well as a few *qishlaq* villages in Tarum. There were about 350 houses. Their mother tongue is Lek, but Turki is also spoken. They grew wheat and barley, mostly unirrigated, and owned sheep and goats. A considerable number worked in Gilan during the winter. The parent tribe was near Kermanshah.

(4) The Rashvand were mostly sedentary in the districts of Rudbar and Alamut. They dwelt in Dehdushab, Hasanabad, Shahrstan, Ma'dabad, Duralhaq, Chirish Darreh, and other villages in Rudbar, and in Badasht, Duzdaksar, Mahmudabad, Shutur Khan, Madan, Haranak, Safiddar, and Avaj in Alamut. There were about 150 houses in Alamut and about 400 in Rudbar. In the former district they spoke Turki, in the latter Kermanji. The tribe is said to have migrated from Balkh and Bukhara at the end of the seventeenth century. Another branch was settled in Khurasan.

(5) The Ma'afi had about 600 houses in the vicinity of the Kazvin-Tehran road.

II. The Inanlu and Baghdadi nomad Shahsavan are the largest tribes in the districts of Kharaqan and Saveh. Both are Turki and were introduced into these regions at the end of the eighteenth century. The Inanlu are said to have been moved from the Mughan plain by Agha Mohammed Khan Qajar. The Baghdadi are believed to have migrated from Iran during the Safavid period and settled near Baghdad, whence they returned to Shiraz during the reign of Nadir Shah. Under Karim Khan Zend they had no fixed abode until they joined Agha Mohammed Khan Qajar, who settled them in their present habitat.

The Inanlu tribe has consisted of two main sections, the Yangijak and Guqbar, together comprising 5,000 to 6,000 families. Their *qishlaq* were around Gudagh and the fort of Mohammed Ali Khan near the Tehran-Qum road, and the adjacent districts of Saujbulagh (Tehran), Zarand (Saveh), and Zahrah (Kazvin), while their *yailaq* were in Kharaqan, especially near Gamishlu in the Qutalu district.

The 4,000 to 6,000 families of Baghdadi Shahsavan spent the summer in Kharaqan and Khalajistan (Hamadan) as far as the borders of Khamseh, and the winter in the vicinity of the Tehran-

Qum-Sultanabad and Tehran-Saveh roads. In 1920 the Baghdadis embraced two sections, Lek and Arikhlu, 2,050 and 1,770 families, respectively.

The Leks included several subsections, which are given here with the numbers of their families (in parentheses): Kusehlar (500), Yarijanlu (400), Karaquyunlu (350), Yaramishlu (300), Aliqurtlu (200), Ahmadlu (200), and Satlu, Qutulu, and Daulatvand (100).

The Arikhlu were made up of 16 subsections, the largest of which was the Kalavand with 630 families, divided into Bazlu, Buruchilu, Iskandarlu, Jalallu, Muhammadlu, Musulu, Shaikhlar, and Zaghal. Another subsection of the Arikhlu was the Qasimlu, subdivided into Hajilu, Alamardashlu, and Zairallu—used to number 500 families but the majority finally settled in villages. The remaining subsections with the numbers of their families were: Alvarlu with the Karunlu (100); Atakbasanlu (10); Dugar (60); Gharibalklu (30); Hasanlu (30); Husain Khanlu (200); Khadarlu (50); Medhilu (30); Mehrablu (30); Nilghaz (70); Qarallu (50); Sulduz (250); and Zilifu (30).

#### AZERBAIJAN

The tribes of Khalkhal in Azerbaijan comprised in 1920 the Shatranlu and the Quluqujanlu. The latter possessed about 150 houses.

The Shatranlu (2,000 families) occupy a narrow strip of land a few miles north of the Qizil Uzun and about 75 miles long from Sanjabad eastward to the Arpachai and Misdaghi hills. Their winter quarters are villages in the valleys and in summer they camp in the hills above them. At one time they trespassed beyond their original limits and spread over most of the four districts of Khalkhal north of the Qizil Uzun. The Shatranlu are of Kurdi origin, but they speak Turki; although they are not Shahsavan, they are neighbors and allied to them.

For further information on Azerbaijan see Curzon, Sykes, Wilson, and also Price (1913) and Minorsky (1932).

#### KASHAN

Ebtehaj (pp. 299–300) writes that the town of Kashan, residence of the Governor of the regions of Kashan and Natanz, is situated at an elevation of 3,707 feet, and has a population of 39,994. The famous tile work known as “Kashi” originated here. Natanz contains about 3,000 persons. Ardistan, at an elevation of 4,399 feet, has a population of about 4,000.

Since no recent additional information regarding the population of this province is available, reference must be made to Curzon, Sykes, Wilson, and other authorities.

#### LURISTAN<sup>1</sup>

Luristan is considered by Lurs to comprise three main divisions: Pusht-i-Kuh, Pish-i-Kuh, and Bala Girieh, corresponding to the main tribal divisions. They are not really geographical entities, but it is convenient so to describe them, the boundaries of the areas belonging to these tribal divisions being fairly well defined.

Pusht-i-Kuh extends in a northwestward and southeastward line along the western border of Luristan. It is separated from Pish-i-Kuh (on the east) by the ridge of mountains known as Kabir Kuh. Pish-i-Kuh is bordered on the northeast and east by the Kashgan Rud and the lands occupied by the Bairanawand (of the Bala Girieh). Generally speaking, the Bala Girieh country includes the rest of eastern Luristan.

Each of the three divisions has its own typical scenery; no generalization with regard to Luristan as a whole is possible.

In Pusht-i-Kuh, the hills, which rise in tier upon tier, parallel to each other, are lower and less steep than elsewhere in Luristan; gypsums and sandstones predominate. The limestone hills are isolated folds only, the intervening country being filled with shapeless masses of gypsum, gray in color, contrasting strongly with the red tint of the sandstones. Its rivers are for the most part almost unpotable in summer, and its drainage is toward the Mesopotamian [Iraq] plain. It is not well wooded, and the grazing is not as good as in northern Luristan.

In Pish-i-Kuh the sandstones and gypsums disappear, being seldom met north of the Saimarreh Valley; south and east of a line drawn from Tarhan to Madian Rud gaunt limestone ranges almost devoid of wood, take their place. These ranges run uniformly northwest and southeast, separated by broad grassy valleys. They attain about 6,000 feet in height. A feature of the district is the extent and fertility of the intervening plains, such as Kuh-i-Dasht, Rumishgan, Hulilan, and Tarhan, which could support a large population.

The Bala Girieh (high mountains) district, as the name indicates, is the most rugged part of Luristan. The limestone ridges are higher and steeper than those of the Kashgan, while the valleys between

<sup>1</sup> Section condensed from notes by A. T. Wilson, "Luristan," Simla, 1912, which are referred to here by kind permission of Sir Arnold T. Wilson.

are narrower, and filled with gypsum or sandstone hills, instead of being flat. This district is better watered, and the portion traversed by a line drawn straight from Khurramabad to Dizful is the most elevated tract in Luristan, with snow always visible upon its higher peaks. The Bala Girieh territory south of Khurramabad and north of the Dalich range is well wooded with dwarf oak (*balut*).

The extremes of heat and cold are met with in Luristan, from which fact arose the nomadic habits of its people. The valley of the Şaimarreh is almost as hot as Khuzistan in summer, and its climate bears a general resemblance to that of the Bakhtiari *garmsir* (p. 200). The higher elevations in Luristan are, however, cooler, and Khurramabad is seldom unpleasantly hot. Nevertheless cypresses grow in its gardens as at Shiraz. This tree is not to be found in any other town of southwestern Iran, as it cannot withstand very severe cold. Snow lies on the Khurramabad plain for from twenty to forty days as a rule, but in 1911 it covered the ground for about ten weeks. In March the snow line is at 5,000 feet, in April at 6,000 feet, in May at 7,000 feet.

The winter season in Luristan is a time of hibernation. During two months or more the people stay in their houses. The cattle are stabled, fodder for four or five months being collected during the summer. Wheat is generally sown in the autumn, and comes up only after the snow has melted.

Although the more fertile of the two, Luristan is more scantily populated than the Bakhtiari country. The caravan tracks across it are easier than any others leading from the gulf to central Iran except, perhaps, those via Bandar 'Abbas and Shiraz.

The three great divisions of Luristan may conveniently be adopted in discussing the tribes of the province. Pusht-i-Kuh was occupied by Faili Lurs, with a sprinkling of Kurd, Dinarwand, and Sagwand tribes who settled here at various times and intermarried with the original inhabitants. Pish-i-Kuh has been, from time immemorial, the abode of the Silsileh and Dilfan divisions, so named, it is said, from two brothers. According to Sir Arnold Wilson, they are mostly Leks, but there is a considerable number of Lurs in the eastern part of the district, speaking a distinct dialect, although differing in no other way from their Lek neighbors. The Bala Girieh tribes are all Lurs. They acknowledge no single leader or leaders and are perpetually at feud with each other. The urban population of Khurramabad and Burujird is mainly Lur, with a sprinkling of Jewish and Persian merchants.

No Turki tribes are to be found in the province, and the "Arab Gau Mish" tribes of the Bakhtiari country have no counterpart in Luristan.<sup>1</sup> Certain tribes, however, for example, the Sagwand, trace their descent to Arab immigrants. Kurd tribes, such as the Kalhur, live on the borders of the province, but are subject to the Kermanshah government and are therefore excluded from consideration here.

The boundary between Lurs and Leks is now only linguistic; the Lurs are probably Aryans by descent and of aboriginal stock. It is fairly certain that they have lived a nomadic life for many centuries. The tribes of Elam "set at nought the authority of the Medes and Persians; they defied Alexander and provoked Antiochus" (Curzon, 1892a, vol. 2, p. 285); but there is ample evidence that until the Middle Ages Luristan was also occupied by a considerable sedentary population, to which the rivers and numerous mounds west of the Kashgan, and in the valley of the Saimarreh, bear witness.

Morier considered the Leks as a nomadic tribe, dispersed throughout Iran, whose chief seats were near Kazvin, and in the provinces of Fars and Mazanderan. He held further that it was a large tribe, subdivided into many families, and was of Persian descent.

Rabino suggested that the Dilfan, Silsileh, and Bairanawand might be Leks.<sup>2</sup> The Ali Illahi sect had many adherents among Leks and Kurds; a detailed account of their beliefs and rites will be found in Wilson's "Gazetteer." The Silsileh and Dilfan were largely Ali Illahis originally, but have gradually become Shiah by profession.

Among the Bala Girieh the sight of a man saying his prayers is uncommon, and the older men have no idea of the formulae of prayer, or of the elements of their Shiah faith, although an oath on the Koran is considered binding.

The Lurs lived in black goat-hair tents of indifferent construction, usually without sidewalls, brushwood being used instead. Unlike Arabs, who tended to congregate in large camps, they pitched their tents in widely scattered groups of three or four, each petty chief or group of families having a separate encampment. In early summer they deserted their tents for booths made from the branches of trees.

<sup>1</sup> It must be remembered that these data were published in 1912.

<sup>2</sup> Cf. Rabino, 1916, p. 6.

TRIBES OF LURISTAN<sup>1</sup>

*Amla*.—Formerly known as “Amla Karim Khan,” this small, isolated Lur clan of Pusht-i-Kuh originally lived in a few walled villages southwest of Dizful. Their lands are irrigated by the Harmushi and Dehdari canals from the Karkkeh River.

*Baharwand*.—This tribe, of more than 1,000 families, is said to have been controlled by Mir Abbas Khan, who with his brother Mir Ali Khan at one time divided the authority of the Dirakwand. Eventually the Mirs were ousted from the various sections of Dirakwand, but they succeeded in forming separate tribes called the Mir Abbas Khani (Baharwand Mirs) and the Mir Ali Khani (Qalawand Mirs).

Excluding the Baharwand Mirs, the only divisions we have to consider are the *Kadkhuda's* section, and the Najaftan. The latter were a small and weak clan, living apart from the main body of the tribe, wintering near Qal'eh Husaniyeh, spending the summer on the northern slopes of Kuh-i-Gird, and moving between these points by a route crossing the eastern end of the Chinara range and the Kuh-i-Kargishan. They intermarried with the Qalawand Mirs.

In winter the tents of the Baharwand could be found anywhere from the Ab-i-Zal bridge to within a few miles of Dizful on the western side of the Bala Rud. In summer they lived on the slopes of Kuh-i-Haft Pahlū and Bawwi, and in the valley of the Shurab, Kuh-i-Taf, Darreh-i-Nassab, Tang-i-Bahram Rush, and Ab-i-Siwak. Their migrations generally followed the Kialan route, but when on bad terms with the Mirs they went via Chul.

Wheat and barley were sown near Ab-i-Lailum and Ab-i-Fani, in the Darreh-i-Nassab, and elsewhere near their summer quarters. This tribe was the strongest of the Dirakwand sections, with large flocks, many mares and a number of mules.

*Baharwand Mirs*.—These people were known as “Aulad-i-Mir Abbas Khan and dependents.” Edmonds (1922, pp. 344, 347) has some interesting notes on this group which he calls Mir Abbas Khani.

*Bairanawand*.—Generally classed as of the Bala Girieh division, but described by Rabino as Leks, the Bairanawand were the strongest of the tribes of Luristan, numbering at least 10,000 families. They inhabited the plains of Alishtar and Khaweh, and the Kuh-i-Chehil

<sup>1</sup> This list is based on the excellent preliminary investigations of Sir Arnold Wilson. Reference has also been made to the lists compiled by Rabino (1916) and Edmonds (1922). It must, of course, be understood that in compiling data of this character oral tradition will account for many variations and discrepancies.



Nabalighan and Garru in summer. A proportion, varying from year to year, migrated to Pusht-i-Kuh in the autumn, moving usually by way of Kal-i-Hasar, Chul, and Pul-i-Tang. They are said to be refugees of the last century, from Mosul.

Wilson subdivides Bairanawand: Astan Marz, Aulad-i-Ali-Mahmud, Aulad-i-As'ad Khan, Chakalwand Tari, Chalabi, Char-marang, Daliran, Farrash, Garr, Jujehwand, Mal As'ad, Mattash, Mihrab, Mustafawand, Pirdadeh, Sabz 'Ali, Shahun, Shahvardi, Shams, Yar Ahmad, and Zain 'Ali.

*Bajulwand*.—Little is known about this tribe. It was usually classed as Bala Girieh, but became sedentary in the neighborhood of Chalanchulan and identified itself with the Yar Ahmadi of Silakhur (q.v.).

*Bala Girieh*.—This term, which signifies "those that live in the high mountains," was applied to the following nomad tribes living between the Kashgan and Diz rivers: Bairanawand, Chigini, Dirakwand, Judeki, Papi, and Sagwand, some of which are discussed here under separate tribal headings. They were homogeneous to the extent that they never accepted the rule of any individual, but the Sagwand and Bairanawand were quite separate from the rest of the group. The Bala Girieh were estimated in 1836 by Rawlinson at 6,000 families. Layard in 1846 made the same estimate, and, if the Bairanawand be excluded, as was done by both authorities, the figure in 1912 was the same, so far as it was possible to determine. The Saki tribe, formerly included in this group, was extinct. The Makan 'Ali tribe was, in 1912, unknown; it was merged in the Sagwand many years before. The Bajulwand tribe had likewise ceased to be an independent unit.

*Balawand*.—This group is sometimes classed as Dilfan. Tribal divisions are Balawand and Kaushwand. Plowden gave their number at 1,000 families.

*Chigini*.—These tribesmen lived between Khurramabad and the Kashgan River at the foot of Kuh-i-Safid. Their principal divisions were Fathullahi, Hajiha, Hatim Khani, and Tahmasp Khani. The Hatim Khani section included the extinct Mirzawand tribe. The divisions of Tahmasp Khani section were Fathullah Juma't Karim, Haji, Hatimwand, Sabzwar Budaq, Shakarwand, and Waiskareh. Those of the Hatim Khani section were Darwish, Hammam, Husi-wand, Jawwar, Mirzawand, and Sharaf. They were said to number 2,000 families.<sup>1</sup>

<sup>1</sup> Wilson's list is followed in the above discussion of the Chigini. Cf. Edmonds (1922), p. 344, where a somewhat different grouping is given.

*Dalwand*.—Once allied with Bairanawand, they lived in the Hurud Valley throughout the year, and were more or less sedentary.

*Dilfan*.—This powerful confederacy consisted of many separate tribes: Ali, Aulad Kubad, Balawand (which was sometimes excluded), Bawari, Bijawand, Chari, Itiawand, Kakawand, Kalayin, Khairghulam, Mumianwand ("Mir Beg"), Nur Ali, and Padarwand.

These tribes were nomadic for the most part, but their territory was continuous, extending from the borders of Kermanshah to the Saimarreh and Kashgan, and the migrations of these groups were therefore different from those, for example, of the Sagwand.

*Dirakwand*.—This name was given to a congeries of tribes inhabiting the mountains between Khurramabad and Dizful, extending on the east to the vicinity of Ab-i-Diz, which they were precluded, however, from reaching by the intervening Papi tribe, and on the west to the neighborhood of the main caravan track, which from Badamak to Dadabad ran through territory claimed by the Judeki.

The Dirakwand is an important tribe of the Bala Girieh group. Wilson in 1912 listed the following sections: Baharwand, Baharwand Mirs, Kurd Aliwand, Kurki, Mir Aliwand, Mirzawand, Mungari, Qalawand, Qalawand, or Mungarreh, Mirs, and Rizawand.

The Zainawand, who lived in Pusht-i-Kuh near Saimarreh fort, were of Dirakwand stock.

The strength of the true Dirakwand was small, probably not over 3,000 men, but there was a strong foreign element of Sagwand, Hasanawand, and Bairanawand. Wilson thought that they had probably kept at about this figure for many years.

*Faili*.—Writers have claimed that this term applies to all Lurs of Luristan (Lur-i-Kuchak) but Curzon (1892a, vol. 2, p. 275) remarks that "it has become restricted in popular usage to Pusht-i-Kuh, the Failis proper constituting the bulk of the population in that district." The Vali of Pusht-i-Kuh used to be known in Khuzistan as "The Faili" or else by the cognomen, which has been bestowed upon his family by his Arab neighbors, Abu Qadareh ("father of the sword"). Khurramabad is still known officially and by tradition as "Khurramabad-i-Faili," a relic of the days when his forbear Hussain Khan, Chief of the Faili tribe, was placed by Shah Abbas in the position formerly held by Shah Wardi Khan, and granted the title of Vali in exchange for that of Atabeg, with almost unlimited powers in Luristan. With the diminution of the power of his successors, now restricted to the Pusht-i-Kuh district, the name Faili has been similarly limited.

*Falak-ud-Din*.—This group, a small and unimportant tribe of the Silsileh, comprised the two divisions Luramir and Tajamir.

*Hasanawand*.—This large nomad tribe gradually diminished in numbers until in 1912 it had an estimated strength of only 3,000 families. Their winter quarters were at Jaidar and Gamishan on the Saimarreh. They claimed the land to the north and east of the Kashgan River, but the Dirakwand and Judeki steadily encroached on their eastern border. In summer they went up to the heights of Alishtar.

Dependent tribes of the Hasanawand included: Baba Sanim, Bastan, Daulatshah, Faulad, Gurjai, Huz Abdul Ali, Huz Khudai, Jawanmand, Kakulwand, Khamseh, Mohammed Rizeh, Rahmanshah, Salar, and Zuhabi (Wilson, 1912).

*Judeki*.—Sometimes said to be of Bajulwand stock, they occupied the lands between the Kashgan and the main Dizful-Khurramabad caravan route, claiming Jaidar, Badamak, Chimashk, and Raikhan as their own, but their headquarters were at Chul-i-Hul. Their habits were similar to those of the Dirakwand. They wintered in Jaidar.

*Kakawand*.—They lived near Harsin on the border of the province, and were nominally part of the Dilfan, numbering some 800 families. Their winter quarters lay between Pul-i-Tang and Ab-i-Fani and in Pusht-i-Kuh near the southeastern end of the Kabir Kuh, while summer quarters were at Kurageh and on the Bawwi Plateau. They migrated by the same routes as the Baharwand, whom they resembled closely.

*Lur-i-Buzurg*.—This term, like Lur-i-Kuchak, is now almost extinct. It was formerly used to denote the country inhabited by Lurs beyond the boundaries of Luristan, and included in consequence the Bakhtiari country and the whole of Fars. It was never an administrative province, the Bakhtiari Haft Lang in 1841 being under Burujird, the Kuhgalu under Behbahan, and the Qashqai under the Governor-General of Fars at Shiraz.

*Lur-i-Kuchak*.—This term, now obsolete, denoted the province of Luristan. It was formerly divided into Gulak, which included Amla and Bala Girieh, and Selewerzi, which included Dilfan and Silsileh, but these divisions are now unknown.

It signified also a numerous but little-known tribe living east of Khurramabad, between the Dirakwand country and the Diz. They were nomadic, but as a tribe never left this district, which is well

watered and abundantly wooded. Their habitations were black tents, characteristic of the nomad.

*Qaid Rahmat* (Kaid Rahmat).—A small tribe allied to the Bairanawand, these people inhabited the upper waters of the Hurud.

*Qalawand*.—Probably originally Qilabwand. They numbered about 1,000 families. In winter they extended from the Qilab district to within a few miles of Dizful, keeping to the east of the Bala Rud. In summer they inhabited the valleys and slopes of Kuh-i-Haft Pahlū, Kuh Asiabad, Tiri Kuh; they seldom visited Khurramabad.

They cultivated a considerable area of good land in the Qilab district, and had small portions of irrigated land under cultivation at the headwaters of the Zal.

*Qalawand Mirs*.—Also known as Mirha-i-Mungarreh and the Aulad-i-Mir Ali Khan, the Qalawand Mirs were formerly the chiefs of the Qalawand, who were exiled many years ago. They lived in the Mungarreh and Kal Ispid ranges, near the headwaters of the Zal. Edmonds (1922, pp. 349-356) wrote in detail of his visit to the Qalawand Mirs (Mir Ali Khani).

*Quliwand*.—A once numerous tribe of the Silsileh. These families formerly wintered in the Saimarreh Valley, but later they either remained in Alishtar, or moved only as far south as the Kuh-i-Dasht.

*Razani*.—The Razani were sometimes classed as Bajulwand, and of Bala Girieh origin. They inhabited three villages near Razan on the Khurramabad-Burujird main road.

*Sagwand* (Rahim Khani).—The Sagwand were a typical tribe of Lur nomads. A portion of the tribe remained sometimes in the neighborhood of Sanjar during the whole summer, camping on the banks of the Shur or Karkkeh. Occasionally they moved to Salihabad for the summer.

The group was divided into two sections, the Rahim Khani and Ali Khani. The latter after about 1900 remained in the high country. The former were said to number about 500 families.

*Sagwand* (Ali Khani).—Little is seen of this tribe, which for many years remained in the hills near Khurramabad, and in the Abistan plain east of Kurageh; it was numerically less strong than the Papi, but more united.

*Silsileh*.—This name was given to an aggregation of tribes similar to that called Dilfan. Three groups were commonly recognized in this confederacy: (1) Hasanawand, and Daulatshah and Khamseh

of Hasanawand extraction; (2) Yusufwand and Quliwand (Kuliwand); and (3) Karm 'Ali and Falak-ud-Din. Other tribes were the Gaukush, Amir, and Mumin.

*Tarhan.*—This tribe was subdivided as follows: Amrai, Azad-bakhsh Ainawand, Bazwand, Garmai, Garrawand Kurd Aliwand, Kuloni Kushki, Padarwand, Ramawand, Rumiyani, Siri, and Ziruni.

*Yar Ahmadi.*—This tribe was sedentary and lived in Silakhur.

*Yusufwand.*—This tribe of the Silsileh group had summer quarters in Alishtar and Kuh-i-Garru. In winter they generally went south to the Kashgan, keeping, however, north of Jaidar. They were once a powerful tribe, but were later much dispersed, and their lands were taken by the Kakawand section of the Dilfan.

*Zainawand.*—In Pusht-i-Kuh.

A recapitulation of this list of Luristan tribes gives a total of 12,500 individuals. If the population of Khurramabad (15,000) and Burujird (30,000) be added, the approximate total in 1920 for Luristan and Burujird was 250,000. This is almost exactly the estimated population under the control of the Bakhtiari Khans at the same date.

The figure corresponds roughly with that of Major Bell, who estimated the Faili Lurs at 210,000 and the whole population south of the Isfahan-Burujird line at 700,000. A million would probably be nearer the mark, if the population of Khuzistan and Fars were included (cf. Durand, Lorimer [1907], and Sawyer).

#### NOTES ON TRIBES OF LURISTAN, 1928-32

Since Sir Arnold Wilson's notes on Luristan were made some twenty-five years ago, I attempted to obtain more recent information on the tribes of this region, which is of both archaeological and anthropological interest. During the years 1928-32 Mr. Arthur W. Du Bois prepared a memorandum on the Lurs, notes from which he has very kindly allowed me to give here.

Although today the term "Lur" applies to those Lur tribes which live largely within the boundaries of Luristan, there are two smaller Lur tribes living in Fars, west and southwest of Shiraz, the Mamasani and the Kuhgalus. Also, the Bakhtiari tribes (whose territory is a sort of enclave between Luristan, Isfahan, and Fars) are considered ethnographically to be Lurs.<sup>1</sup> The Lurs are said to be related to the Kurds who inhabit the region to the north of Luristan. For

<sup>1</sup> See footnote, p. 200.

practical purposes the dividing line between Kurdistan and Luristan may be considered as the motor road from Qasr-i-Shirin on the Iraq border to Hamadan.

Politically, the term Luristan is restricted to that portion of Luristan which is within the jurisdiction of the Governor of Luristan, i.e. the Pish-i-Kuh region, centering about the town of Khurramabad. The Pusht-i-Kuh region is under the influence of the Vali of Pusht-i-Kuh, and is not considered as part of the area under the jurisdiction of the Governor at Khurramabad.

The origin of the Lurs remains a mystery. They are considered to be part of the original Iranian stock that migrated from the regions to the east of the Caspian Sea during the first half of the first millennium B.C. They have, however, a strong admixture of Arabic blood, due to infiltration of Arab tribes from the contiguous regions of Khuzistan in the south and Iraq in the west.

With the exception of a small, settled fraction, the Lurs are nomadic.<sup>1</sup> They occupy themselves principally with the raising of livestock, including mules, sheep, goats, cattle, and horses. Although they are indifferent agriculturalists, they do cultivate land in the vicinity of their summer camps. They also gather gums and burn charcoal, both of which they sell advantageously.

The population of Luristan is variously estimated at from 180,000 to 450,000. The former military commander of Luristan (about 1927-30), General Ahmed Kahn Sépahbod, gave the number as Pish-i-Kuh Lurs, 250,000, and Pusht-i-Kuh, 100,000. Both figures may be too high.

The Pish-i-Kuh Lurs are divided into the Silsileh, Dulfan, Bala Girieh, and Tehranis.

(1) The Silsileh, said to be of Arab origin, occupy the region north of the Khurramabad centering about the Alishtar plain. Their subdivisions are Hasanawand, Yusufwand, and Quliwand (Kuliwand), comprising in all about 35,000 people. The nomad element winters as far south as the Saimarreh River.

(2) The Dulfan, also reported to be of Arab origin, occupy the region near Nehavend toward Kermanshah, the Kara Su, and Madian Rud. The Dulfan, estimated at 32,000, are subdivided into the following tribes: Kakawand, Itiawand, and Mumianwand.

(3) The Bala Girieh consist of eight important tribes and a few lesser tribes. They occupy the region east and south of Khurrama-

<sup>1</sup> The present policy of the Shah is to restrict pastoral nomadism to the minimum.

bad. Generally speaking, their territory is defined by the Burujird, Sezar Rud, and Abi-i-Diz valleys in the east, the plains of Khuzistan in the south, the Kabir Kuh and Kashgan Rud in the west, and the valleys immediately north of Khurramabad in the north. The population is about 70,000.

The principal tribes of the Bala Girieh are Qaid Rahmat, Dalwand, Bairanawand, Sagwand, Tulabi, Papi, Judeki, and Dirakwand. Smaller branches are Gurz Gurzi, Gallandas, Rumiani, and Ruh Ruk.

About 1,000 Qaid Rahmat own villages in the region south and east of Burujird. The Dalwand (population 5,000) occupy Zagheh, some thirty-five miles east of Khurramabad along the Khurramabad-Burujird highway. The Bairanawand, probably the most numerous and one of the most powerful of the Lur tribes, has its summer quarters near Khurramabad. In winter they migrate to the Saimarreh and the Kabir Kuh. The Bairanawand are estimated at more than 25,000. About 5,000 tribesmen have settled recently in the neighborhood of Kazvin, Veramin, and Khar. During the reign of Nadir Shah they were removed en bloc to the neighborhood of Shiraz, from which they soon escaped and made their way back to Luristan.

The Sagwand (10,000) have their summer grounds about thirty miles east of Khurramabad, centering about Abistan. They winter in the plains as far south as Dizful and Shush. Considered wealthy, they are especially known for their mule-breeding. The Tulabi (population about 1,000) occupy villages in the plain of Khurramabad. The Papi, whose number is approximately 2,500, summer in the mountains west of the Sezar Rud, some forty miles east of Khurramabad, and winter in the valleys to the south, along tributaries of the Ab-i-Diz. The Judeki comprise a population of 3,500 south of Khurramabad and the Kashgan Valley.

The Dirakwand occupy the mountain region south of Khurramabad River, east of the Kashgan, as far south as the Saimarreh River and the Ab-i-Zal, and east to the Papi country. Their number is probably between 8,000 and 10,000. The Dirakwand are divided into two principal branches, the Baharwand and Qalawand. The Baharwand are composed of thirteen clans, the Qalawand of twelve clans, of which the Mirzawand, living north of the Ab-i-Zab, are probably the best known. Scattered minor tribes, the Gurz Gurzi,

Gallandas, Rumiani, and Ruh Ruk are unimportant, including but some 2,000 persons.

(4) The Tehranis (Tarhan), composed of Ghigini, Amrati, Suri, Charari, Bavali, and Sinjabi, totaling about 11,000, inhabit principally the region west of Khurramabad and the Kashgan River south to the Saimarreh.

The tribes of the Pusht-i-Kuh, in southwestern Luristan, are nomads and are known as the Faili Lurs. They own a sort of loose allegiance to the Vali of Pusht-i-Kuh. Numbering some 50,000 to 60,000 persons, they are divided as follows: Kurds, 20,000; Mabaki, 25,000; dependencies, 5,000; and Arabs.

It is recorded that the Achaemenians (circa 550–330 B.C.) paid tribute to the Lurs. In the time of Shah Abbas the Great (1587–1629) the Government was forced to send strong armed forces to subdue the country. Since that conquest Khurramabad has been the nominal seat of Government of the Pish-i-Kuh region. Until the reign of Riza Shah Pahlavi, Luristan was virtually independent of the central authorities.

#### KHUZISTAN<sup>1</sup>

Khuzistan, or Arabistan, was a part of the Biblical Elam and corresponds largely to the ancient Susiana. In area the province covers approximately 16,000 square miles. For the most part the country is flat, being broken in one place only by a range of hills running west-northwest, which the Karun River pierces at right angles near Ahwaz. These red sandstone hills rise to 200 feet, the entire length of the range being about thirty miles. The level open plains are mostly barren and thinly sprinkled with desert scrub, although some portions of it are grassy and in spring bear patches of wheat and barley. On the southeast the Fallahiyeh and Ma'shur districts in winter become salt swamps, while on the west the neighborhood of Hawizeh becomes a marsh. Date trees (cf. Dowson) line the banks of the Shatt al-Arab, of the upper Bahmanshir, and the Karun to twenty miles above Mohammerah; elsewhere there are no trees, only belts of willows, tamarisk, and other bushes fringing the banks of the rivers.

The only permanent rivers are the Ab-i-Gargar and the Shatait, branches of the Karun, which alone is navigable (cf. Selby); the Ab-i-Diz with its tributaries; and the Karkheh. The Jarrahi River

<sup>1</sup> Since no very recent information concerning the tribes and population of Khuzistan is available, the author has consulted records of the last two or three decades and selected therefrom data which are offered here for comparative study.



enters the Persian Gulf at its extreme northerly point by the Khor Vasta. About twenty miles down the coast the Hindian River also flows south-southwesterly into the Gulf. The Karun and Jarrahi rivers run between steep banks.

The altitude of Khuzistan ranges from sea level on the coast of the Persian Gulf to 1,200 feet on the Kuh-i-Fadalak sandstone ridge.

In general the climate is healthful, although it varies with the altitude or proximity to the Persian Gulf. The winter, which may be reckoned from the beginning of November to the end of February, is ideal. Rain falls in December and continues intermittently until the end of March. Usually there is a break in February, which divides the rainy season into first and second rains so far as the husbandman is concerned. The hottest months of the year are June, July, and August. As a rule the temperature reaches its highest point in July, that rarely being much above 120°, while at night it will drop as low as 80°.

The prevailing wind, for the greater part of the year from the northwest, is moderately cool until June, after which it becomes hot by day but keeps down the temperature by night.

The average annual rainfall is from 12 to 15 inches. In 1935 the Anglo-Iranian Oil Company<sup>1</sup> recorded in inches the following figures: Masjid-i-Sulaiman, 26.04; Abadan, 9.19; and Naft Khaneh, 8.54.

AVERAGE TEMPERATURES IN ABADAN (1935)

(In Degrees Fahrenheit)

RECORDED BY REFINERY CHEMICAL LABORATORY STAFF

Month	SHADE RECORD			Average dry bulb	Average wet bulb	Highest and lowest shade temperatures
	Average maximum	Average minimum	Monthly mean			
January.....	63.7	43.7	53.7	51.9	48.1	
February.....	66.3	48.4	57.4	56.5	52.1	
March.....	81.5	57.5	69.5	61.5	58.4	
April.....	86.9	63.2	75.1	75.9	61.1	
May.....	99.9	74.3	87.1	86.9	69.4	H. 122.0
June.....	110.1	79.8	94.9	98.4	70.1	
July.....	113.9	82.9	98.4	98.1	70.1	
August.....	113.5	83.3	98.4	96.2	73.8	L. 32.0
September.....	110.3	75.2	92.8	92.7	70.4	
October.....	98.4	67.2	82.8	82.5	65.5	
November.....	78.2	57.5	67.9	66.9	60.5	
December.....	51.9	66.5	59.2	57.6	55.5	

<sup>1</sup> See Annual Report, p. 80, London, 1936. Through the kindness of Lord Cadman, Colonel J. B. Dalzell Hunter, and Colonel Hall of the Anglo-Iranian Oil Company these figures are quoted here. In my files I have meteorological data for parts of 1936 and 1937.

As a result of the medical work done by the Anglo-Iranian medical officers diseases of part of this province have been studied in considerable detail. Their reports on the monthly incidence of malaria and their progress in the development of oiling measures against anopheline larvae are valuable. In this publication there is no need to add further details but rather to refer the reader to these important sources of medical information (see Appendix E).

Dizful in northern Khuzistan is situated on the left bank of the Ab-i-Diz. The site is elevated and somewhat uneven, falling away on the river face in conglomerate cliffs about 100 feet high, the base of which is washed by the river when in flood. The population has been estimated at between 50,000 and 60,000. It has absorbed many heterogeneous elements and some of the groups bear names indicative of foreign origin. They have, nevertheless, become fused in one common community and homogeneity of language, customs, and dress and may be said to constitute a type of their own. For many years no Lurs, Kurds, or Arabs resided within the town. The only religion was the Shiah faith.

Shushtar lies at the northern extremity of the Miyanab in the angle formed by the division of the Karun River into its branches, the Shatait and Gargar. The majority of the inhabitants, who have numbered about 20,000, are of an indigenous type, commonly supposed to be Assyrian, but of mixed origin and generally called Shushtaris. They speak a Persian patois resembling but distinguishable from that of the Dizfulis. They are Shiahs. The town itself contains no Arabs but there are a few Bakhtiaris.

Bandar Nasiri, on the left bank of the Karun immediately below the Ahwaz rapids, is about one mile from Ahwaz town. The post-War population, estimated at 7,000, consists of Shushtaris, Isfahanis, Dizfulis, Bushiris, Arabs, and Lurs.

Ahwaz itself, for many years no more than a large village of some 1,000 persons, is the older of the two towns and the district is named after it; but owing to its position above the rapids it has lost its former importance and the larger and still-growing town of Nasiri has taken its place. In the town there are some 250 mud-brick houses. Most of the population are Arabs of mixed tribes, but there are some Persians. The majority are engaged in agriculture.

Hawizeh, a once prosperous town in southern Khuzistan, is situated about forty miles west by north of Bandar Nasiri, in the center of the Hawizeh district, of which it is the capital. The

inhabitants, formerly estimated at about 700 individuals, follow the doctrines and principles of the Shiah.

Ram Hormuz, the chief town in the district of the same name, lies 160 miles northeast of Mohammerah. The hills of the Bakhtiari country begin from two to three miles north of the town, which has a population formerly estimated at 10,000 persons, consisting of a class of mixed origin, chiefly Bakhtiaris, Behbehanis, Arabs, and Persians, who are described as *Ahl al Ramuz*.

Mohammerah, the capital and most important seaport of southern Khuzistan, stands on the right or north bank of the Haffar Canal, a continuation of the Karun River. The inhabitants are principally local Arabs belonging to the Hilalat, Bait Chenan, and Mutur divisions of the Muhaisin; but there are also numerous Arabs descended from Bahreini refugees, some natives of Dizful and Shushtar, a few merchants from other parts of Iran, and several hundred families of Christians and Jews.

Hindian, in southeastern Khuzistan, occupies both banks of the Hindian River, at a point sixteen miles northwest of its mouth. The inhabitants have consisted largely of Qanawatis, sections of the Bani Tamim, who migrated here from the Karun and Chab districts. The people are boatmen, cultivators of grain, and traders. They possess a considerable number of sheep and cattle, and a few horses.

The chief town of the district of the same name, Fallahiyeh, was the capital of the Chab tribe. The inhabitants, who were mainly Chab of the Khanafrah division, probably numbered about 2,000.

The village of Bandar Ma'shur, generally called Bandar, is situated ninety-five miles northeast of Mohammerah, a mile north of the inland termination of the Khor Ma'shur branch of the Khor Musa. According to local tradition, the original village of Ma'shur was situated at a place called Tall Kafiran, which seems to be on the southeast bank of the Khor Ma'shur, almost three miles from its head. Among the possible 1,500 inhabitants, formerly a large part were Bandaris or Bandarieh, whose origin was unknown even to themselves, although it may be that they were connected with the Bandariyah section of the Chab tribe; the remainder of the inhabitants were Qanawatis from Behbehan. The entire community is bilingual, speaking both Arabic and Persian.

The inhabitants of Khuzistan are of a mixed type, particularly in the northern part of the province where many Lurs are to be found, while the towns of Dizful and Shushtar have a population of some-

what obscure origin, being considered Assyrian in descent, with a large and now preponderating admixture of Persian blood. In the southern section of the province, with the exceptions of the town of Mohammerah, some of the larger villages on the Hindian, where there are a number of Persians, and the neighborhood about the Jarrahi, where there are many Lurs, the people are all Arabs, with a considerable infusion of Persian blood.

No census figures are available, but the population of northern Khuzistan has been estimated from various sources as about 200,800 and for southern Khuzistan as 206,400.

As in Iraq, the people may be divided into four classes: nomads, i.e. cattle owners, comprised chiefly of Lurs, who live in tents and migrate to secure the best pasture for their cattle; semi-nomads, i.e. part cattle owners, part cultivators of the soil, the best examples of whom are the Bani Tamim and the Bani Lam; settled farmers, i.e. those who reside permanently either on the river banks or in an irrigated area and are engaged in purely agricultural pursuits, for the most part the Chab of the Fallahiyeh district and the Muhaisin; town dwellers, i.e. those engaged in commercial or industrial pursuits, and Government officials.

In A.D. 640 Hormuzan, satrap of Khuzistan, was defeated at Ram Hormuz, and Ahwaz was handed over to the Arabs. This appears to be the first date of a settlement of purebred Arabs in the province. With few exceptions the tribes now living in Khuzistan originated from central Arabia, migrating either directly to Khuzistan or to Iraq whence they have since come in search of land or employment. There is practically no intermarriage between the Persians and Arabs except in the southeastern districts of Hindian and Zaidan. The number of Persians in Khuzistan has been extremely small. Intermarriage, trade, and Government posts have attracted few into the province.

Lurs used to camp during the winter months in the Dizful and Shushtar districts, while some tribal groups were always to be found about the Jarrahi. Their origin is somewhat doubtful; they appear to be of the same ethnical group as the Kurds,<sup>1</sup> their neighbors of the north, although they consider it an insult to be confounded with them. Most writers, however, agree that they are of aboriginal, old Aryan, or Iranian stock, which preceded Arabs,

<sup>1</sup> My forthcoming report, "The Anthropology of Iraq," will contain statistical comparisons between the Lurs of Pusht-i-Kuh and the Kurds of northern and northeastern Iraq.

Turks, or Tatars in the land. They do not marry with the Arab, with whom they are not generally on the best terms.

In Khuzistan the majority of the inhabitants are Shiahs, although some Sunnis live in the Hindian district. A few Christians and Jews are found in Bandar Nasiri and in Mohammerah. According to local tradition, during the past 1,500 years Sabaeans<sup>1</sup> have occupied this district. In relatively recent times, driven out by the Sun-worshippers and by the Fire-worshippers, they settled in Chehar Riz, which lies between Band-i-Bazurgan on the left bank of the Tib and the Pusht-i-Kuh. Here the Persians again molested them and they fled, some to Hawizeh and some to the Euphrates marshes in the district of Suq-as-Shuyukh, Iraq. The Persians endeavored to obliterate all traces of the religion of the Sabaeans and burned the holy books found at Chehar Riz. About 500 years later, however, it was discovered that one of these books had not been destroyed, and from this one surviving document all the present Sabaean books trace their origin.

The language of the northern province is formed from the various dialects of Arabic and Luri, besides the patois of Dizful and Shushtar, while farther south Arabic, with a certain proportion of Persian words, is spoken. Outside of the territory of the Lur tribes and the towns of Dizful and Shushtar, Arabic and Persian are understood throughout the province.

According to Wilson, tribes migrated into Khuzistan from central Arabia, Iraq, and Luristan in search of land which they might cultivate or on which their cattle could graze.

#### TRIBES OF KHUZISTAN

AFTER SIR ARNOLD WILSON

*Amla*.—They were originally a Lur tribe of the Pusht-i-Kuh that fled from the Vali about 100 years ago and settled at Shush (ancient Susa), where they cultivated wheat, rice, and barley. The Amla numbered 800 families.

*Anafjah*.—The Anafjah, sometimes known as Bait Zandi, were an Arab tribe said to be related to Al Kathir, once powerful and of primary importance in southern Khuzistan, but more recently greatly diminished in numbers, and associated with the Bait Saad

<sup>1</sup> Sabaeans, an ancient people and kingdom, which flourished in southern Arabia (capital Saba) before the Himyarites, attained their prime about the middle of the first millennium B.C. For a detailed description of their social organization, customs and folklore see Mrs. E. S. Drower's "Mandaean of Iraq and Iran."

of Al Kathir. The Anafijah comprised 600 families and were confined to the right bank of the Karun between Band-i-Qir and Wais. A few were scattered in Miyanab. They were semi-nomadic, owning sheep, donkeys, camels, and horses, but depending also upon cultivation of wheat and barley.

The tribe consisted of the following subsections (number of families given in parentheses): Bait Alawan (30); Barbuti (30); Barkan or Bait Diwan (20); Dailam (100); Daghaghlah, later a separate tribe; Dिल्fieh (80), originally of Hamaid; Hamaid or Bait Tarfeh (60); Jarullah (60); Bait Khashkuri (50); Mayyah (40); Mowammanah (30), principally owners of sheep, cattle, and buffaloes, and originally Nais of the Hawizeh district; and Nais.

*Bala Girieh.*—The Lur tribes, which encamped on the plains of northern Khuzistan during the winter months to graze their cattle, were all of this confederation, which numerically (some 10,000 families) was the strongest of the four principal divisions of the Lurs.

The confederation has included 5,000 families of Bairanawand, who wintered in Pul-i-Tang, 1,000 families of Dirakwand, who wintered northwest of Dizful and were famous for breeding mules, 800 families of Papi north of Dizful and 3,000 families of Sagwand, some of whom were located at Shush. In reality the Sagwand are a separate tribe but have a relationship to the Lur tribes. Under these main sections there were subsections of Baharwand, Kurd Aliwand, Murad Aliwand, Mirs, and Qalawand, located north and west of Dizful.

*Bawieh.*—This once powerful tribe (2,320 families) of southern Khuzistan claims descent from the Arab hero Muhalhal, and considers its ancestry superior to that of the Chab. Both sedentary and nomadic, they raised wheat and barley and grazed their sheep, goats, camels, donkeys, and cattle between the Jarrahi and Karun rivers in the territory north of Marid. The confluence of the Haddam and Ab-i-Gargar was the northern boundary.

The sections of this tribe were as follows: (numbers of families given in parentheses): Al bu Kurdan (300), who were originally Bakhtiaris; Amur (200); Al bu Atwi (200); Al bu Balid (200); Buraiyah or Al bu Birri (100); Faratisah (40); Hawashim (20); Jama (30); Al Jabbareh (150), who are Persians; Bani Khalid (80); Maavieh (150); Bait Nasir (50); and Bait Nawasir (500). The Bait Nawasir were divided into the following subsections: Ajajat, Awaudeh, Bait Hanzal, Al bu Hussain, Al bu Musabbi, Ghazzawiyah, Al bu Rumi, and Sha'abainah.

Additional sections comprised the Bait Rahamah (100), Bait Sunhair (100), and the Bait Zahrao.

*Chab al Gubban.*—This numerous and once powerful tribe immigrated to southern Khuzistan at the end of the sixteenth or beginning of the seventeenth century. At the time of their arrival, Khuzistan was a subject of dispute between Tehran and Constantinople [Istanbul], to whom the Chab had previously been subject. When they spread eastward they found themselves obliged to pay tribute to the Shah. For the next two centuries the Chab committed acts of piracy with impunity, although naval operations were repeatedly attempted against them by the East India Company, without success. In the beginning of the nineteenth century a rival to the Chab appeared in the Muhaisin, who determined to throw off the yoke of the Chab; but it was not until 1898 that the Chab sheikhdom was finally extinguished and the Muhaisin controlled its possessions from the Karun to Hindian.

The Chab tribesmen did not become entirely settled, nor were they wholly nomadic. Where they owned arable lands, they cultivated wheat, barley, and rice; they also possessed buffaloes, cattle, sheep, and even donkeys. They owned numerous date groves along the banks of the canals, while in the marshes they used canoes from which to fish and to shoot wild fowl.

The tribe was divided into three main groups: Dris or Asachrah (1,640 families), Al bu Ghubaish (1,720 families), and Khanafirah (2,490 families). These comprised the following subsections:

Dris or Asachrah	Families	Al bu Ghubaish	Families	Khanafirah	Families
Al bu Abbadi . . . . .	80	Abul Od . . . . .	10	Achris . . . . .	60
Bait Afsaiyil . . . . .	30	Al Amarah . . . . .	40	Amara . . . . .	100
Al bu Ali . . . . .	100	Bait Aqqar . . . . .	60	Al bu	
Atqieh . . . . .	50	Al bu Badr . . . . .	30	Ashairah . . . . .	70
Bait Aziz . . . . .	50	Bandariyah . . . . .	30	Daradishah . . . . .	50
Al bu Banaidar . . . . .	100	Dialim or		Dawarichah . . . . .	150
Al bu Dahallah . . . . .	100	Juwaisif . . . . .	50	Bait	
Al bu Dalli . . . . .	100	Bait Farhud . . . . .	150	Dhuwaiyib . . . . .	50
Bait Ghadhban . . . . .	100	Haiyach . . . . .	70	Al bu Ghanam . . . . .	80
Al bu Hammadi . . . . .	30	Hilaiyil . . . . .	100	Al bu Hamdi . . . . .	50
Al bu Hamud . . . . .	80	Bait Ithamneh . . . . .	50	Hazbah . . . . .	500
Al bu Hardan . . . . .	100	Al bu Jabbar . . . . .	100	Al bu Karaim . . . . .	50
Al bu Masud . . . . .	50	Juwarin . . . . .	30	Kawamil . . . . .	100
Al bu Musaiyid . . . . .	50	Bait Khawaitir . . . . .	150	Al bu	
Mutaridah . . . . .	50	Al bu Mairi . . . . .	50	Khadhaiyir . . . . .	100
Al bu Naim . . . . .	50	Bait Muhaidi . . . . .	30	Al bu	
Bait Ramah or Al		Muqatif . . . . .	60	Khanfar . . . . .	150
Matrud . . . . .	30	Al bu Nassar . . . . .	80	Mikasibah . . . . .	100
Bani Rashid . . . . .	100	Al Quwam . . . . .	40	Muqaddam . . . . .	500
Salaiyah . . . . .	50	Bani Rashid . . . . .	50	Rubaihat . . . . .	50
Al bu Sharhan . . . . .	30	Bait Rajaib . . . . .	20	Shawardiyah . . . . .	50
Al bu Shilaqah . . . . .	50	Bani Salih . . . . .	10	Suwalim . . . . .	200

Dris or Asachrah	Families	Al bu Ghubaish	Families	Khanafirah	Families
Al bu Subaiyah . . . . .	50	Al bu Shamal . . . . .	60	Thawar . . . . .	50
Shiyakhnah . . . . .	30	Shiyakhnah . . . . .	30	Al bu Zambar . . . . .	30
Al bu Suf . . . . .	50	Bait Shuraifat . . . . .	150		
Thawamir . . . . .	100	Bait Suwaiyir . . . . .	40		
Al bu Ubaid . . . . .	30	Al bu Taheh . . . . .	40		
		Al bu Taraichi . . . . .	30		
		Umaiyyid Rafaji . . . . .	100		
		Umtayir al-Nassari . . . . .	10		
		Bait Zibad . . . . .	80		

In addition, a division of 600 families of Nassar, comprised of Jaudeh and Maghaliyah, lived on Abadan Island; it was more or less separated from the Chab al Gubban and claimed by the Muhaisin. There were also 400 families of Sadah and forty of Bait Khallaf.

The Bait Ghadhban and Al bu Hamud were associated with the Bait Afsaiyil. Only half of the Shiyakhnah lived with the Al bu Ghubaish. The Bandariyah were previously with the Amara. The Juwarin were associated with the Bait Ithamneh and half of the Al bu Shamal with the Dris. The Hazbah and Muqaddam were sometimes considered a separate division.

*Daghaghalah*.—The Dagghaghalah were previously a nomadic Arab tribe living in tents on the Karkheh. They were tributary to Hawizeh. Later it was known as a section of the Anafijah until the Sheikh of Mohammerah ordered the tribesmen to settle at Mubatihah and sever their connection with the Anafijah. These tribesmen, who numbered 150 families, were settled agriculturists.

*Hamaid*.—This tribe was partly nomadic, partly settled, and was allied to the Bawieh. Subsisting chiefly on the cultivation of wheat and barley, the tribesmen also owned sheep, camels, and cattle. There settled formerly among the Anafijah, near Naddafiyah on the Karun River and for fifteen miles eastward, some 750 families of the Hamaid known as Bait Awamir, who comprised the following subsections (numbers of families in parentheses): Al bu Alwan (60), Attab (250); Al bu Duwarij (60); Al bu Khalid (40); Kharamizeh (50); Al bu Muhaisin (100); Muratisah (70); Said (60); and Shuwaib (60).

Besides this section there were 150 families of Bait Muwajid in the Jarrahi district, who left the Hamaid and settled here as cultivators. South of the Ab-i-Diz near Abu Jazirah were sixty families of Hamaid al Tarfah.

*Bani Hardan*.—The small tribe of Bani Hardan, consisting of some 500 families, was settled to some extent at Kut Nahr Hashim on the Karkheh and Liaimi on the Karun, as well as inland from the



left bank of the Gargar at Shiraif and Shakhah. Although chiefly pastoral, they also raised wheat and barley. The Bani Hardan were made up of the following sections (number of families in parentheses): Bait Abudeh (100); Al bu Hajji (100); Bani Naameh or Shutaiyat (50); Bait Shiyah (100); Shijairat (80), a scattered section; and Bani Tamim (100).

*Hindian, Zaidan, Bandar Ma'shur, and Jarrahi Districts.*—With the exception of half the Jarrahi district, where part of the vast Chab tribe lived, these four districts were inhabited by sections of tribes—Lurs, Persians, and Arabs—who for various reasons wandered from their own lands and settled in the southeastern districts of Khuzistan. Because they had long since deserted their main tribes or confederations and attached themselves to the Sheikh of Mohammerah, they were included as tribes of the districts in which they resided. The population of these four areas, numbering some 4,200 families, was in part sedentary and agricultural, in part pastoral.

The Hindian district included the greatest number of these tribes. Within the last hundred years 150 families of Abad migrated to Karapah from the Kuhgalu territory. Eighty families of Aushar, who are said to have left Shiraz on the death of Karim Khan, settled at Cham Tangu, Faili, and Sar Kharreh. They were previously Babis but have now turned Mohammedan. The Charasi, whose fifty families lived at Jabirabad, were said to be Persians, originally from the territory between Bushire and Behbahan. Some 200 families of Gashtil, also from north of Behbahan, lived at Gaz Ali, Cham Tangu, Gazal Shabun, and Cham Rahmun. Settled in Hindian, at Sahababad, and Cham Kunar, during the past 100 years, the Gurgi, who are said to be Persians, formerly numbered 200 families. The Haidari (300 families), who are Sunnis although they profess to be Shiahs, migrated from the Rudhilleh district about 1845, to dwell at Jiri. The Haiyat, comprising seventy families, were Persians who had always been in Hindian, chiefly at Cham Kaleg and Puz Safid. Scattered throughout the district were fifty families of Ja'fari, some working as fellahin and some as coolies at Abadan. Previously a large tribe, separating from the Kuhgalu in 1845, the Ja'fari lost their independence because of poor crops. The Matur<sup>1</sup> (150 families), near Deh Mulla, are of Chab al Gubban origin and are said to have lived always in Hindian. The Nidharat, reputed to have immigrated from central Arabia in the beginning of the seventeenth century to Bandar Rig, where they lived on Shatt Bani

<sup>1</sup> Cf. under Muhaisin.

Tamim, came about 100 years ago to Hindian, where a decade or so ago their 150 families were to be found at Kut Muhannah and Buziyeh. According to tradition, the original home of the Qanawati, the principal tribe of the district, was Kufa. In the nineteenth century part of the tribe migrated from Behbahan to southern Khuzistan, where there were 250 families in Hindian, 150 in Bandar Ma'shur district, and 100 in the Jarrahi district. The Sha'abuni, numbering about 300 families, are Persians who occupied the section of Hindian close to the sea. The Shuraifat, previously a large tribe who enjoyed the protection of the Chab al Gubban and are said to belong to the Bani Tamim, comprised five subtribes. One of these was the Rijaibat, of whom 250 families lived at Suwaireh and Shairiyeh in Hindian.

The tribes in the Jarrahi district consisted of the four other subsections of the Shuraifat. These were Bani Cholan at Khalafabad (200 families), Jibarat at Bunvar (100 families), and Maqatif and Muwalli at Daeh (100 families each).

The Zaidan district lies farthest east of the four districts in southern Khuzistan under discussion. Here at Chashmeh Murad and Shahr Zaidan lived 300 Persian families of Agha Jari, who migrated from Behbahan. One hundred families of Cherum at Cham Charatah were also from Behbahan and were originally Kuhgalus. The Laki, who numbered 200 families at Shiri, are Persians and were said to have migrated from Khurramabad about 1800. They were once known as Nadir Shah's Laki. Also derived from the Kuhgalu were 150 families of Shaikh Mamu at Darunak. The Shir Ali are said to be Bakhtiaris who came from Behbahan about 1899. They consisted of 300 families at Kashiri, Buzait, Shirabad, and Gargari.

The Bandar Ma'shur district contained only part of the Qanawati, as noted previously, and 150 families of Bandari, who may have been formerly a section of Chab al Gubban.

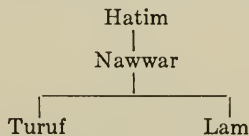
*Al Kathir.*—Al Kathir was an important Arab tribe, numbering 4,600 families, which inhabited the country between the Shatait branch of the Karun and the Karkheh River. Owing to the fact that in addition to these rivers, the Gargar, the Diz, and the Shaur run through the lands of the Al Kathir, the soil has been consistently cultivated. Cattle and buffaloes also were plentiful. The majority of the tribesmen were marshmen.

The tribe was originally divided into two groups, Bait Saad and Bait Karim, which were frequently considered as separate tribes.

These tribes were later known by the names of their sections and subsections. The numbers of families are given here in parentheses. Those sections previously part of the Bait Saad comprised Al bu Awarah (100); Chab al Sitatlah (500), who originated from Bani Lam and were divided into Bait Farajullah and Bait Karamullah; Al Haiya (100), who were also of Bani Lam origin, and who later followed Bait Umair; Mizraeh at Shaabiyah (200) and at Taraifi (300); Al Musahinah (100); Nais (100); and Bait Umair (600), of Bani Lam origin. The Bait Karim sections included Chaab-i-Dubais (800), of Bani Lam origin; Dailam (600); Al Hamzah (200); and Zighaib (300). In addition, there were 400 families of Dabbat, who followed Chab al Sitatlah, and 300 families of Al bu Hamdan, who are of Bani Lam origin and were once a section of Chaab-i-Dubais.

*Al Khamis.*—Al Khamis, i.e. sons of five, is an Arab tribe of little importance inhabiting the districts of Ramuz and Fallahiyeh. About 1840 these tribesmen migrated to the country between Hawizeh and the Karun, but they have since returned to their own lands. Both agricultural and pastoral, the tribe was made up of the following sections and numbers of families: Al bu Abbad (20), Ahmadiyah (50), Jinam (200), Mansur (100), Muhsin (50), Bani Rashid (200), Rizaij al Sufaih (50), Rizaij al Sultan (50), Suwarghi (20), Zubaidi (40), and Zuhariyah (50).

*Bani Lam.*—The Bani Lam, a powerful tribe, are best known in the Amara *Liwa* of Iraq. The tribe claims close relationship with the Bani Turuf, as both believe themselves to be descended from Hatim [Natim?] Tai of the Hijaz, famous as the most hospitable man of the age. The connection is reached as follows:



In addition to the sections, which are recorded on page 196, a large number of the later tribes of Khuzistan were of Bani Lam origin, notably Chaab-i-Dubais, Chab al Sitatlah, and other sections of Al Kathir, Marawuneh, Al Ruwaiyan, as well as small tribes, which outwardly had no connection with the Bani Lam. Of the sections mentioned in the lists of Bani Lam the majority were gradually drifting away and were treated as separate tribes. The Chenanah and Khasraj alone retained their close connection with the Bani Lam.

The 5,700 families of the Bani Lam were sedentary and semi-nomadic, living chiefly along the Karkheh River. They were divided into the following sections: (1) Between Karkheh and the Karun 150 families of Al Baji were settled as cultivators of the land. (2) The Chenanah numbered 1,750 tents of nomadic tribesmen, at Duwairij, Karkheh, and Hawizeh. They usually moved into the Amara district in summer. The Chenanah comprised two subsections: Al Doraisat (780 families) of Bani Rabiah origin, who joined the Bani Lam in their earliest days as a tribe living along the Tigris River; and the Al Sanawat (970 families). (3) The Al Duhaimi were an unimportant group of 400 families who came originally from Zobaid and settled along the Karkheh. (4) The Abdul Khan (1,300 families) cultivated the land between the rivers Shaur and Karkheh at Khairabad. Because the Abdul Khan have been so long in Iran they have often been considered a separate tribe. (5) The Khasraj (approximately 1,250 families), who lived along the Karkheh and sometimes moved to Amara in summer, were a semi-nomadic section of the Bani Khasraj tribe, who came to the Bani Lam from the Bani Rabiah. They left the Bani Lam in Iraq more than eighty years ago and thereafter generally moved with the Chenanah, although not to the Amara district. (6) The Sarkhah were a semi-nomadic section, half of whom lived in Iraq. The other half (850 families) lived with the Chenanah along the Karkheh River. This section was divided into the following subsections: Gaman (200); Al Humaid (100), who had only recently left Iraq; Ruwaishid (300), who are mostly in Iraq; Shahab (100); and Shubai-shah (150).

Several of the principal sections of the Bani Lam were composed of subsections and groups. The following lists are for the Chenanah, Abdul Khan, and Khasraj.

ABDUL KHAN			
Baits	Families	Baits	Families
Nesairy	100	Aifan	} ..... 600
Al Shawwai	300	Banadil	
Bani Ugbah	300	Chaf	
		Darwish	
		Jadir	
		Maiyah	

KHASRAJ			
AL BU LAITIF		AL TURQI	
Baits	Families	Baits	Families
Adhab	130	Al Abdullah	100
Ammar	70	Alaunah	...
Saqur	300	Al bu Id	100
Uthuq	50	Janadiah	200
Al bu Wais	100		

CHENANAH			
AL DORAISAT		AL SANAWAT	
Baits	Families	Baits	Families
Amarnan .....	100	Darwish .....	30
Ataiwi .....	80	Hajjaj .....	250
Brisam .....	150	Luguaimat .....	200
Shilhan .....	100	Bait Nassar or Assad .....	30
Talaibat .....	200	Bait Sah .....	30
Zoraiyat .....	150	Bait Shahib al Salim .....	50
		Bait Shaiyah .....	100
		Shammer .....	150
		Sinaid .....	80
		Zamil or Dhumad .....	50

*Marawuneh*.—The Marawuneh cultivated wheat and raised sheep on the Karun River northwest of Wais. These claimed to be an offshoot of the Bani Lam in the Amara district.

*Muhaisin*.—A settled tribe of southern Khuzistan, the Muhaisin have lived partly in Iran and partly in Iraq on the banks of the Shatt al-Arab, where they have been occupied in the cultivation of dates.

This tribe is said to be descended from Muhaisin, and his son-in-law, Kasib. These individuals, according to tradition, belonged to a tribe of the Mohammerah district which was compelled to emigrate by the encroachment of the Chab. Under the leadership of Muhaisin and Kasib, the migrating tribe settled along the Tigris River under the name of Al Hussain Pasha. Kasib and Muhaisin with some followers, having purchased land in the neighborhood of the modern site of Mohammerah from the Chab, eventually returned to settle near the original seat of the tribe, and the headship of the tribe which they founded remained in the family of Kasib. In consequence 4,900 families settled on the right bank of the Karun River from Qajariyah to Mohammerah, on both banks of the Shatt al-Arab between Basra and Fao, and on Abadan Island.

The tribe was divided into numerous sections, as follows, the number of families for each section being given in parentheses: Aidan (400), one-third of whom lived in Iraq; Ahl al Araiyyidh (400); Al Atab (400); Baghlaniyah (300); Bait Chenan (300); Bakhakh (200); Dris (300); Al bu Farhan (400); Bait Ghanim (400), comprising as subsections Al bu Khatir, Al bu Ginam, Al bu Isa, Miraziyah, Dawalim, and Al bu Suwaidi; Hilalat (300), who according to local tradition came from Muscat, where they were known as Miraiziq; "Al bu Maarriif" (200)[!]; Michasibah (100); Muttur (400); Al Qutaghna (200); Nassar (600), originally Chab al Gubban, formed of the subsections Jaudeh and Maghaliyah; Thuwamir (200); and Zuwaidat (200).

*Al Ruwaiyan.*—This was a small tribe of 100 families at Ghurai-bah, who claimed descent from the Bani Lam. Although these tribesmen were usually sedentary, they moved to better land when the crops failed.

*Sagwand.*—The Khuzistan section of the Sagwand Lurs, known as Rahim Khani, comprised 400 Shiah families located in winter at Daaiji south of Dizful, but moving in summer to the hills in the Khurramabad district. In addition to this section, the Sagwand included 1,500 families of Azizullah in Pusht-i-Kuh and 2,000 families of Ali Khani in Luristan. Neither of the last-named tribes ventured into Khuzistan.

*Salamat.*—The 200 families of the Salamat tribe were settled in central Khuzistan east of the Ab-i-Gargar between Haddam and Abgungi, where they raised crops and pastured camels, donkeys, horses, sheep, cows, and buffaloes. There were three sections: Hamid al Salim, Masakh, and Al bu Wais.

*Bani Salih.*—In the area north of Shuwaiyib, and between this town and Hawizeh in western Khuzistan were 2,100 huts of the sedentary Bani Salih. They comprised many sections and subsections, the numbers of whose families are shown here in parentheses: Al bu Adhar (400); Birahineh (100); Al bu Ghanimeh (150), Manasir (150), and Al bu Suwat, all of whom cultivated wheat and barley; Halaf (800), who were chiefly marshmen known under the subsections Al bu Aubaiyid, Braichah, Al bu Ghurbah, Hiyadir, Bani Sakain, and Sudan; and Hamudi (400), who were not settled, formed by the subsections Huwaishim and Zuhariyah.

*Sherafah.*—Sherafah was a tribe of 900 families settled in the Hawizeh district near Shuwaiyib. These tribesmen cultivated wheat, barley, and a little rice. They also raised sheep, cattle, donkeys, and camels. The two main sections—Bait Rizij and Bait Shahab—each contained 450 families. Bait Rizij was made up of Bait Habichiyah and Bait Zuhariyah. Bait Shahab comprised Batuliyah, Bani Naamah, Bait Shamus, and Bait Shumikhliyah.

*Bani Tamim (Bani Malik).*—In general the Bani Tamim (2,250 families) were nomadic between Hawizeh and Ahwaz, extending as far south along the Karun River as Qajariyah. A few families settled on the banks of the Karun. They raised wheat and barley. In addition they owned sheep, cattle, horses, camels, and donkeys. The tribal sections, with the number of families shown in parentheses, were: Abudah (100); Aidan (150); Aiyasham (200); Awainat (100); Barajiyah (50); Ghazaiwi (150); Ghazli (100); Hamudi (200); Hawa-

shim (200); Bait Hussain Faiz (50); Maqasis (100); Al Sabti (150); Al Sagar, Bani Sakain (250); Shahman (100); Shuraifat (200); and Sulaiman (100).

*Bani Turuf.*—Bani Turuf tribesmen possessed 8,000 huts in the Hawizeh district within the southern loop of the Karkheh River, chiefly near Bisaitin at the western border and Khafajiyeh. There were two main sections: the Bait Said (4,625 families) and the Bait Saiyah (3,375 families), who owned buffaloes, cattle, and a few sheep. They cultivated rice as well as a small amount of wheat and barley.

BAIT SAID		BAIT SAIYAH	
Subsections	Families	Subsections	Families
Bait Abbas	600	Bait al Abbas	50
Bait Shaikh Ahmad	25	Al bu Abdi Nebi	50
Bait Alwiyah	25	Bait Abdul <i>Sayyid</i>	200
Atashnah	20	Al bu Afri	100
Aubaiyid	300	Bait Akhwayin	25
Al bu Aubaiyid	200	Bait Athaiyib	50
Suq al Bisaitin	200	Bait <i>Sayyid</i> Badr	100
Bait Dagher	25	Bawieh	100
Al Gharrah	100	Ali Bilul	50
Al Ghawabish	200	Al bu Childah	100
Halaf	50	Faraisat	300
Bait Hammadi	100	Al bu Fendi	25
Bait Harb	25	Bait Hammadi	150
Al bu Hardan	150	Al Hawass	250
Al bu Hariz	150	Hiyadir	150
Bait Jodah	100	Ahl al Iraq	100
Suq al Khafajiyeh	150	Al bu Jilal	300
Manabih	150	Bait Menaishid	100
Bait Mazraeh	25	Al bu Mughainim	100
Bait <i>Sayyid</i> Mehdi	25	Bait Muhawi	100
Murammah	300	Al bu Nahi	100
Nuhairat	20	Ahl al Naqrah	50
Qarushat	100	Bait <i>Hajji</i> Salim	50
Al Sa'dun	150	Bait Sandal	25
Bait Safi	50	Bait Shahainah	50
Bait Sakhar	150	Ahl al Shakhah	150
Bait Shikhali	50	Bait Sultan	100
Bait Shubaiyib	25	Suwaid al Sudan	100
Bait Sodah	100	Suwaiyid	250
Suwali	50	Bait <i>Sayyid</i> Ali Tologhani	100
Suwari:			
Bait Nassar	300		
Bait Auwajah	500		
Tuwairat	50		
Bait Wushah	100		
Zuhaidat	50		

*Zirgan.*—Zirgan (400 families), a semi-nomadic tribe chiefly pastoral, was composed of two sections. One, the Al bu Fazil, Bait Maharib, Bait Sabti, and Zuhariyah, numbering 300 families, occupied the left bank of the Karun River, three miles north of Ahwaz. The other (100 families), Muammah and Bait Samak, were found in the Jarrahi district to the southeast near Cham as Sabi.

THE BAKHTIARI GARMSIR<sup>1</sup>

The Bakhtiaris, who are among the most important nomad tribes of Iran, live in the mountains west of Isfahan. Prior to the 1938 territorial readjustments the Bakhtiari district lay in the western section of Isfahan province and partly in northeastern Khuzistan. According to one tradition, this tribe came originally from Syria. It must be noted that both the Druze of Syria and the Bakhtiaris are hyperbrachycephalic.

Few anthropometric figures<sup>2</sup> on this important group have yet been recorded. The following account of the *garmsir*, written some twenty-five years ago by Sir Arnold T. Wilson, has been added with his generous permission.

The Bakhtiari *garmsir* includes an area of about 2,000 square miles south of the Karun River. This area is bounded on the north, west and northeast by the Karun River; on the southeast by the Mangasht Mountains; on the south by the Kuhgalu border.

The district is hilly, with narrow, fertile valleys on the east side, where the rivers receive the drainage from the winter snow on the Mangasht Mountains. The most prominent feature of the orography of the region is the existence of large areas of gypsum (*gach*), which, worn away by detrition and atmospheric erosion, have become a systemless mass of low hills. These hills are treeless but grassy. They are almost uninhabited, as the water which drains from them is generally bitter (*talkh*), being impregnated with mineral salts. This quality is characteristic of nearly all the water of rivers draining the district into the Karun River, but is not perceptible in the water of tributaries of the Ramuz River (Rud-i-Zard).

The west end of the Mangasht Mountains, in the east corner of this region, is snow-capped until May; here were located the *yailaq* of some Bahmai and a few Chehar Lang families. The Kuh-i-Asmari deserves mention on account of its dominating position. It rises to a height of nearly 5,000 feet from among *gach* hills not more than 2,500 feet in elevation. Moreover, it is composed of nummulitic limestone, in striking contrast to the red shales of the immediately surrounding country.

<sup>1</sup> See also Bishop, de Bode, Curzon (1892a, vol. 2, pp. 283-303), Harrison and Falcon (1932, esp. map facing p. 272), Layard (1887), Wilson (1926). Cf. Appendix E.

<sup>2</sup> See references in Chap. V, footnotes, pp. 442 et seq. Some writers have included the Bakhtiari among the Lurs. Although I have been unable to find an adequate series of anthropometric data on the Bakhtiaris, the indications are that they belong to a hyperbrachycephalic group in marked contradistinction to the Lurs (pp. 367-382).



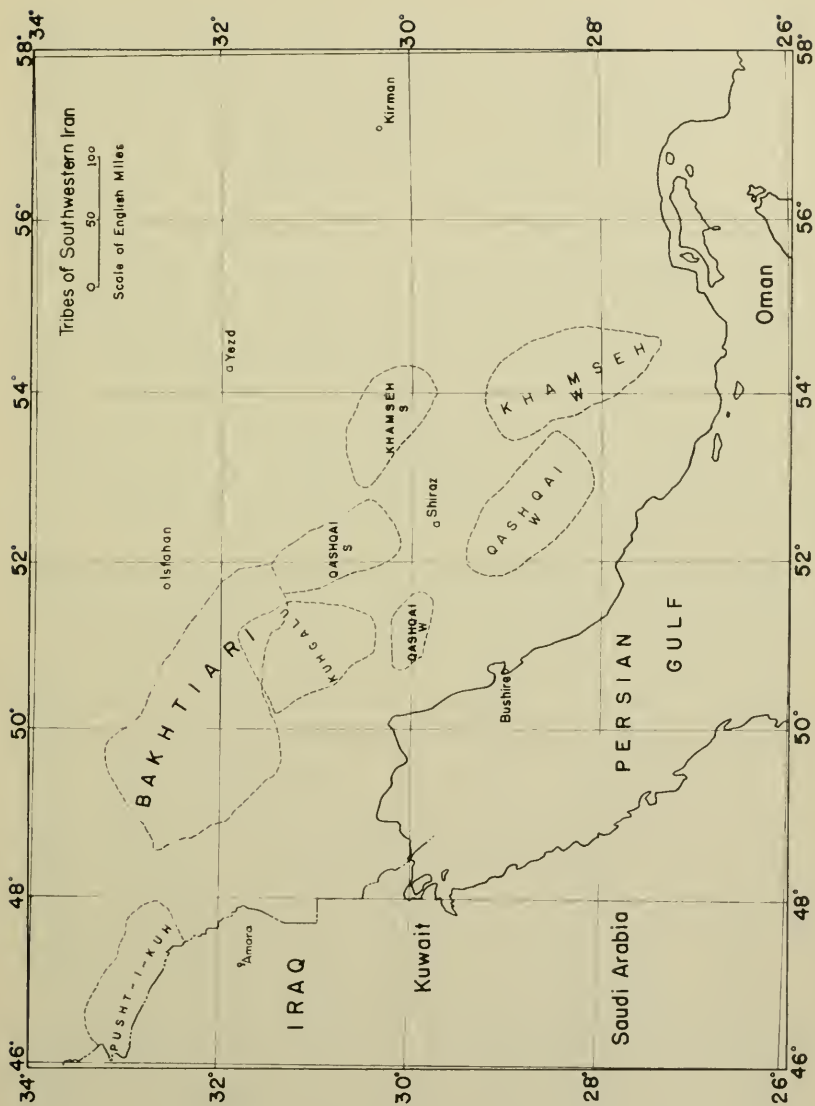


FIG. 9. Tribes of southwestern Iran. S=summer quarters; W=winter quarters.

The Shatt-i-Malamir, in the middle of the plain of that name, is a shallow, marshy sheet of salt water. In the winter it occupies an area of some twelve square miles and attracts large numbers of waterfowl.

The submontane tract known as the Bakhtiari *garmsir* resembles in its main features the rest of the hilly country which borders the Mesopotamian [Iraq] plain. It consists of a series of roughly parallel ridges, running northwest and southeast, gradually increasing in height as the Zagros Mountains are approached. Metamorphic rocks find no place in this region. Tertiary deposits, Cretaceous, nummulitic, and post-nummulitic in descending order from north to south occupy the whole area. The predominating strata are gypsiferous, and are recognizable from a great distance by the gray color and irregular contour of the systemless mass of gypsum hills, which extend from near Shushtar to beyond Ram Hormuz in long belts, capped in places by shales and marls of a reddish tint.

The standard work on the zoology of Iran is W. T. Blanford's contribution to Goldsmid's "Eastern Persia," volume 2, 1876, although much has been discovered and written on the subject since this work was published.

Broadly speaking, the Bakhtiari *garmsir* seems to lie, zoologically, as geologically, in the Zagros Mountain zone, rather than in that of Persian Mesopotamia as indicated by Blanford's zoological map.

After leaving the alluvial plain of Khuzistan and entering the low hills near Shushtar, Jaru, or Ram Hormuz the species typical of the plain cease to occur and are replaced by mountain fauna. *Ursus syriacus*, the gray bear of Iran, is occasionally found in the low hills of the district. A fine specimen of leopard (*Felix pardus*) was shot near Mamatain in 1907. The ibex (*Capra aegagrus*) roam the hills south of the Karun River. Other animals<sup>1</sup> of special interest occurring in the district are the porcupine, the chinkara (*Gazella benetti*, near the Khuzistan plain only), the urial,<sup>2</sup> and the wild hog on the plains. The latter is shot "for sport," but the *Ilat* extract from its intestines some sort of drug which they use as medicine. Mr. Woosnam of the British Museum obtained a lynx at Shush in 1905, and a badger at Ram Hormuz. The fox, probably *Vulpes persica*

<sup>1</sup> For further details regarding the fauna of Iran see "A Survey of the Fauna of Iraq, made by members of the Mesopotamia Expeditionary Force 'D' 1915-1919," published by the Bombay Natural History Society, Bombay, 1923.

<sup>2</sup> The Afghan urial, *Ovis vignei cycloceros* Hutton, is recorded from twelve miles southeast of Shiraz, altitude 5,550 feet; see JBNHS, vol. 27, No. 3, pp. 38, 41, 1921.

Blanf.,<sup>1</sup> occurs in this region. The lion, until recently, was known to exist in the swamps of the river Diz, but it is doubtful if any now remain. Indeed, as far as is known, lions have not been seen in this district since Layard's time, when they were found at Ram Hormuz and Qal'eh-i-Tul.

Domestic ruminants include the buffalo, which is fairly common, although it has been almost entirely in the hands of the "Arab Gau Mish." These tribesmen seem to have immigrated from Khuzistan, and to have attached themselves to the Bakhtiari in the same way as they have allied themselves to tribes in Fars.

The other domestic ruminants of the Bakhtiari are the fat-tailed sheep, small oxen without a hump, and the one-humped camel. The Persian horse to be found in every Bakhtiari camp, spiritless and with no burst of speed, is nevertheless capable of covering great distances at a fast walk. This type of horse is as sure-footed as a mule and can exist on very little food. The mule is also common and greatly valued, while the donkey exists in considerable numbers.

There is every reason to believe that the more central portion of the mountainous tract, lying between Shushtar and Isfahan, has been occupied from an indefinitely remote period by the tribes known as the Bakhtiari and their direct ancestors. It is equally impossible to assign a date to the origin of the two main branches—the Haft Lang and the Chehar Lang—into which the tribe is divided.

Until very recent times the Haft Lang were nomads, while the Chehar Lang, formerly also nomadic, were for all practical purposes a settled population, supporting themselves primarily by agriculture. Indeed, the latter formed almost the entire permanent population of the tract here described. In the cold weather, however, the number of Haft Lang who entered the district was probably eight times as great as that of the sedentary population. In the latter part of spring the nomadic groups were accustomed to leave this low country for their upper pastures. (See Cooper for description of migration; Sackville-West for journey across Bakhtiari Mountains; and A. De Boucheman, pp. 108-116, for tent types.)

The individuality and independence of these clans were more marked in the case of the Haft Lang than in that of the Chehar Lang. About the middle of the nineteenth century the hegemony of the combined tribes reposed with the Chehar Lang, but with the fall of the family of Muhammad Taqi Khan, this state of affairs was

<sup>1</sup> Blanford described the species from specimens obtained in the hills near Shiraz (alt. 6,000 feet).

altered. The supreme power then passed into the hands of the leading family of the Haft Lang, who retained it continuously through several generations. The Haft Lang established the dominance of their own sections and reduced their rivals to a position of complete subordination. As matters stood in 1912 and later, the Haft Lang chiefs governed the Chehar Lang through three principal families of the house of Muhammad Taqi Khan.

A Bakhtiari story gives the following information (Lorimer, 1930, p. 364) concerning one group of Bakhtiari tribesmen: "Now there are about 1,000 houses of the Dinaruni tribe . . . . People call their tribe the Ali Mahmidi. At the present time they have their winter quarters at Susin, and their summer quarters at Pa i Tauwa i Doverar."

After the reading of Harrison's splendid paper (1932) on the Bakhtiari country before the Royal Geographical Society (November 30, 1931), Sir Arnold Wilson (p. 210) made the following comments: "On the anthropological side comparatively little has been done, but it is fairly clear that the Bakhtiari tribesmen can be divided roughly into two classes, the long-headed and the short-headed, the former being for the most part immigrants from the south, representing successive waves of immigration, and the short-headed probably autochthonous."

In 1934 a Persian traveler, who wishes to remain anonymous, visited the Kuhgalu country and lived among other tribes in Luristan and Fars. He obtained the following information, which he very kindly submitted for inclusion in this report. Among the Kuhgalus he encountered the following subtribes: Boir Ahmadi, Mamassani, Taibies, Bahmais, and Dushmanziari. A number of *Sayyids*, living among these tribes, are called Sudat-i-Bab, Mahmudi, and other subtribal names. The traveler noted that in cranial and facial forms the Lur, Bakhtiari, and Kuhgalu "can easily be distinguished one from another."

#### ISFAHAN

No recent information regarding the size and details of the population of this province is available, and for this reason the reader must be referred to the standard reference works of Curzon, Sykes, Wilson, and others.

In the western and northwestern portion of Isfahan province dwell the proud Bakhtiari tribesmen, part of whom migrate to and from the adjoining territory of Khuzistan. At Shahreza [formerly Qumisheh] the northbound traveler leaves the Qashqai country and enters that of the Bakhtiari tribesmen.

Isfahan (elevation 5,689 feet) lies in a plain, which is desert in autumn and green in spring, extending to rugged mountains on all sides. Ebtehaj (p. 340) estimates the population at 100,140 persons, and states that in the reign of Shah Abbas (A.D. 1587-1629) there were one million inhabitants. In addition to the Jews (see pp. 290 et seq.) there is a large colony of Armenians in Julfa. Among towns he notes Shahreza, with a population of 17,251; and Murcheh Khur (elevation 6,210 feet), with an estimated population of 2,500.

#### FARS AND THE GULF PORTS<sup>1</sup>

Fars, which was one of the largest of the provinces of Iran, may be divided climatically and to some extent physically into three divisions: the *sardsir* or *sarhad*, forming part of the central Iranian Plateau; the *garmsir*, or low hill country, through which access is obtained to the plateau from the sea; and the coastal plain, which varies in width from twelve miles near Bandar Dilam and more than thirty miles around Bushire, to only one or two miles or even less behind Tahiri. *Sarhad*, which covers approximately the entire province, lies north of a line passing through Miyan Kutal, Firuzabad, Jahrum, and Darab.

From the sea, beginning as far north as Shiraz, the mountains form a series of ridges roughly parallel to the coast. These ridges are separated by valleys ranging from four to ten miles in breadth. In general, the valleys are very fertile and afford abundant grazing, even in the *garmsir*, as water is always obtainable at no great depth.

From Shiraz northward the mountain system is less regular and the valleys are generally more undulating, although quite fertile. The hills are as a rule barren; oak forests are found in Fars only along a narrow belt scarcely fifteen miles broad, near Miyan Kutal. North of Shiraz there is little forest. Mountains are seldom more than 4,000 feet in height; from the sea northward they rise tier upon tier, increasing gradually in elevation, the fairly regular folds inclining outward in all directions from a center; the increase in height of the intervening valleys is proportionate to that of the hills.

The term *garmsir* in this province really signifies all districts lying between the *sardsir* and the sea, although it is convenient to consider the coastal district separately. The Fars *garmsir* is not very thickly populated, but numerous ruins bear witness to the existence in former times of a much larger sedentary population.

<sup>1</sup> The material in this chapter is based on reports made before the recent changes in the divisions of Iran, and is, therefore, offered in order to provide comparative data (see also Stein, 1935; and Le Strange).

The plains and valleys are sparsely wooded, but on the higher hills there are wild almonds. The date palm (*Phoenix dactylifera*) flourishes everywhere, even in the more northerly districts. Every village, however small, has a patch of cultivated land around it, the intervening country being desert. Grazing is usually excellent, but dry after May; nomad tribes frequent this tract from November to April, spending the rest of the year in the *sardsir*.

The coastal strip is the flat, alluvial, and arenaceous tract lying between the sea and the most southerly mountain ranges of Fars. The tract is generally level, studded with date palm plantations, and very lightly wooded. The population is relatively large, amounting in all to some 100,000 persons. The inhabited area commences at a point about thirteen miles north of Bandar Dilam, where the distance from the sea to the coastal chain of mountains is only fifteen miles, and stretches south for roughly 150 miles to the southern border of Dashti, where the coastal chain again comes to within a few miles of the sea.

The greater part of the drainage system of Fars flows into the Persian Gulf. The Khor Khalil forms the harbor for the sailing craft and sea traffic of the villages of Ganaweh. The Rud Shur, generally called Shur-i-Bidu, is a salt stream flowing into the sea a few miles southeast of Bandar Rig. After the rains in January the Rud Shur overflows its banks, and together with Hilleh Rud inundates the country between the two streams for many miles.

Hilleh Rud is an estuary formed by the junction of the Shapur and Dalaki rivers, which unite at Darudigah, about thirty miles above the mouth of the Hilleh. The Shapur River rises in the Rinjun hills behind the Tang-i-Chakan. The Dalaki River traverses the Jireh Valley, and after passing through the mountains of Jamilah emerges a few miles above the Dalaki bridge.

The Chah Kutah stream may be traced back to the small river which waters the productive Khaviz (Khaiz) Valley. The Chah Kutah is deep in places, but never very broad on its passage down toward Ahram.

The Mand River, known in its upper reaches as the Waz and Kara Aghach, rises in the mountains north of Khan-i-Zinian, at a place called Bun Rud. On the Dizgah plain the Mand is joined by the Kurdeh stream; the Alamarvdasht and Fidash streams, with one branch rising a few miles south of Lar and another branch running through the Tang-i-Khur; the Shur River, which is a salt stream rising in the Khvajeh district north of Firuzabad; and the Jamm and

Riz streams, fresh, but with dry beds for eight months in the year. It will be seen from the foregoing survey that the Mand River and its tributaries drain a very wide area; the comparatively small volume of the waters of the Mand is due to the fact that its basin embraces no lofty mountain ranges, except perhaps the Kuh-i-Safidar.

There are certain rivers of Fars which do not reach the sea. The only important river in the interior is the Kur or Bandamir, with the Pulvar as tributary, which rises in the Chehar Dungeh district, and has a branch coming from the hills north of Deh Bid. It flows past the ancient site of Pasargadae (see pp. 549-551). The main stream known as Kur rises in the Ujan Valley and falls into Lake Niriz.

Fars contains several of the salt lakes which are a peculiar characteristic of Iran. The Daryacheh-i-Famur in the Kazerun district is a narrow sheet of water lying northwest and southeast, about three and one-half miles long by one-half to one mile broad. Its marshy banks afford excellent grazing, and good shooting and fishing. The Dasht-i-Arjan Lake, in the plain of the same name, dries up almost entirely in summer; extensive marshes lie on its banks. Daryacheh-i-Maharlu (pp. 553-555), the smallest of the three main salt lakes of Fars, is situated in the Shiraz plain surrounded by low hills. It is fed by the Shiraz stream and by the drainage of Sarvistan. Extensive marshes, very shallow for more than a mile from the shore, cover its northern end. Daryacheh-i-Tashk, the second largest of the salt lakes of Fars, lies to the north of Lake Niriz (or Daryacheh-i-Bakhtigan), which it resembles generally. These lakes are, moreover, connected by two channels. Lake Niriz (pp. 552-553), which is the largest of the salt lakes of Fars, is sixty miles long and from three to five miles in width. Several wooded islets break the monotony of the surface of the lake. In a dry summer season the water evaporates entirely, and the bed may then be crossed on foot; the salt which remains on the lake bottom is extensively collected, as it is of fine quality and much in demand throughout Fars. Water fowl such as swans, flamingoes, and ducks are plentiful in the vicinity of the lakes.

Kharg, an island northwest of Bushire, is about four miles in length, with an average breadth of two miles. The greater part of the island consists of almost barren, table-topped hills, highest in the middle and at the south end, where they exceed 250 feet. The maximum range of the temperature in the hot weather is seldom above 95°. The village of Kharg may consist of a hundred or more houses inhabited by some 600 Arabs, who speak a mixture

of Persian and Arabic. Seven-eighths of the population are Sunnis. The sole occupation is fishing.

Khargu, a very low, white and sandy island, lies two and one-half miles north of the island of Kharg. It is three miles in length from north to south and only half a mile wide. Although it appears to have been inhabited in former days, it is now desolate and barren.

Extremes of heat and cold will be found in the province of Fars. The main road to Isfahan traverses plains 7,000 feet above sea level. In winter these plains are covered with deep snow for days together, and the temperature falls to as low as 15°. In summer, however, there is a maximum shade temperature of 90°. Heavy rains commence about the middle of November and may be expected at intervals until the beginning of May. At an elevation of 5,000 feet and above, snow falls from December 1 onward.

In Shiraz the periodic (usually annual) epidemics of diphtheria, smallpox, typhoid, chicken pox, and measles do not cause a large mortality. These usually occur either in spring or autumn, with dysentery somewhat severe during the height of the summer. Epidemics of cholera occur at intervals of a decade or more. The specific infectious diseases—typhus; rubella; intermittent, scarlet, dengue, and yellow fevers; beri-beri; plague; and hydrophobia—are practically unknown, but cases of anthrax, tetanus, and leprosy are occasionally seen. The only striking points about health conditions<sup>1</sup> of Shiraz are the marked number of cases of diseases of the cornea and conjunctiva, dyspepsia, ascites, and venereal diseases.

The hottest month in Bushire is August and the coldest months are January and February. In summer the thermometer has been known to rise to 115.5°, with excessive humidity between July 20 and September 15. The rainfall is mainly in November (1.72 inches), December (2.58 inches), January (1.23 inches), and February (0.73 inches). These four months are intermittently stormy and cold on shore, the sea being rough. Although it seldom actually freezes, the thermometer occasionally falls almost to the freezing point.

Winds are from the northwest, the *shamal*, and from the southeast, the *kaus*. The former prevails at sea for nearly nine months of the year and blows very cold and boisterously in the winter months.

The following table gives the various districts into which the province of Fars was formerly divided, with their approximate sedentary populations and chief towns.

<sup>1</sup>N.B.: this paragraph refers to conditions about twenty-five years ago. Under the Shah's administration Shiraz has become one of the healthiest cities in Iran.



District	Locality	Sedentary population (approximate)	Chief town
Abadeh-i-Iqlid	Northern Fars	25,000	Abadeh
Abadeh-i-Tashk	Near Daryacheh-i-Tashk	6,500	Abadeh-i-Tashk
		Chiefly Lashani and Cheharrahi	
Abraj	West of Mahin	1,000	
Afzar	Southwest of Jahrum	3,000	Ab-i-Garm
		Turks and Persians	
'Alamarvdasht	Southern Fars	4,000	'Alamarvdasht
Angali	Northeast of Bushire	2,700	Mahmud Shahi
		Chiefly Behbehani Lurs, with a little Arab blood	
Arbaeh, Mahal-i-	South of Firuzabad	2,000	Hangam
Ardakan	Northwest of Shiraz	5,000	Ardakan
Arsinjan	Northeast of Shiraz		Arsinjan
Asir	Now generally included in the 'Alamarvdasht	5,500	Asir
Baiza, Dasht-i-	Northwest of Shiraz	9,000	
Bandar Dilam	Northwest coast of Fars	1-2,000	Bandar Dilam
Bawanat	Northeastern Fars		Bawanat
		Turks from Simakan	
Bidshahr (or Juwun-i-Bidshahr)	South of Jahrum		Bidshahr
Borazjan	Northeast of Bushire	6,500	Borazjan
Chah Kutah	East of Bushire	1,500	Chah Kutah
Chehar Dungeh, Sarhad-i-	Northern Fars	3,000	Asupas
Dalaki	Northeast of Bushire		Dalaki
Darab	Southeastern Fars	10,000	Darab
Dashti	Southeast of Bushire	20,000	Khurmuj
		Dashtis	
Dashtistan	East of Bushire	15,000	Borazjan
		Immigrants from Dashti or Shiraz	
Dizkurd	Northwestern Fars	500	
		Circassians	
Farrashband	East of Bushire	2,000	Farrashband
Fasa	North of Jahrum	13,000	Fasa
Firuzabad	Northwest of Jahrum	7,000	Firuzabad
Gilehdar	Southeastern Fars	4,500	Gilehdar
Hayat Daud	Northwest coast of Fars	12,000	Bandar Rig
		Mostly Lurs of Behbehani	
Istehbanat	South of Niriz	4,000	Istehbanat
Jahrum	South central Fars	7,500	Jahrum
Jireh	East of Bushire	2,500	Jireh
Kamarij	Northeast of Bushire	1,000	Kamarij
Kam Firuz	North of Shiraz	3,500	Khan-i-Man
Kamin	Northeast of Bushire	4,000	
Kavar	Central Fars, south of Shiraz	2,500	Kavar
Kazerun	West of Shiraz	20,000	Kazerun
Khafir	West of Jahrum	8,000	Khafir
Khafrak	Central Fars	4,000	
Khisht	Northeast of Bushire		Khisht
Khunj	Southeastern Fars	5,000	Khunj

District	Locality	Sedentary population (approximate)	Chief town
Khvajeh	North of Firuzabad	2,000	
Kuhmarreh	South of Shiraz	3,000	
		Mainly Turk and Lurs	
Kurbal	Northeast of Shiraz	10,000	Gaukan
Liravi	Southeast of Bandar Dilam	6,000	Hisar
		Including Bandar Dilam; Arab and Lur Shiahs	
Mahin	Northeast of Shiraz	2,500	Mahin
Mahur-i-Milati	Northeast of Bushire	1,000	
Maimand	South of Shiraz	1,000	Maimand
		Of Gurgi tribe	
Marvdasht	Northeast of Shiraz		
Meshed-i-Murghab	North of Shiraz	3,500	Meshed-i-Murghab
Mazarai	Coastal district and part of Dashtistan on banks of Shapur River	3,000	Mazarai
		Persians	
Naidun	Northeast of Kazerun		Naidun
Niriz	East central Fars	14,000	Niriz
Qir-o-Karzin	Southwest of Jahrum	6,000	Qir
Qunquri	Northern Fars	12,500	Deh Bid
		Summer quarters of Khamseh Arabs, Baseri and Cheharrahi	
Ramjird	North of Shiraz	4,000	Ramjird
Rud Hilleh	North of Bushire	4,000	
Sarchahan	Northeast of Shiraz	3,500	
Sarvistan (or Burzu)	Central Fars	800	Sarvistan
Shabankareh	North of Bushire	10,000	Deh Kuhneh
Shiraz	Central Fars	70,000	Shiraz
Shish Dangeh	Northwestern Fars	3,000	
		Qashqai summer quarters; also a few Kuhgalu	
Shulistan	West of Shiraz	8,000	
		Mamassanis	
Siakh	South of Shiraz	3,000	
Simakan	Northwest of Jahrum	8,000	
Tangistan	Southeast of Bushire	10,000	Ahram
Zira	Northeast of Bushire	4,000	Saadabad

The principal towns in Fars are as follows: Shiraz, the capital of Fars, has an elevation of 5,100 feet. It is situated on a stream in a fertile, well-watered plain, surrounded by mountains. There are rich gardens and vineyards in its vicinity. Five miles south of Shiraz the valley is separated from an extensive marsh by a range of low hills.

Abadeh (elevation 6,100 feet), a town about halfway between Shiraz and Isfahan, has had an estimated population of 8,000. The

majority of the houses are of sun-baked brick, the remainder of mud and straw.

The chief industries are the manufacture of Persian cloth shoes (*malikis*), furniture, inlaid wares, felts, and carpets. The majority of the inhabitants are engaged in agriculture, the chief crops being wheat, barley, opium, raisins, grapes, and almonds. The people of Abadeh have developed a fine craft in woodwork.

Arsinjan lies sixty miles east of Shiraz, in a valley encircled by hills. The population was estimated at 4,000. Cotton, rice, opium, and wheat are cultivated.

Niriz (elevation 4,280 feet) is the name of a town and district at the south end of Lake Niriz (pp. 553-554). The town, scattered among groves and gardens, is surrounded by extensive, cultivated areas of cereals and opium. In 1903 Niriz contained about 2,500 houses and four *sarais*. The population has been estimated at 4,000. The people are said to be purely Persian, quite distinct from the tribes dwelling on the shore of the lake, which should be classed as nomadic, although they do not shift their quarters with the change of season.

As no census figures of Fars were available, the data given below were based upon detailed tables of the number of houses in each village or on the relative area and populousness of each district. Five individuals were reckoned per house, a figure which has been found in practice to be relatively reliable when applied to villages. Nomad tribes have likewise been calculated at five persons to each tent.

According to these estimates the number of nomadic and semi-nomadic tribes<sup>1</sup> may be listed as follows:

Tribes	Families	Tribes	Families
Qashqai.....	33,045	Dushmanziari.....	2,000
Khamseh.....	18,330	Lashani.....	1,500
Boir Ahmadi.....	6,100	Mishmast.....	300
Mamassani.....	2,700	Sundry minor tribes.....	12,030
		Total.....	76,005

The foregoing figures and all estimates of tribal numbers are dated before the influenza epidemic of October and November, 1918, when the tribal losses were perhaps 20 per cent.

The sedentary population numbered about 500,000. The most densely populated districts are the coastal strip from Dilam to the mouth of the Mand River, and the country north, northeast, east, and southeast of Shiraz within a radius of sixty miles of that city.

<sup>1</sup> Cf. Demorgny, pp. 88-134; also four tribal maps opp. p. 150.

The inhabitants of the provinces of Fars and Laristan are of several types. From Kangan eastward along the Gulf and for some distance inland dwell colonies of Arabs from the opposite coast, some of them comparatively recent arrivals, some residents of long standing. In the Hayat Daud district and farther east there are also colonies of Arabs, mostly Sunnis, with a few Shiahs from Hindian.

Although the population of the coast is for the most part Persian, it is of a type quite distinct from that of central Iran. These people are of good physique; and in the inland districts they are great agriculturists. Those living near the harbors are much in demand as coolies, even in ports as far away as Karachi and Basra. Many of them are employed also as skilled sailors and fishermen.

The coastal tribes, known by the names of their districts, have been separate entities for centuries. They have been divided into groups similar to the Scottish clans before the eighteenth century. Some districts have engaged in feuds with others that lasted for generations, while some maintained traditional friendships with their neighbors, retaliating as a tribe any raid or injury by a common aggressor.

The local interests of the chiefs and the occupations of the tribesmen and peasants of the coastal districts, fall into three natural categories. The inhabitants of Liravi, Hayat Daud, Rud Hilleh, and Shabankareh, in the north, are primarily occupied in agriculture, and large flocks of domestic animals are owned by the mountain frontiersmen. There are ports in Bandar Dilam, Bandar Rig, and Ganaweh, the first-named supplying the Kuhgalu tribes and the inland market at Behbahan, the other two selling to the nomadic tribes across the mountains. There is also considerable cultivation of grain in Borazjan, Chah Kutah, and Angali. The third category in the coastal region is represented by Tangistan and Dashti, the latter a most extensive district stretching for many miles across the mountain chain. Tangistan has always had a heterogeneous tribal population.

The townspeople of Shiraz are said to be of less mixed Iranian type than is encountered elsewhere, but it is difficult to fix upon any feature as predominating or distinctive of them. The town population includes some Armenians.

North of Shiraz the sedentary population is predominantly of old Persian stock, as are the peoples of Fasa, Sarvistan, Kavar, and Khafr districts. South of Jahrum and Shiraz the villages have a strong admixture of nomad blood.

The population of Bushire (about 15,000) is mixed; Arabs, Persians, Lurs, and tribes of mixed blood, such as Behbahanis, have settled in the town and intermarried, forming a peculiar racial type.

The principal nomad tribes of Fars (cf. Lane, pp. 209-231) are the Qashqai and Khamseh tribes, the former Turks, the latter partly Arabs of mixed origin. Of secondary importance are the Mamassani, Lashani, Mishmast, Boir Ahmadi, and Dushmanziari.

*Khamseh* (Ar.=five).—Nomad tribes. The numbers of their families in 1918 were: Arabs, 11,130; Ainalu, 1,200; Baharlu, 1,200; Baseri, 4,500; and Nafar, 300.

The Nafar tribe originally numbered some 1,000 families, but these are now to a large extent dispersed and settled in Bakhtiari country. Part of the tribe remains, however, and has been considered as a unit of the Khamseh tribes.

Of the above tribes, the Arabs and Baseri alone were migratory. The Ainalu, Baharlu, and Nafar were of Turkish origin, as also were the Baseri, with the exception of the Turbur Cheharbuncheh, whose language is Persian.

The Arabs came originally from Nejd, Oman, and Yemen in the seventh century. Those who reached Fars and are now known as the Khamseh Arabs were of nomadic habit. Their summer quarters have been near Bawanat, Qunquri, and Sarchahan, and their winter quarters in the Bulak-es-Sabeh, i.e. Fasa, Darab, Furg, Jahrum, Juwun, and as far southeast as Tang-i-Dalan. The Arabs were divided into two main branches—the Jabbareh, also known as the Arab Kuchi, and the Shaibani. The Jabbareh numbered approximately 6,630 families and the Shaibani 4,500. These tribes originally spoke pure Arabic, but their speech is now much corrupted, being a mixture of Arabic, Persian, Turkish, and Luri.

Various tribes were included under the designation "Jabbareh Arabs." The Labu Muhammadi, which numbered 1,200 families, comprised the following subtribes: Abdul Husseini, whose *sardsir* were in the Bawanat Valley and their *garmsir* at Tarum; Aulad Muhammad, also with their *sardsir* in the Bawanat Valley but the *garmsir* at Ab-i-Shur and Darab; Aulad Sabar; Bal Husseini; Karim; Khan Ahmadi; Lur; Naqd Ali, with their *sardsir* at Deh Bid and *garmsir* at Fasa; and Pir Islami. The Jani Khan Arabs, whose 1,730 families had their *sardsir* at Qunquri and their *garmsir* at Yezd-i-Khast and Juwun, were made up of the following subtribes (numbers of families in parentheses); Aulad Rustam Khan; Aulad Zainulabedin; Azizi (150); Bahluli (110); Chigini (150); Hindi (100); Jaberi

(100); Labu Ghani (800); Lavardani (200); Qambari (120); and Yur Ahmadi. The 650 families of the Shiri had their *sardsir* at Qunquri and their *garmsir* at Darab, Ab-i-Shur, and Binaru. The 1,200 families of the Mazidi had their *sardsir* at Qunquri and Bagh-i-Siah and their *garmsir* at Hormuz and Lar. The Abdul Rezai, Ali Muradi, and Lur Abdul Rezai numbered 500 families altogether, with their *sardsir* in the Deh Bid district and their *garmsir* at Jahrum and Binaru. There were 350 families of Safari, whose *sardsir* were at Dalu Nazar and Mushghan and their *garmsir* at Binaru; 300 families of Qarai; 300 families of Tarbur; and 400 families of Ardbiz (Urboz) and Tatti together, who were both sedentary at Chah-Haq. In addition there was the Arab tribal group known as Moqatajat (pp. 216-217).

The Shaibani Arabs also comprised various subtribes. The Abdul Yusufi, Ahl Saadi, Chehar Buncheh, Miraki, Palangi, and Vali Shahi numbered 1,050 families and had their *sardsir* at Qunquri and their *garmsir* at Fasa and Kordian. There were 200 families of Emadi with their *sardsir* at Qunquri and their *garmsir* at Kordian. The Bani Abdullahi and Hannai in 1918 comprised 300 families with their *sardsir* at Khafrak and their *garmsir* at Khafr. The 400 families of Alwani, Khusrui, Takriti, and Hassani had their *sardsir* at Khafrak and their *garmsir* at Rud Khanneh and Shur-i-Jahrum. The Labu *Hajji* with an estimated 300 families had their *sardsir* at Marvdasht and their *garmsir* at Hakan. The Amaleh with 600 families had their *sardsir* at Qunquri and their *garmsir* at Binaru. The Darazi with 500 families had their *sardsir* at Marvdasht and their *garmsir* at Seistan-i-Jahrum. The Farsi with 1,100 families had their *sardsir* at Qunquri and their *garmsir* at Kordian.

The Ainalu came originally from Turkestan and settled in Fars in the thirteenth century. They were at one time migratory, with their *yailaq* in the neighborhood of Ramjird and Marvdasht. They spoke Turki. The Dindarlu, a small section, lived in the Dudeh Valley about thirty miles east of Shiraz. They have settled down to a peaceful agricultural life. The Dudeh Valley is the principal market garden of Shiraz.

In 1918 the subtribal sections of the Ainalu were as follows:

Subtribe	Habitat	Subtribe	Habitat
Afshar-Ushaghi . . . . .	Karabulagh	Iranshahi . . . . .	Attached to <i>Kalantar</i>
Amir Hajjilu . . . . .	Karabulagh	Jargheh . . . . .	Karabulagh
Baiat . . . . .	Karabulagh	Nagd Ali Ushaghi . . . . .	Daraku
Bulaghi . . . . .	Abnarak	Qurt . . . . .	Pir Murad
Chayan . . . . .	Karabulagh	Raisbeglu . . . . .	Rudbal
Ekhlaslou . . . . .	Fasa	Sakkiz . . . . .	Fasa
Ghalbash . . . . .	Karabulagh	Zanganeh . . . . .	Karabulagh

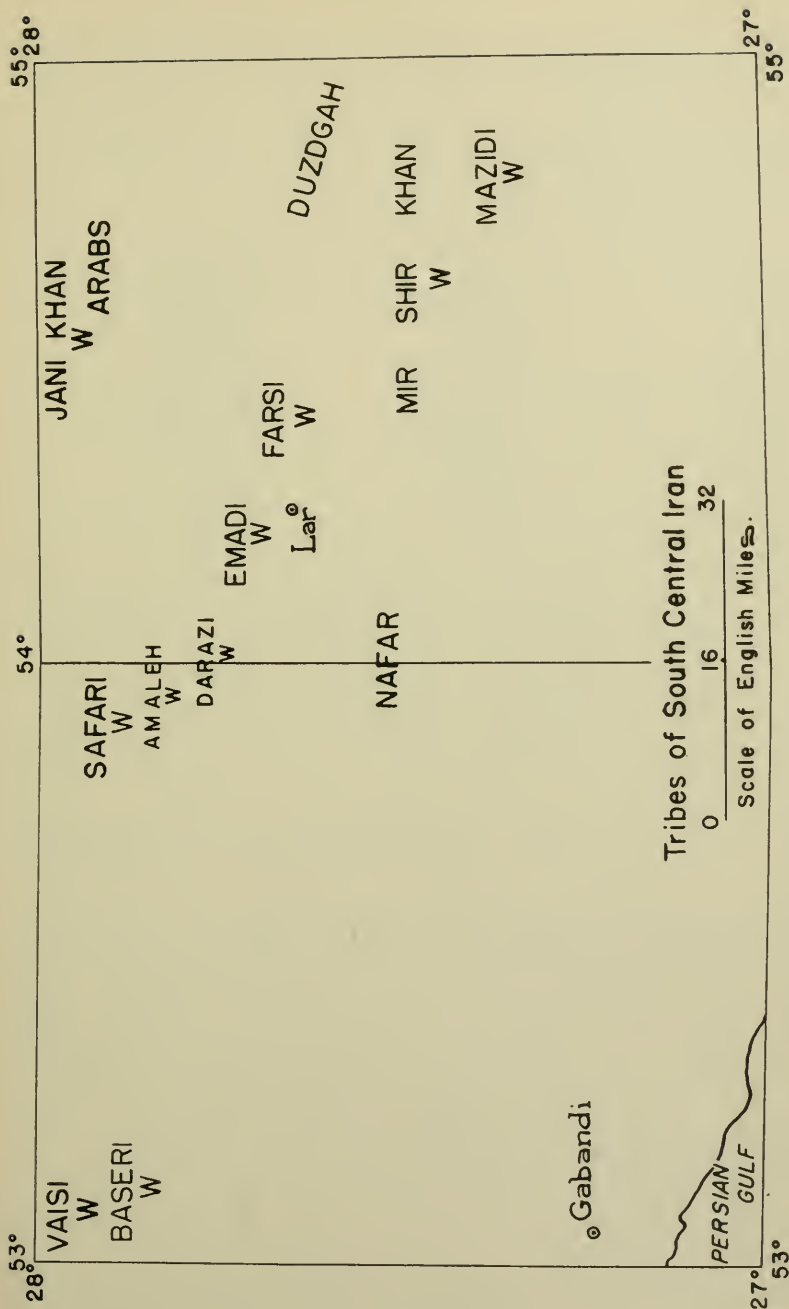


FIG. 10. Tribes of south central Iran. W = winter quarters. (C in Fig. 11)

The Baharlu, who are of Turkish origin, settled in Fars in the twelfth and thirteenth centuries. Originally migratory, they had their summer quarters in the districts of Ramjird and Marvdasht and their winter quarters near Sarvistan and Darab. They have now for many years been sedentary and live on the banks of the Darab River. Their language is Turki.

The following list gives the subtribes of the Baharlu as of 1918:

Abul Qazimlu	<i>Hajji</i> Attarlu	Mashadlu
Ahmadlu	<i>Hajji</i> Barani	Muhammad Khani
Alamdard	<i>Hajji</i> Khanlu	Nazarbeglu
Amaleh	Haidarlu	Qara Khanlu
Amineh	Hassanbeglu	Qara Khauslu
Aminlu	Ibrahim Khani	Qazimbeslu
Amir Hajjilu	Ismail Khani	Rasul Khani
Asheqlu	Issabeglu	Sadiqlu
Ashurlu	Jameh Buzurgi	Safid Khani
Auladi	Kaka Khanlu	Sakizlu
Azizbeglu	Kamanlu	Shikari
Azizli	Karimlu	Sulaiman
Chehardah Cherek	Khuruslu	Talakeh
Darashur	Lur	Zargar

The Baseri believe themselves to be descendants of the Basra Arabs. They speak a corrupt form of Arabic. Large numbers of transport animals, which they have kept for hire, have been their chief source of livelihood and it is in all probability on this account that they have not migrated far. With the exception of the Vaisi section their summer and winter quarters were all within a radius of about fifty miles of Shiraz, close to the main caravan routes.

Two important tribes were included under the Baseri: the Vaisi section and the Ali Mirzai. The Vaisi, who numbered 3,000 families and had their *sardsir* at Ahmadabad and Namdan and their *garmsir* at Harm and Bidshahr, comprised the following subtribes: Abdul Yusufi, Ali Mardi, Ali Shah Ghuli, Bahluli, Hannai, Jochin, Labumusa, Mir Ahmadi, Miraki, Miri, Mir Salimi, Sarvgari, Shah Hussein, and Vali Shahi. The 1,500 families of Ali Mirzai were composed of Karami, with their *sardsir* at Asupas and their *garmsir* at Marvdasht; the Hussein Ahmadi, with their *sardsir* at Baj Gah and their *garmsir* at Sarvistan; the Ali Qambari and Miri, with their *sardsir* at Asupas and their *garmsir* at Sarvistan; the Quqi, with their *sardsir* at Asupas and their *garmsir* at Sargah; and the Salahi, who were sedentary.

The Nafar, who are of Turkish origin, possessed about 300 tents in the Gerash district.

The Moqatajat (Ar., *muqata'a*, a contract) were a collection of Arab tribes, who, having no *Kalantars* of their own, were originally



contracted to one *Hajji Jaffar Beg* by the Qawam-ul-Mulk, chief of the Khamseh between 1820 and 1855. They originally numbered some ten to fifteen tribes, large and small, living in various parts of the Khamseh country. They declined rapidly, and finally there remained but few families, some of whom lived in the *buluk* of Sarvistan and were known as Zoghali, their means of livelihood being principally the burning and transport of charcoal (*zoghāl*). In some of the larger Khamseh tribes a few families might still be found in 1918, and the Qarai, Arbiz, Tatti, and Tarbur were also said to have belonged to the Moqatajat.

*Qashqais*.—Qashqais are nomads of Turkish origin. Physically they are perhaps the finest of the tribes of southwestern Iran, except the Mamassani. There is a tradition that when the Turkoman tribes during the Mongol invasions reached the province of Iraq-i-Ajam, a band of them fled and settled in Fars, and that the Turkomans called this band *Qashqai*, i.e. "those who ran away" (*qachmak*, to flee). Changes in pronunciation afterward converted this appellation into *Qashqai*. The language of the Qashqai has remained Turki to this day and the inhabitants of Fars usually speak of them as "Turk."

In course of time the original band became divided into two parts because a large section retained the nomadic habit of migration in spring and autumn. One part kept the Turkoman appellation of *Khalach*, the other was called Qashqai, each having several branches, all known today as Qashqai. Among the recent clans (*tirehs*), the Shishbuluki and Farsimadan were of the very few stated to be *Khalach* in origin.

Probably the Qashqai *Il* did not number much more than 30,000 families, and that figure included the *Ilāt* alone. To this must be added the villages which came under the jurisdiction of the Ilkhani. These probably included some 20,000 to 25,000 families. The Ilkhani therefore exercised control over 30,000 families of *Ilāt* and 20,000 to 25,000 villagers in the *sardsir* and *garmsir*, making a total of 50,000 to 55,000 families. A very large proportion of Fars was thus in the hands of, or connected with, the Qashqais.

The Qashqais were nomadic, not only by traditional custom, but also because their tribal wealth and food supply depended so largely on their flocks and herds that it was always necessary to move to fresh pastures on the higher plateaus of northern Fars before the grazing in the valleys had been dried up by the hot spring sun of southern Fars. Conversely, the climate of the *sardsir* was too severe

during the winter months, and far more firewood could be obtained in the hills of the *garmsir*. The sheep and goats not only provided milk, meat, and clarified fat, staple items of their food, but the wool and hair were used by the tribes for weaving tents as well as carpets. The latter were sold, and from this source each tent derived a portion of its yearly income. The poorest tribesmen were said to own several hundred animals. Sheep sold readily among the settled inhabitants of the south during the winter season.

Those sections of the tribes owning a large number of horses and other animals sowed grain each winter in the valley of the *garmsir* and the harvested crop was ready for consumption on their return in the autumn. Thus the wide valley of Farrashband was almost entirely cultivated by the Shishbuluki and probably from 200 to 300 tons of grain were raised there every spring.

The custom of the Qashqai was to select secluded valleys and ravines on the hillside, which were to an extent protected from the winter weather and were also near water. In such spots four, ten, or twenty tents might be seen together.

In general the Qashqai resemble the Lur nomads of southwestern Iran but their language is a dialect of Turki, although the majority of tribesmen understand Persian. In appearance they compare favorably with their Lur compatriots. They seem on the whole to be taller and fairer than Bakhtiaris, and certainly more so than Lurs. In religion they have appeared more orthodox and less superstitious than their Lur neighbors.

The migration of the Qashqai differed a little from those of other nomad tribes. Their principal transport animals were camels and donkeys; mules were scarce and were used only by the Khans, and cattle were not extensively employed. They were probably the only tribesmen in southern Iran, except the Arabs, who used camels for transportation purposes (cf. Harrison, 1936b, p. 36).

About the time of the vernal equinox (*nauroz*), the Qashqai usually began to strike their black tents and to move slowly north; then before the middle of September they would leave the northern pastures and return to their old camping grounds. The Qashqais moved farther in their annual migrations than any other tribe in Iran. Their summer quarters were near the northern boundary of Fars, west of Shahreza and Yezd-i-Khast, and extended to the eastern slope of the Kuh-i-Dinar (cf. Harrison, 1936b, p. 34) the Kuhgalu tribes being on the southwest of this range. Their winter quarters were in hot regions of Fars, ranging from the vicinity of

Behbahan to near Lar, but never south of the range of mountains bordering the coastline.

Generally speaking, the downward migration of the whole *Il* usually converged on Baiza and Juwun to the north of Shiraz, and then divided, the Darashuri, Kashkuli, and Farsimadan going off toward Shapur or Dasht-i-Arjan, while the Shishbuluki and many smaller tribes, together with the Ilkhani and his adherents, struck off southward via Jireh, Farrashband, Khvajeh, and Firuzabad.

According to established tradition the Qashqai were from the beginning forty-four clans. Some of these disappeared altogether, and others dwindled to a few tents. Sections of the Qashqai went over to the Bakhtiari country, or in a less degree to the Khamseh tribes in times of stress, while some of the smaller branches were merged in the larger. On the other hand many sections were finally composed of elements in which little of the original Qashqai stock could be traced. Following is an elaboration of some of the tribes.

The Darashuri came originally from Turkestan and settled in the *buluk* of Garmabad in the Darashur Valley. In point of strength and tribal wealth the Darashuri were the first of the Qashqai tribes. Their *garmsir* were east and southeast of Behbahan and their *sardsir* were in Vardasht and Garmabad, near Simarun (Harrison, 1936b, pp. 21-23). The list of subtribes follows, with the number of families in parentheses: Abulkarlu (150), Abul Sulaimanlu (20), Ahangir (250), Aiyublu (30), Ali Mardanlu (50), Amaleh (400), Arablu (200), Ashurlu (100), Bulvardi (150), Charukhlu (50), Chehardah Cherik (100), Dundulu (300), Gugjalu (50), *Hajji* Davalu (400), *Hajji* Muhammadlu (200), Imanlu (100), Islamlu (50), Jairanlu (50), Janbazlu (200), Karaghanlu (300), Karajulu (100), Karimlu (400), Karrekhlu (100), Kassemu (50), Kermeshi (100), Khairatlu (400), Kizemlu (300), Korbukush (100), Naderlu (200), Narrehi (400), Osmanlu (50), Sahmdini (100), Shaki (30), Talabazlu (100), and Yakub Ishandarlu (50); total, 5,630 families.

Although the Kashkulis have been joined at one time or another by considerable numbers of families of Mamassani origin, they were originally a Fars tribe, having their winter quarters between Jahrum and Lar. Later their winter quarters were between Mahur-i-Mailatun and Khisht, while their *sardsir* were in the districts of Kuhmair, Kakan, Ardakan, and Haft Barm.

The following subtribes, numbering 2,000 families, were the original Kashkuli tribes: Arughli, Dizjuni, Mamasaleh, Qarachai, Pagir, and Yadakuri.

According to tribal tradition the Farsimadan on arrival from Turkestan could not speak Persian. They were therefore christened the *farsi ma-dan* or "those who know not Persian." Their *garmsir* were in Husainabad, Sar Mashhad, Jireh, and the Kuh-i-Gisakan, east of Borazjan. Their *sardsir* were in the district of Padina at the foot of the Kuh-i-Dinar, and extended to the eastern slopes of this range on the western side of which lies the Boir Ahmadi country. The subtribes follow: Aulad, Dughamlu, Gharehmashamlu, Mach-anlu, Quldur, Tawabeh, Thunbanlu, and Yenderanlu.

The Shishbuluki are so called because they originally came from the six districts (*shishbuluki*), of Khaljistan. Their *sardsir* were in Kushk-i-Zard, Asupas, Iqlid, and Abadeh. Their *garmsir* were Farrashband, Dashti, and Dashtistan. The subtribes comprised: Ahangir, Alamdar, Alqiyahlu, Arabcharpanlu, Changi, Doghuzlu, Kolahlu, Kuhi, Qarayarlu, and Shur Bakhurlu.

The Gallazans (i.e., the robbers of flocks) were divided into three branches: the Gallazan Namadi, with 600 families, whose *garmsir* were at Narak between Firuzabad and Farrashband and whose *sardsir* were at Shah Jaafari, north of Simarun; the Gallazan Oghri, with 500 families, devout Shiahs with a reverence for the Koran, which leads them to abstain from taking the oath upon it—part of this tribe was sedentary at Simakan and part belongs to the Ilkhani's Amaleh; the Gallazan Michak, with 100 families, formerly part of the Ilbegi's Amaleh, but later attached to the Ilkhani's.

The Bulli (or Bullu) consisted of three subdivisions: the Bulli Hashem Khani, with 500 families, who lived at Gilehdar and 'Alamrvasht; the Bulli Zirak, with 100 families, attached to the Ilkhani's Amaleh; and the Bulli *Hajji* Tahmas Khani, with 250 families, whose *garmsir* were in Arbaeh, Hangam, Firuzabad, and Farrashband, and their *sardsir* at Khusru Shirin.

The Safi Khanis (or Safi Khanlus), originally emigrants from Luristan, settled in Fars. The tribal *garmsir* were from the southwest of Farrashband to the borders of Dashti, while the *sardsir* were in Dizkurd, Khusru Shirin, Sehdeh, and Rud Khaneh Safid.

The Qarachehi was probably the first tribe of the Qashqai *II* to migrate from Turkestan. Their *garmsir* were in the Farrashband and Jireh districts and their *sardsir* at Kuhmair and Murak in the Padina district.

The Rahimi, at one time one of the foremost Qashqai tribes, had their *garmsir* in the Dashti valleys, west of Farrashband, and their

*sardsir* on the banks of the Rud Khaneh Rahimi, southwest of Shahreza, the northernmost point of the Qashqai *sardsir*.

The 700 families of Ikdir, originally from Turkestan, migrated to Husainabad and Khunj for their *garmsir* and to Garmabad for their *sardsir*. With them moved fifty families of Iraqis. Their subtribes comprised Qara Khanlu, Jarkani, and Shakarlu.

In addition to the chief tribes of the Qashqai previously mentioned there were numerous minor sections. From Simakan in the winter to Vardasht and Harmabad in the summer migrated the Yalemeh who comprised the Sarafraz (300 families) and the Abul Ghani (100 families). Pagir and Ukhchelu (400 families) spent the winter at Hangam and Zaheru and the summer at Kakan. The Jafarbeglu (400 families) moved from their *garmsir* at Dashti Palang to Khvajeh in summer. Living with the Darashuri but not as a subtribe were 100 families of Wanda. The Zanganeh, Wanda, and Korrani (300 families) had their *garmsir* in the Kazerun district and their *sardsir* at Kuhmarreh. The Qarada Ali (50 families) migrated with Gallazan Namadi. Moving from Deh Rud and Arbaeh in winter to Khusru Shirin in summer were 700 families of Kohvadeh (Kohbah). The 300 families of Jarkani spent the winter at Khafr and Simakan. Some 100 families each of Bugar and Baseri migrated with the Kashkulis in winter and had their *sardsir* at Dizkurd. The Moghanlu (150 families) were at Dashti during the winter and migrated with their neighbors, the Rahimi, to Rud Khaneh in the warm season.

The Amaleh or personal following of the Ilkhani, consisted in all of about 1,900 families. The following tribes moved with the Amaleh (numbers of families in parentheses): Abdur Rahmanlu (100); Ainaglu (70); Ajerlu (40); Aqbehi and Qarabehi (100); Ardkapan (200); Asanlu (100); Bahluli (100); Bahmanbeglu (100); Chigini (300); Damir Chamaghlu (60); Garrai (150); Kulah Siah (60); Kurdshuli (400), *sardsir* at Chehar-i-Dungeh; Lur (100); Mohammed Zamanlu (80); Negahdarlu (20); Qadellu (50); Qaragatchelu (30); Qerrekhlulu (100); Qezellu (150); Qojehbeglu (150); Qurt (100); Qutelu (100); Sahmdinlu (70); Sarui (150); Taiyyebi (200); Tavallali (50); and Uriat (150).

Among the Qashqai tribes were many sedentary groups. The names of the sections are given below, with the numbers of their families and the place where they settled: Aghcheh Gheyvanlu (500), who emigrated from Ardebil, near Firuzabad; Akhromlu (100), in Asupas; Ali Beglu and Margumari (300), at Qir-o-Karzin; Ali Kurdlu

(60), in Kuhmarreh; Arab-i-Zakheru and Bakker-i-Zakheru (70), at Afzar; Baiat (300), near Shiraz; Chattaz (30), at Marvdasht; Dadekhehi (400), at Dehram; Faili (100), in Shiraz; Gushehi (15), in Baiza; Hunuganlu (400), at Shahreza; Jameh Buzurgi (100), in Jireh; Khalaj (30), in Shiraz; Liravi (50), in Jireh; Motqani (20), in Simakan; Papatı (40), in Kurbal; Sarui (50), in Marvdasht, and Tarbur (40), in Bandamir.

Other names associated with the Qashqai confederation were Lek, Chehar Buncch, and Malilehwand.

*Mamassani*.—The name Mamassani is a contraction of the name Mohammed Hassani, founder of the tribe. According to some tribesmen he came from Arabia, and according to others, Dashtistan.

The Mamassanis are of mixed origin, from Behbehan, Pusht-i-Kuh, Khuzistan, and as far north as the Boir Ahmadi country. The tribe had three main divisions: Bakesh, Javidi (or Jowi), and Rustam. These were the names of the three original chiefs. As these sections became stronger they were again subdivided.

The Mamassani country was bounded on the north by the district of Basht, on the south by the Dushmanziari country, on the east by Ardakan, and on the west by Marg and Gurspid. The Mamassani speak a dialect of Luri-Persian which differs little from ordinary colloquial Persian. The *Kalantars* and *Kadkhudas* speak correct Persian.

Similar to the Qashqai, the Mamassanis are dark skinned, of greater than average stature, and of excellent physique. They have been sedentary for some time.

The Rustam and Javidi sections moved a short distance to villages which had the advantage of a slightly better climate during the summer. For some time past there has been no organized tribal migration.

The religion is orthodox Shiah, and the tribe has a reputation for being meticulous in its religious observances.

The Bakesh (1,200 families) were composed of the following subsections: Aaliwand, Aatuni, Ali Hemmati, Ali Lur Amiri, Babar Dangehi, Babar Salar, Barmaki, Gojar, Hazarosi, Karai, Khalafi, Pir-ed-Dini, Shaikh Shahru, Shir Mard (*Sayyids*), Shir Sipari, and Zain-ed-Dini. The subsections of the Javidi (or Jowi), who numbered 700 families, were Ahmad Harun, Amui, Goja, Javidi Dangeh, Jogun, Khalifeh Harun, Khas, Kira, Laleh, Madui, Mehrengun, Musa Arabi, Pir Hassan Abdullah, Salari, Surnabadi, Wal Qaid, and

Zir Zardi. The Rustam (800 families) had two groups of subsections. The Khan Ali Khan comprised Begheri, Behyari, Mangudarz, Masiri, Shah Hassani, Shahjehan Ahmadi (all *Sayyids*), and Zameni. The Imam Quli Khan were composed of Bardengan, Dashti, Dehnani, Dehtuti, Ghului, Giveh Kesh, Gol Bakun, Pehrin, Surneh, Tirazgun, Tugak, and Uruji.

*Lashani*.—The Lashani, until 1874 a subtribe of the Qashqai II, were divided into two sections both of which were sedentary, the one living in Khafrak, the other in Abadeh-i-Tashk, where many were settled around the northern shores of the lake. They numbered about 1,500 families. The subtribes were as follows: Khafrakis (total families 500) comprised Banusar, Bazwand, Khalilwand, Shahwand, Tutaki. Abadeh-i-Tashkis (total families 1,000) included *Iriwand*—Abdullahwand, Eliaswand, Khezerwand, Muradwand, Najmuddinwand, Yazdanwand; *Bahmanwand*—Aulad Sheikh Ali, Aulad Amir Agha. The *tirehs* of Molhak, Tolamaki, and Kushkaki later became attached to the Bahmanwand.

*Mishmast*.—Mishmast, an indigenous tribe, lived almost entirely in tents near Arsinjan. Certain sections of the tribe occasionally took up their quarters on the Saadatabad and Saidun plains, especially in winter. Two villages, within five miles of Arsinjan, Fijan, and Paniran, were reported to be their headquarters.

*Boir Ahmadi*.—The Boir Ahmadi tribe was the most important of the Chehar Buncheh group of the Kuhgalu tribes, which also included the Churam, Nuyi, and Bavi, all of which were considered as belonging to the Pusht-i-Kuh division of the Kuhgalu, although settlements of the Boir Ahmadi existed near Behbehan.

With the exception of the Mulla Qobad section, which was sedentary near Sisakht, the *sardsir* and *garmsir* of this tribe were: *sardsir*—Tal-i-Khusru, Sar Rud, Sisakht, Chinar Dasht-i-Rum, Safid Dar, Kuh-i-Dil, and Vazak; *garmsir*—in the district east of Behbehan and northwest of Mamassani country, in Sunkarabad, Kalat, Deh Dasht, and Suk-i-Changalvar.

In 1917 the number of Boir Ahmadi was estimated to be about 6,100 families. Their market towns were Bebehan and Ardakan.

The subtribes were as follows: Amalehjat, Aqai, Aulad Mirza Ali, Badluni, Dasht-i-Mauri, Juzari, Kagawai, Kurrai, Muhammadi, Narrai, Sarchuti, Sarkuhaki, Sardaki, *Sayyid* Baba, Shaikh Abil, Shaikh Mamu, Sisakhti, Ta Ahmadi, Ta Muradi, and Tarmaji.

*Dushmanziari*.—Until July 1917 this tribe was a branch of the Mamassani. After the tribesmen became sedentary the subtribes were known by the names of the villages they inhabited.

Village	Number of families*	Village	Number of families	Village	Number of families
Ardeshiri	300	Kulah Siah		Tikuli-i-Bala	150
Babai	100	and Sorkhi	120	Tikuli-i-Pain	100
Baha-ud-Dini	200	Rudbali	100	Tirtaj and	
Dehbidi	80	Sahmdini	180	Hassani	150
Dehgapi	100	Sarenjlaki	70		
Haraijan	200	Tanginudiani	150	Total	2,000

\*Figures for 1918, probably exaggerated.

There were also sundry smaller independent tribes of Fars, of which the following is a list, only approximately correct:

Tribe	Number of families	Habitat
Abulvardi	400	Asupas and Abulvardi villages, near Shiraz
Amir Salari	150	Maimand
Arab Gau mish	400	Kazerun and Shapur
Arandi	100	Kuhmarreh
Asheq	300	Musicians among Qashqai and Khamseh
Baha-ud-Dini	150	Between Firuzabad and Farrashband
Bekahdani	150	Arsinjan
Bimaki	600	Fasa
Buraki	2,000	Kavar district
Changi	1,200	Scattered among Khamseh and Qashqai
Cheharrahi	1,200	Summered in Cheharrah: "in Qunquri"; wintered in Fishaqan, islands in Daryacheh-i-Tashk
Chogi	70	Masjid Bardi
Dehbuzurgi	150	Deh Buzurg (outside Isfahan gate of Shiraz)
Gavbaz	100	Traveled between Fars and Kerman Province buying cows
Garrai Sarhad	200	Ujan
Ghurbat	1,000	Wandered as peddlers and blacksmiths over Iran but paid revenue in Fars
Ghuri	100	Ardakan
Hessami	300	Sarchahan
Islamlu	80	Ahmadabad (six miles west of Shiraz)
Jadd	300	Camel drivers scattered among Qashqai and Khamseh
Kuhistanis		Between Saidabad and Baharlu country near Darab
Kulu	200	Fasa in winter; in summer near Shiraz and north to Baiza
Kuruni	300	Baiza
Kurush	300	Camel drivers scattered among Qashqai and Khamseh
Kushkaki	50	Abadeh-i-Tashk
Largar	300	Blacksmiths scattered among Qashqai and Khamseh
Qara Baiat	50	Gardan-i-Baba <i>Hajji</i> near Shiraz
Qaraguzlu	150	Baiza
Shahsavan	200	In valley southeast of Shiraz
Soqulmehchi	400	Khumarreh
Suluklu	200	Ramjird
Surkhi	400	Surkhi Valley, southeast of Shiraz
Tatbeglu	100	Khafir
Tavallali	300	Sebardeh (fifteen miles east of Shiraz)
Tolabegi	30	Abadeh-i-Tashk
Tutaki	100	Sedentary in Qunquri and Bawanat



## LARISTAN AND BANDAR 'ABBAS

Laristan, which has a coast line of about 220 miles, is bounded on the south by the northern shore of the Persian Gulf.<sup>1</sup> The surface of the country is diversified with plains and mountains, the general trend of the latter being from north-northwest to south-southeast, but the ranges in these parts are not as extensive as in the other parts of southern Iran, nor do they attain the same elevation, seldom exceeding 6,000 feet. Mountains rise along the whole extent of the coast and many of the peaks serve as landmarks for navigation.

The rivers are unimportant, with the exception of the Shur, which flows into the Clarence Strait near Khamir, but like many of the smaller streams the Shur is salt, and therefore of little value for purposes of irrigation.

The Bandar 'Abbas area<sup>2</sup> consisted of the town of that name, the districts of Biaban, Shamil, and Minab, and the islands of Qishm, Henjam, Hormuz, and Larak. The district of Ahmadi also was formerly in this area.

Laristan is one of the poorest and the least productive parts of Iran, ranking in this respect second only to the Bashagird country. This is due to the land, an arid desert characterized by rocky hills and valleys of sand and salt. By far the most important product is the date (*Phoenix dactylifera*) which flourishes everywhere (see Dowson). Some wheat and barley are cultivated, especially in the Lar and Bastak divisions, which also support large flocks of sheep and goats besides smaller numbers of cattle, donkeys, and camels.

The climate of Laristan is severe for Europeans. In the belt that lies between the shores of the gulf and the higher ranges inland, the summer heat is intense, increased by the sandy and barren plains with which the tract abounds. During the first two months of summer a strong northwesterly wind prevails over the whole district, which at times blows with such force that it brings with it clouds of fine sand. In the autumn the heat is more oppressive than in summer, but in winter and spring the climate is pleasant. The cold is never severe and snow is seldom seen. Light rains fall in the winter or early spring and are almost always accompanied by a southeast wind, which, although often violent, seldom continues for more than three or four days at a time.

<sup>1</sup> See also Fraser and Parry.

<sup>2</sup> As the new administrative divisions were established so recently it has been found more convenient to use the older designations.

The climate of Bandar 'Abbas is notorious for its heat and unhealthfulness. In winter the mercury seldom falls below freezing point. January and February are cool, with occasional heavy showers of rain. In March, April, and May the surrounding country dries up and malaria prevails. From June to September the heat is intense and most of the inhabitants desert the town, but fever diminishes. Although the actual temperature seldom rises above 100° in the shade, the humidity of the air makes the summer months oppressive. From October to December the heat is on the wane, with malarial fevers once more rife.

In addition to the malaria, which is of a malignant type, other common diseases are smallpox, of which there was nearly always an outbreak in summer; dysentery, which is prevalent toward the end of the hot weather; eye diseases, particularly trachoma; venereal disease, which at one time was estimated to be present in 80 per cent of the population; and guinea-worm and kidney disease.

Lars, the capital of Laristan, is situated at the foot of low, limestone hills, which block the western extremity of a valley running from east to west. The altitude of Lars is 2,975 feet. The city covers perhaps half of a square mile, and the population was estimated at about 8,000 persons. Lars owes its importance to the fact that it has been a center of trade and a halting place for large caravans. Some of the old caravan routes have now been converted into motor roads.

The Biaban district,<sup>1</sup> about fifty miles in length and from ten to twenty in breadth, was bounded on the west by the sea and on the east by the crest of a range of hills. These hills run parallel to the coast at a distance ranging from ten to fifteen miles inland, dividing Biaban from Bashagird and Rudbar in Kerman. On the north of Biaban lay the Minab district, while on the south the Kuh-i-Mubarak separated Biaban from Jask and the Makran.

The districts of Shamil and Minab, which bordered the northwest side of the loop formed by the Persian Gulf and the Gulf of Oman at their junction, included the port of Bandar 'Abbas.

The bulk of Shamil lay east of Bandar 'Abbas in the form of a somewhat elongated parallelogram with its southwest corner close to the west of the town. The district was thus a maritime plain enclosed between the sea and bold mountain ranges, of which the elevation generally exceeds 3,000 feet. The dominant feature of the whole country is the Kuh-i-Ginau, the summit of which reaches 7,783

<sup>1</sup> Cf. footnote 2 on page 225.

feet at a point eighteen miles north-northwest of Bandar 'Abbas. The mountains to the north rise very steeply from the plain and attain 4,481 feet in Kuh-i-Namak at their western end and 6,057 feet in Kul Nian at their eastern extremity; between these points they are interrupted by four gaps through which valleys of some size descend to the plain, giving the range a disconnected appearance. The Kuh-i-Zindan range, also called the Rudbar hills, at the east of the district appears to have a nearly constant elevation of 3,000 feet. A great mountain situated outside the district but visible from the Persian Gulf is Kuh-i-Furgun, which is forty-two miles north of Bandar 'Abbas and 10,758 feet high. It is covered with snow in winter.

A low, and in places ill-defined, sandstone ridge parallels the sea-coast at a distance ranging from three to ten miles and divides the country into two portions that differ widely in their characteristics. In general, the height of this ridge is about 200 feet, but at a point thirteen miles west by north of Bandar 'Abbas and six miles from the sea it reaches a height of 1,645 feet. A fertile plain extends eastward to the mountains, and between the ridge and the coast lies a sandy belt saturated with salt and broken, at intervals, by date groves and small cultivated patches. From the sandstone ridge numerous steep-sided ravines, containing no water except during heavy rains, run down to the coast.

The chief crops in the coastal districts are dates and barley, which form the staple foods, but in some places wheat and tobacco are grown.

The town of Minab, which stands on the left bank of the Minab River, is commanded on the east side by some hills which rise to 640 feet. On the southern side are extensive plantations and gardens and here begins a date belt about six miles in breadth, which follows the course of the Minab River within thirteen miles of the sea. A recent estimate lists about 2,000 houses with a maximum population of about 10,000.

Bandar 'Abbas town, at the foot of the bay, consists of some 1,000 mud-brick flat-topped houses, extending about eleven and one-half miles along the shore and almost half a mile inland.

The largest and most important island in the Persian Gulf is the island of Qishm. It lies opposite the coast of the gulf and extends from Lingeh as far as Bandar 'Abbas. The islands of Larak and Henjam may be regarded physically as appendages of Qishm. The extreme length of Qishm is sixty-eight miles, with an average breadth

of ten miles. The island is almost covered with table-topped hills without any dominant peaks, although Kishkuh, the highest summit, nearly in the middle of the island and about seventeen miles from Basidu, reaches a height of 1,300 feet. Qishm is, apart from the villages, almost deserted, but the hills harbor animals. Some of the hills, notably at Namakdan near the coast in the southwest part of the island, contain large deposits of excellent rock salt, which is exported in great quantities.

The total population of the island has been given as 13,500 individuals, a mixture of Arab and coast Persian [Irani] by race, the former strain predominating. The great majority are Sunnis. A severe earthquake in 1898 destroyed many villages. A mixture of Arabic and Persian is spoken.

There are thirty-three villages on the island, of which Qishm, at the eastern extremity, is the chief. Behind it and to the south the land rises in a gradual slope, until it breaks off precipitously to the northwest. The climate is cooler than that of Bandar 'Abbas. The figures available gave the population of Qishm as 3,500, in which the Arab element predominated.

The population of Laristan as a whole has been estimated at about 90,000 inhabitants. Those living on the coast line are to a great extent Arabs, while the farmers are principally Persians [Iranis].

In addition to the above two classes there were a large number of nomad Arab tribesmen, who had their winter quarters in Laristan. These belonged mainly to the Jabbareh Arabs, the bulk of whom made their *garmsir* in the province; but some sections of the Shaibani were also to be found there in the winter. For details as to the various sections and their habitats see under Fars (pp. 205-224).

The population of the Shibkuh ports (west of Ras Bustaneh) has been predominantly Arab. These Arabs are mostly Sunnis with a few Shiah. They are bilingual and are gradually being absorbed by the stronger Persian element around them, although they keep to their Arab dress, and, among themselves, to their own speech. It is plain from their features and other physical characteristics that they are of a different racial type from their Persian [Irani] neighbors.

The population of Bandar 'Abbas has been given as about 12,000, reduced in summer to not much more than one-quarter of that number, the majority of the remainder going away to the Minab district, where there are extensive date plantations and the climate is somewhat better. The inhabitants are a race of mixed Persian

Baluchi, Arab, and Negro descent and are known as Abbasis. The official language is Persian, although most of the inhabitants speak a patois almost unintelligible except to themselves.

The inhabitants of Biaban may number about 8,000 persons. They are Baluchis, chiefly of the Rais and Hot tribes, and Sunnis.

The people of the Shamil region are Iranis with a considerable infusion of Arab and Baluchi blood. The universal language is Persian, of a purity which increases with the distance from Bandar 'Abbas. With the exception of about a dozen villages (all farther west than Bandar 'Abbas), which are predominantly Sunni, the people are nearly all Shiahs. Some ten or fifteen years ago the total number of inhabitants, excluding Bandar 'Abbas and Minab, was about 25,000.

The population of Minab numbered about 10,000 in the summer and 7,000 in the winter, and included many Negroes and Arabs, and a few Hindu traders from India. The population was increased in the summer by the influx of large portions of the populations of Bandar 'Abbas and Qishm Island, due to the demand for labor in the date plantations of the Minab district as well as to the severity of the hot season and lack of water at Bandar 'Abbas and on the island. The great proportion of the permanent inhabitants are immigrants from Lar, Jahrum, and Bahrein, who have settled in Minab. The Hindus are chiefly Hyderabad families of Bandar 'Abbas, who own extensive property.

The inhabitants of Ahmadi numbered some 1,000 families.

#### KERMAN

The province of Kerman is very mountainous, some of the peaks attaining a height of more than 15,000 feet above sea level. The principal range forms part of the main system of mountains which runs through Iran from the northwest to the southeast—the general direction of the range across the province. In the west the mountains consist of a very pronounced succession of ridges, extending from the Lut to the coast of the Persian Gulf. Farther east the chain gradually narrows until it reaches the range of the Jebel Bariz, which divides the plain of Bampur from the Dasht-i-Lut.

Many rich valleys enclosed in this massive wall of mountains are cultivated and have large orchards. The hillsides are thickly covered with shrubs and trees, including fine oak, fig, and cypress. Game abounds.

Farther south the Bashagird range divides the plain of Bampur from the sea. It consists of one main rugged range running approximately east and west and serves as a watershed for streams draining into either the Gulf of Oman or the Hamun Jaz Murian. The slopes are covered with the usual stunted vegetation found in such localities, and wherever there are level places these are generally sparsely wooded with trees of a thorny nature such as the *bu* and varieties of the mimosa and acacia family, which often attain a height of forty or fifty feet with a circumference of six feet at the base.

The streams have a plentiful supply of running water. In the desert regions west, south, and east of Kerman, water for the villages has to be conveyed from the hills for many miles by means of *qanats*. Narmashir and Jiruft are less arid than other parts of the province, but even in the former the desert is encroaching. Few ranges are now covered at all extensively with timber; the forests are gradually disappearing, being exhausted by charcoal burners. This probably accounts for the diminishing rainfall.

The *garmsir* is the belt of country between the great mountain ranges and the sea, and in the area under review is composed largely of saline sand. It stretches inland across the plains of Rudbar and Jiruft. The date palm flourishes in this region.

The Haliri [Halil] Rud is the only river of any importance in the province of Kerman. It rises in the mountains to the west of Sarduiyeh and after a southeasterly course across Jiruft and Rudbar mingles its waters with those of the Bampur River in the Hamun Jaz Murian. Water is said to run constantly, however, only as far south as Bijnabad.

Part of the Lut desert lies within the limits of Kerman. *Lut* is a general term for wastes in this part of the country, but differs from *kavir*, in that it may have sand interspersed over its surface (cf. Gabriel, 1939).

The Hamun Jaz Murian lies between Bampur and Khanu. The entire ground enclosed by Kalanzau on the east and Zeh Kalat on the west is frequently inundated during the rains. These two points mark the actual limit of the swamps, some fifty by twenty miles.

Rain seldom falls before the middle of November, or after the end of March. The average annual rainfall in the town of Kerman is only 5.6 inches.

Heat and cold are never excessive on the top of the plateau. The season from November to March is cold, especially in January and



FIG. 11. Index map showing scattered tribes in Iran (see Figs. 10, 12, 13, and Supplement B).

February, the night temperature in these two months being usually 9° to 10° below freezing point. Temperatures below zero are registered occasionally as late as March. Snow usually falls only during January and February, but seldom anywhere off the plateau.

In the town of Kerman a prevailing west wind blows almost daily from April to October, raising large sand and dust storms. On the Sarvistan plain and from Tehrud to Abariq, a high, bitterly cold wind blows all winter. In summer the breeze is cool on the plateau, but down below there are warm winds, which, across the Lut, are intensely and dangerously hot.

The province of Kerman was formerly divided into a number of districts, of which the most important were Kerman, Khabis, Rafsinjan, Sirjan, Bam and Narmashir, Jiruft, Rudbar, and Bashagird. The other sections of Kerman are for the most part mountainous and sparsely populated.

(1) The district of Kerman comprised only the area immediately around the town.

(2) Khabis was a small district lying about fifty miles east of Kerman, and divided from it by a range of hills. It was bounded on the east and northeast by the great Lut and through it passed the main caravan route from Kerman to Khurasan across the Lut.

(3) Rafsinjan, of which Bahramabad was the chief town, consisted of a plain about eighty miles long and twenty miles broad running roughly east and west, and receiving on the north the drainage of the Kuh-i-Badaman Mountains and on the south that of the ranges lying to the north of Pariz and Saidabad. The plain is a bare expanse of hard clay on the main Kerman-Yezd road, and rises gradually from the east from about 4,700 to 5,500 feet. The district comprised some ninety villages with an aggregate population of approximately 60,000 persons, most of whom were engaged in the production of cotton and wool.

(4) Sirjan, whose chief place was Saidabad, was some eighty miles long and seventy miles wide, situated about 100 miles southwest of Kerman. Sirjan was surrounded by mountains, and was well irrigated by streams from the northern and eastern hills. The western part, however, was *kavir*.

(5) The Bam and Narmashir district consisted of a fertile undulating plain about 100 miles long and varying from thirty-five to eighty-five miles in width northwest of Bampur. The district was well-watered and produced considerable crops of cereals.



(6) Jiruft lay almost midway between Kerman and Bandar 'Abbas. The province, fifty miles long by twenty-two wide, had a permanent population of 2,000 families. This region is about 300 feet above sea level. Watered mainly by the Haliri Rud, it has a normal rain and snowfall. In seasons having scant rain and snow there is hardly enough water to cultivate the upper part of the region, and for this reason about every fourth year is considered a dry year, although even then by means of *ganats* the inhabitants usually manage to secure a yield of two-thirds of the normal crop. The population is small. During June, July, and August all who can, go away to the mountains, while with the advent of the cool season there was formerly a great influx of tribesmen, who spent the winter in the district grazing their flocks.

(7) Rudbar, a rich district, lay to the north of Bashagird. Like Jiruft it was well-watered and sparsely populated.

(8) The district of Bashagird comprised the mountainous and wild region to the south of Rudbar and the Hamun Jaz Murian. The inhabitants were akin to the Rudbaris, but had a considerable strain of Negro blood.

The population of Kerman province was estimated by Sykes (1902b) as 750,000 and by Newcombe (1905) as 1,000,000. It was divided into house-dwellers and nomads, the latter forming a large percentage. The townspeople were, and probably still are, mostly Iranis, the successive hordes of invaders having in almost every case kept to a wandering life.

Kerman (elevation 5,680 feet), the capital of the province, is mainly surrounded by desert, but, being at the junction of many trade routes, has long been important as a trade center.

The population of the town of Kerman has consisted principally of Persian Mohammedans (Shiahs and Shaikhis) of whom a few non-indigenous families formed an aristocracy, while the remainder were mainly carpet weavers, shopkeepers, and merchants. There were also a number of Tabrizi Turks who, until the advent of the European firms, controlled the carpet industry. A few extraneous Armenians, principally clerks and carpenters of Isfahan origin, made up the sum total of the peoples. In 1902-1903 the population of Kerman was estimated at nearly 50,000, as follows:

Shiah Mohammedans.....	37,000	Sufis.....	1,200
Sunnis.....	70	Jews.....	160
Babis (Bahai).....	3,000	Zoroastrians (Parsis).....	1,700
Babis (Azali).....	60	Hindus.....	20
Shaikhis.....	6,000	Total.....	49,210

Khabis (elevation 1,860 feet), fifty-six miles east of Kerman, is the point where the main caravan route from Kerman to Khurasan enters the Lut. The population has been recorded as being about 5,000 persons, mainly employed in raising dates and henna. It is a well-watered oasis, but in summer its heat is so intense that the majority of the inhabitants leave for the hills.

Bahramabad (elevation 5,090 feet) is situated about seventy-five miles west of Kerman on the road to Yezd. It was the chief town of the district of Rafsinjan, with an estimated population of 5,000 inhabitants.

Saidabad (elevation 5,490 feet) contained about 9,000 individuals. Encircled by a high wall, the town is situated near the southern end of the great *kavir* in a fertile plain studded with magnificent trees. Saidabad lies on a main route from Bandar 'Abbas by Kerman to Yezd.

Baft (elevation 7,290 feet) was the chief town of the small district of Aqta. There were about 200 houses and a population of 2,000. It lies on the main road from Bandar 'Abbas to Kerman.

Khanu (elevation 1,580 feet) was the capital of Rudbar district and had a population of 2,000 to 3,000.

Bam (elevation 3,500 feet) is situated about 120 miles southeast of Kerman, almost eight miles from the edge of the Lut, in the fertile and wealthy district of Bam-Narmashir. The inhabitants numbered approximately 13,000.

Below are given the number of families, in parentheses, of each of the nomad tribes which have been reported as dwelling in the various Kerman districts:

Bam and Narmashir: Gurgandi (300); Hot (150); Mir Reki (50); Muhammad Ghulami (50); Nidati (100); Palangi (40); Rais (700); Sarhaddi (40); Shaikhi (300); Baluchis; and Sukhteh (50).

Khabis: Musafri (50).

Ravar: Iz Nakhai (50).

Zarand: Sangchuli (20); Abduchi, Muhammad Riza Khani, Hasan Khani, Zalaghi, Suki, Makarari Guzar (1,000).

Rafsinjan: Khafajai (60).

Sirjan: Afshars (1,000); Arashlu and Saidu (100); Ata Ullahi (100); Bagzadeh (20); Bavurdi (10); Bichara (15); Buchakchi Ankali (40); Buchakchi Kara Ali (50); Buchakchi Khursali (30); Buchakchi Noaki (25); Buchakchi Sarsaiyid Ali (50); Doragahis (2,000); Farsi and Niamatullahi (20); Halvai (25); Khajui (100);

Karai (600); Khurasani (700); Sarzandeh (10); Shul Turki (90); Sia (10); Tairiari (15); and Yakubi (20).

Bardsir: Afshar Amui (250); Afshar Mir Habibi (25); Ahmad Nazzari (20); Askar Sirjani (20); Badavi Kuh-i-Panj (100); Badui (250); Badui *Hajji* Khan (200); Baluch (300); Churabba (130); Ghiasi (10); Gudri (60); Hafizi (20); Ilaghi (50); Izaja (7); Kumachai (10); Kutlu (650); Luri of Kuh-i-Panj (200); Mastafi (10); Masumi of Panj (100); Mazzang (50); Nushadi (250); Pusht-i-Gudari (10); Pusht Kuhi (80); Sar-i-Gudari (20); Shaikh Kuh Sufidi (70); Sia Jul (80); Surkhi Arab Khan (250); Yakudi (10); Yunusi (10); and Zulala (20).

Pariz: Arab *Hajji* Hussain (200); Badui (60); Laku (10); Luri (200); and Rud Khaneh Fariduni (10).

Aqta and Afshar: Jamal Barizi (50); Kara Koinlu (150); Sivandi (100); Takalu (30); and Ali Ghazalu, Qasimlu, Jalalu, Amui, Pir Muradlu, Jan Kulioshaghi, Farsimadan (3,000).

Bin (Lek) (Rahbur area): Darreh Muradi, Gudali, Iliasi, Mirzai, Yarghai (1,000). Darvishi, Gudari, Jarchi, Khador, Khojah Dai, Namzadi, Shahsavari, Sohrabi, Tehrani, Zarabi, and Zardashti (1,000).

Isfandaqeh: Anai (20).

Rayin: Agha Riza (20); Habib (30); Nushadi (70); and Mukbali (100).

Jamal Bariz: Agha Madadi (50); Amjaz Khan (400); Damani (30); Darmehni or Muhammad Nasiri (100); Dumar (50); Fuyuj or Luli (Gypsies) (100); Gash Kuhi or Khojeh (100); Kaid (40); Mashkuni (150); Mijan (30); Pahlwan (200); Sanjar Baluch (400); Shaikh (50); Solai and Mir Shikar (150).

Sarduiyeh: Ar Pallu (10); Buz Surkh (10); Deh Kuna (10); Digui (15); Farashi (40); Gurvi (15); Kafashi (45); Karai (10); Kashimu (10); Kurd (20); Makbali (50); Mir Salahi, Kuchami (100); Salandari (12); Sarbizaeni (7); Sarhaddi (25); Shaikh (12); and Tirgar (15).

Jiruft: Vali Oshagi.

Rudbar: Deh Khani, Girki, Gulashkardi, Gurjandi, Jaghini, Julajari, Kala Murzi, Kandari, Kuh Shahri, Kuh Surani, Lar, Lurag, Manujan, Muradi, Nudazai, Ruhana, Sarbaghi, Sarhaddi, Shah Vali Bor, Shambuieh, and Turki.

Between Rahbur and Bizinjan: Anai (20); Bara Beharlu (40); Fuyuj or Luli (300); Khalu (50); and Miru (30).

Herodotus (III, 94) mentions the mountaineer tribe of Parchan, the Bariz (cf. p. 235), firstly, in connection with reckoning the taxes of the "Parikani," secondly, with the "Asiatic Ethiops" in relation to the army of Xerxes (VII, 68 and 86). These may be the Qufs, of Oman and Yemen origin, according to some Arabic writers. Some travelers consider that the Qufs may be the most westerly representatives of the Dravidas.

#### BALUCHISTAN

Iranian Baluchistan<sup>1</sup> has been generally used to designate a large tract of thinly populated country lying along the eastern borders of Iran, coterminous with British territory. Its greatest length, from Gwatar on the south to Kuh-i-Malik Siah on the north, is roughly 350 miles; and its breadth, from Kuhak on the east to near Kalanzau on the west, is about 250 miles.

The majority of the population are Baluchis. The Baluchistan organization was essentially feudal, and all power lay in the hands of the local chiefs, called *Sardars* or *Mirs*, who owned numbers of slaves (*ghulams*) of both sexes. About 1,000 families have wandered into Seistan (Zabulistan) and Qain and 3,000 more into other parts of Khurasan, but they have maintained communication with their relations in Baluchistan. Many of them claim Arab descent. They refer to the Persians as Qajars. Nominally they are Sunnis.

Baluchistan was divided into four administrative districts with very vaguely defined boundaries. It will be convenient to use these designations in our present discussion. They are as follows: Persian Makran, embracing all the low-lying region from the coast to the watershed of the Lashar mountains; Bampur, north of the Lashar range with Kerman on its west; Dizak, to the east of Bampur and bordering British territory; Sarhad, to the north of Dizak, with British Baluchistan on its eastern border.

Owing to the great extent of country covered by Iranian Baluchistan the climatic conditions are most varied. The coastal district of Makran is extremely hot, steamy, and unhealthful; while the farther north and higher one goes, the cooler and healthier it becomes. The valleys of the Bampur division are stifling in the summer months, and the city of Bampur is notorious for its unhealthfulness. Among the highlands of Sarhad conditions are quite different. Here

<sup>1</sup> Iranian Baluchistan had formerly been included in the province of Kerman, but after the defeat of the Baranzais (see p. 240) the Persian sub-province of Baluchistan was administered by a resident military governor. For recent descriptions of this region see Skrine (1931) and Gabriel (1939).

the air is dry and bracing, and in winter snow and ice are not uncommon; in fact, heavy snowstorms have been recorded even at Bampur in February. Among the mountains four seasons prevail, but toward the south, two only—the cold and the hot.

In Makran the cold weather lasts from October to April; the hot weather from May to October. The maximum winter temperature on the coast varies from 87° to 94°, and the maximum summer temperature from 94° to 110°. Rainfall is uncertain, but usually occurs between November and February, occasionally continuing into March. The annual rainfall probably averages between six and seven inches, although along the coast belt it is never more than three or four inches.

Qasrqand is noted for its mosquitoes and, as a consequence, malaria is common. The heat at Geh (only a short distance away) is intense between April and October, but the district does not appear to be unhealthful, and the people are singularly free from malaria.

The climate of Bampur district is bad even for Baluchistan. The highly irrigated land along the river, and the burning sandy desert beyond it, give rise to sudden variations of temperature and changes from extreme dryness to complete saturation. In winter the weather is pleasant, but subject to great variations of heat and intense cold. It begins to get warm in February, and in March the climate usually becomes hot and unhealthful at the same time.

In the Sarhad the summer months are hot and dry with a rapid fall of temperature toward evening. There is a considerable amount of wind and dust. With the exception of a possible storm in August there is no rain in the summer season. The winter storms from the Persian Gulf pass over Sarhad, with the center of these storms usually to the south, but the Kuh-i-Taftan attracts to itself any moisture that may be in the air and consequently the country directly adjacent to the mountains receives a good rainfall in normal years. The winter winds are at times exceedingly bitter. The Kuh-i-Taftan<sup>1</sup> (13,034 feet) normally maintains snow on its summit up to the end of May.

(1) Makran stretches inland from the coast as far as the watershed of the first important range of hills, and includes a strip of country averaging some sixty miles in width from north to south, except on the west, where the Bashagird hills gradually approach close to the coast and narrow the district of Jask to a width of less than twenty

<sup>1</sup> See Sykes, JRGS, vol. 10, pp. 586-588; and 1902b, pp. 132-134, 354-355; also Skrine.

miles. For twenty miles from the coast there is a sandy plain traversed by several rivers, and often covered by tamarisk. Beyond this plain lies a range of hills, of which the average height appears to vary from 1,000 to 2,500 feet. Composed of a light-colored clay, it is capped with sandstone.

Behind this range are the rugged limestone ranges of the Lashar Kuh and the Kuh-i-Bampusht, which lie outside Makran, but whose crests form the watershed of the district. South of them all the water drains to the sea, chiefly through the Nahang, Sarbaz, Kaju, Geh, and Rabch rivers.

Most of the rivers, except after rain, run above ground only in parts, and then flow underground. This has the advantage of saving loss by evaporation. The soil is good and the water supply fair, while there is excellent grazing in some areas.

The following are the chief villages of Makran: Geh (elevation 1,504 feet) is a large and important village, consisting of some 500 houses. Bint (elevation 1,400 feet) is a large village and subdistrict, whose population consists mostly of Baluchis with a certain number of slaves, and is said to number 2,000. They are supported mainly by the dates grown in the vicinity. Religion is of great importance here, as in other villages of the region, except among the nomadic part of the population. The mullahs represent themselves as Sunnis, but are in reality Sufis. Qasrqand (elevation 1,770 feet) has had a population of 1,880, mostly Baluchis. Bahu Kalat, a village of about 1,000 persons, lies thirty-eight miles north of Gwatar.

Chabar, west of Gwatar, is the most important coastal town. Makrani, a dialect of Baluchi, is the language spoken here; Hindustani is generally understood, but Persian is rarely used. The mixed population numbers about 3,000, chiefly Baluchis, with a few Negroes. In recent years there were some 300 Hyderabadis and 200 Khujar merchants and shopkeepers, in whose hands was a very large portion of the trade.

Makran is peopled by a medley of tribes, mostly Baluch, the majority of whom claim descent from Arab stock. The population has been estimated at a maximum of 140,000 persons.

Important tribes which were located in Makran are given below:

*Hot Baluch.*—Members of this tribe, probably the strongest in numbers throughout Makran, were found everywhere from Lashar, south of Bampur, across Makran to Chahbar and the coast. The Hot Baluch were fine, wiry men of great endurance. Many of them were nomads.

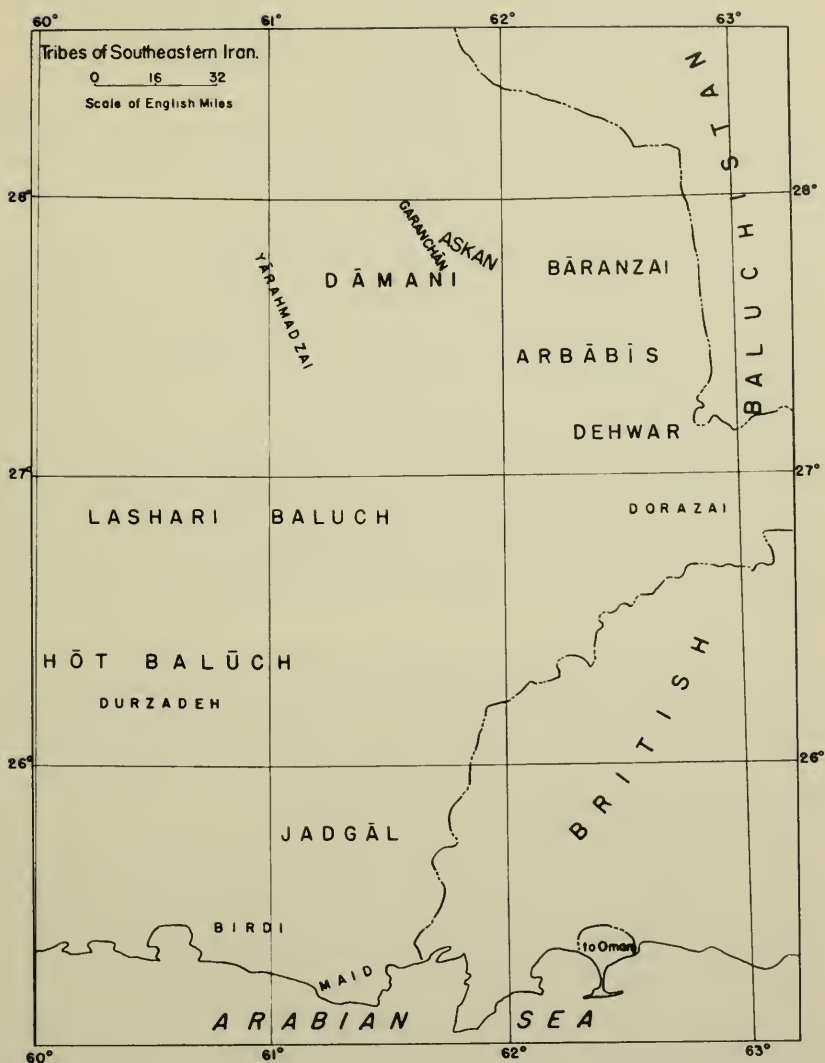


FIG. 12. Tribes of southeastern Iran. S=summer quarters; W=winter quarters. (D in Fig. 11.)

*Sherkhanzai Nahrui*.—These peoples came originally from Rudbar, but they acquired Bampur at the beginning of the last century. After holding Bampur for two generations they were driven out by the Persians. They then settled at Fanuch and Geh.

*Buledis*.—The Buledis prided themselves on being the oldest family in Iranian Baluchistan. They lost, however, a great deal of their land, and were further absorbed by intermarriage with the other tribes, especially the Sherkhanzais. The chief Buledis finally occupied Jask, Qasrqand, and Fanuch.

(2) Between the Jamal Bariz range on the north, and the Basha-gird hills and the Lashar Kuh on the south, lies the Bampur plain with an average elevation of 1,900 feet. A large proportion of this plain appears to be a sandy desert with heavy, rolling ridges of sand, extending in many places to the foot of the hills. In the center of the plain on its western side stretches the marsh called Hamun Jaz Murian, which absorbs the waters of the Haliri Rud from the west, and of the Bampur River from the east, as well as those of the streams flowing down from the mountains to the north and south. Along the river Bampur and its tributaries is a fertile and thickly wooded strip of country, the only contrast to the sand covering the remainder of the plain.

Places of importance in the Bampur district are Bampur and Fahrej. Bampur (elevation 1,906 feet) is now a small decayed village and no longer the capital of the district. Fahrej [renamed Iranshahr],<sup>1</sup> the present capital of the district, is about seventeen miles east of Bampur. The population of Fahrej is estimated at from 12,000 to 15,000 persons.

Until the death of Bahram Khan Baranzai (Skrine, p. 323), in 1921, the whole of Bampur, as well as Dizak and the Sarbaz sub-district of Makran, was under the influence of the Baranzai family, who came originally from Dizak and occupied the place.

The inhabitants of Bampur are for the most part Baluchis belonging to various tribes, whose numbers it is difficult to estimate. The people of Bampur town are of a mixed race, showing strong traces of Negro blood. They speak Makran Baluchi.

Below is a list of the chief Baluchi tribes of Bampur.

*Baranzais*.—These people were originally descended from Afghan stock. They first settled in Jalq and in the Dizak Valley. Gradually they attained sufficient strength to overthrow the ruling Bazurgza-

<sup>1</sup> See JRGS, vol. 80, p. 268; but cf. Skrine, p. 324, second footnote.



das. Under Bahram Khan they became supreme throughout Bampur.

*Hot Baluch.*—See under Makran.

*Lashari Baluch.*—Little has been known of the Lashari Baluch who live to the south of the Bampur plain between Pip and the Kuh-i-Ahuran. Closely akin to the Hot Baluch, they were taller and finer physically than the ordinary Baluchis. Although nomadic, they returned to villages in the date season.

(3) Dizak lies between Bampur and the British border, with Sarhad to the north and Makran to the south. It is a highland district, cut up by high and disconnected mountain ranges, chief of which is the Kuh-i-Bampusht to the southeast. Across the center there runs from west to east the Mashkel River. Parts of the district are considered among the most fertile in Iranian Baluchistan.

There are only two towns of importance. Dizak, a fort, lies in a valley about fifty miles long by ten wide, watered by various tributaries of the Mashkel River, at an elevation of about 4,000 feet. The valley, with those of Sib and Magas, enjoys a great reputation for fertility. Sib (elevation 3,650 feet), a town of some 1,500 families, is situated on a tributary of the Mashkel. The Sib Valley is about eight miles broad.

Dizak, which was formerly under the Bazurgzadas, passed under Baranzai control. The Baranzais lived principally in the vicinity of Dizak, Jalq, and Irafshan. Some other tribes of the Dizak section are briefly discussed below.

*Bazurgzadas.*—These people were of Kurdish origin and came originally from Bukhara in Soviet Turkestan. For many generations they were the leading family in the district; but as the Baranzai influence increased, that of the Bazurgzadas decreased.

*Kurds.*—Survivors of those Kurds who formerly ruled Sarhad came to Dizak. They were found in small numbers in Magas, but they have nearly died out.

*Nusherwanis.*—These were a small section of the Rinds, belonging originally to British Baluchistan, who crossed into Iranian territory and settled in Kuhak.

(4) The Sarhad is bounded on the north by Seistan and the southern boundary of Afghanistan on a line running from Dehaneh Baghi to Kuh-i-Malik Siah. It is a mountainous tract, intersected by high upland valleys with an average height of 4,000 to 5,000 feet above sea level and a steady downward slope to the south.

The chief feature of the district is the Kuh-i-Taftan, situated in the very center. Otherwise the country gives the appearance of a waterless waste, with plains or valleys devoid of all trees and with nothing to rest the eye from the glare and the endless brown, burnt-up soil, where dust devils are continually forming.

The drainage from the Kuh-i-Taftan, however, renders some parts less desolate. The main valley, that of Vasht, is over thirty miles in length and runs in a southeasterly direction. There is little doubt that this valley was once extremely fertile, but the Damani tribes turned it into a desert with only a few scattered patches of cultivated land.

The population of Sarhad [district] has been mainly nomadic, and has moved according to the accessibility of pasturage. Grain has been imported either from Seistan or from Narmashir.

The important towns in Sarhad are: Vasht<sup>1</sup> (elevation about 4,500 feet), one of the places which has most possibilities for development owing to its well-watered and fertile soil; Duzdab [Zahidan], a small oasis lying at a height of 4,500 feet, which has risen into importance through becoming the rail-head of the line from Quetta; Gusht (elevation 4,800 feet), sixty miles south of Vasht on the southern border of Sarhad.

The district from about 1908 to 1916 was entirely under the control of the Damanis (q.v.).

*Rekis.*—These tribes inhabited the region extending from the northern slopes of the Kuh-i-Taftan to the Helmand. They were divided into three main sections, of which the Natuzai alone were permanent residents in Sarhad. This section numbered some 500 to 600 families, who possessed large flocks of sheep and goats. The headquarters of the section were at Ladis, and its boundaries were: on the west the line Duzdab-Shurgaz; on the south the line Shurgaz-Kuh-i-Taftan-Rig-i-Malik; and on the northeast the border of British Baluchistan.

*Ismailzais.*—The Ismailzais lived to the west of the Rekis in the hilly tracts south of the line Dehaneh Baghia-Kuh-i-Malik Siah, and extended down almost as far south as the Kuh-i-Murghak. They are a Taukhi tribe and are believed originally to have been under the Sanjaranis. Essentially nomad, they were more independent than the Rekis. The tribe numbered about 400 families,

<sup>1</sup> Skrine (p. 326, footnote) prefers the transliteration Khwash or Khash. Near this town meteorites were reported to have fallen in 1916 and in 1929 (Skrine, p. 328).

made up of the Allah Bakshzai (10 families), Balozai (10), Dorazai (50), Fakirzai (50), Hadizai (20), Kamarzai Ismailzai (60), Jamsherzai (15), and Radozai (30). To these may be added the following, who were not true Ismailzai but had lived among them for years: Gurgeech (20), Hassanzai (30), Kamarzai Muhammadzai (50), Muhammadzai (12), Shahozai (20), and Totozai (20).

*Damanis.*—There were two distinct Damani sections, the Yarahmadzai and the Gamshadzai (cf. Skrine, p. 326). The former have always resided in and around Vasht and toward Bampur, while the latter kept more to the east and southeast, having their headquarters at Gusht and Jalq and using the intermediate grazing grounds of Sefid Kuh and Naukdar Valley.

The Yarahmadzais were entirely nomadic and of good physique. The tribe numbered some 250 families, consisting of the following subsections: Mirgulzai, Muhammadgulzai, Roshanzai, Sherazai, and Sohrabzai. To these may be added the following unimportant subsections, which, though not actually Yarahmadzai, were closely connected with them: Buranzai, Jamsherzai, Muhammadzai, and Rahmarzai.

The Gamshadzais numbered 300 to 350 families, and included the following subsections: Arzezai of Gusht (40 families), Dadkhudazai (70), Kerramzai of Gusht (20), Jehangirzai (30), Mazarzai of Sib (60), Moradzai (50), and Muhammadzai of Gusht (20). To these may be added the Gisadzai (about 30), who lived in Jalq.

*Kurds.*—There are around Kosha, Vasht, and Tamin, a small number of Kurds, the remnants of those who once dominated Sarhad.

*Mir Balozais.*—This was a tribe of cultivators and land owners of Kurdish origin. They were scattered in small colonies at most of the arable spots in Sarhad. Many dwell at present in the Narab Valley (cf. Gabriel, p. 205).

*Hashamzais.*—A small group (45 families) of cultivators and flock owners, once found among the Reki tribe, were the Hashamzais of Seistani-Baluch origin.

*Tamindanis.*—The Tamindanis, of Parsi origin, numbered only about sixty families. They lived on the higher slopes of the Kuh-i-Taftan, and appeared to be a hardy set of men. They were apparently almost self-supporting.

*Brahuis.*—This tribe, comprising about thirty families, dwelt near Dijjing and acknowledged Reki leadership. The Brahuis are physically robust.

*Khwashis*.—A small tribe of about 130 families, apparently aboriginal, were the Khwashis who inhabited the Vasht plain. They were connected closely with the Dehwars, who lived farther south in Sib and Bampur. Both they and the Brahuis called themselves Arbabis. They did not intermarry with the Baluchis, but were forced by hard times to give many of their women to the Yarahmadzais. They were short in stature.

In Dizak and to a lesser extent in Bampur and Sarhad were to be found the Arbabis and Dehwars, supposedly indigenous inhabitants of the land. They were good farmers, but occupied a subject position everywhere.

The inhabitants of Jask speak mostly Makrani, a Baluch dialect, and a little Persian. In recent years the Persian village consisted of twenty-eight small stone houses and seventy-five reed dwellings. The population of 400 included mainly Baluchis with some Negroes (*Sidis*), who were engaged in fishing and in agriculture.

#### SEISTAN

The district known as Seistan, which occasionally has been independent alike of Iran and Afghanistan, once included all the region drained by the Helmand and other rivers discharging their waters into the Hamun. The name Seistan as used here will have reference only to the territory in Iran, and will not include Chakansur, the Afghan portion.

The Helmand, Farah Rud, Harud Rud, and Khash Rud converge and pour their waters into Seistan, creating in time of flood the great lake filling the Hamun area. Owing to constant changes of the course of the Helmand, the delta is made up of three parts. The first comprises the southern portion of Seistan, which, having been deserted for centuries by the river, has become a desolate, uninhabited country. The second delta is entirely in Afghanistan and because of the deflection of the river has similarly become an uninhabited waterless desert. The third delta, including the region of Seistan and Chakansur, is watered by the Helmand and its three channels. Interspersed between these three deltas are gravel-covered plains which probably have never been irrigated.

The southern portion of Seistan is a waterless tract, destitute of all vegetation. In the west, mountains stretch from Saindak in the south to Bandan in the north. To the north the plain ends abruptly in a line of cliffs, 30 to 150 feet high, which, beginning on the Helmand opposite Kuhak, fringe the south of inhabited Seistan to near Hauzdar.

The Kuh-i-Khwaja (2,037 feet) is an isolated table-topped hill of black volcanic rock. It forms the only natural feature of any importance in this area.

In the interior and more populous tract of the Rud-i-Seistan not a tree is to be seen; but along the banks of the Helmand tamarisk trees abound. Everywhere in these deltaic plains is a rich covering of low scrub and reeds, which give the country a green appearance. Approaching the Helmand at flood time, one sees nothing but a vast expanse of water to the west; at other times the reed beds (*naizar*) have grown so high and thick that little or no open water is visible from the shores of the mainland.

The climate of Seistan is one of great variety and sudden change. There are only two seasons, for spring and autumn hardly exist. May and the first half of June are hot and exhausting, the temperature rising to 116°. From the end of May or the middle of June, the famous *bad-i-sad-o-bist roz* ("the wind of 120 days") sets in, and blows continuously until the middle or end of September. Although causing discomfort from dust and noise, it saves Seistan by driving away the insects, mitigating the heat, and clearing the country of typhus, smallpox, and diseases prevalent in May and June.

During the winter this zone is subject to blizzards, which occur at intervals of three or four weeks and may continue from two to three days.

The rainfall is slight and in ordinary years averages two and one-half inches.

Seistan is probably the healthiest place in eastern Iran, a fact which can be ascribed to the high wind mentioned above. Endemic diseases are typhus, smallpox, enteric fever, and relapsing fever. Venereal disease, however, is extremely prevalent.

The principal towns of Seistan comprise: 'Aliabad, a well-built village of perhaps 250 houses with a good water supply and many gardens, having a population of about 1,500; Birjand, constructed on the northern slopes of a barren stony valley, with a population of about 10,000, whose members are mostly descended from Shahdillu Kurds but in the large bazaar include a number of Persians and Turks; Daulatabad, population about 2,000; Nasratabad, the capital of Seistan, containing about 12,000 inhabitants; Neh, situated on an elevated, barren, stony plain surrounded by hills; Qain, with a population of about 4,000, of whom a quarter are probably *Sayyids*, the remainder Persian agriculturists (*bazgars*).

According to the Arbitration Commission (1902-1905), the population of Seistan was 136,591, a number which has fluctuated because of constant migration between Iran and Afghan territory.

The inhabitants of Persian and Afghan Seistan are similar in that they form a medley of heterogeneous races and tribes: Persian, Arab, Turkish, Baluch, Brahui, Afghan, etc. A number of the most important tribes are discussed in the following paragraphs.

*Sinjarani Baluchis.*—This tribe came originally from Baluchistan about A.D. 1800. It is questionable whether the tribe was a branch of the Taukhi Baluch, but undoubtedly all the other Taukhi tribes in Seistan ostensibly owed allegiance to them.

*Nauri Baluchis.*—This group, who numbered 400 families, settled in the villages of Khwaja Ahmad and Jalalabad.

*Taukhi Baluchis.*—Within the sections of the Taukhi Baluchis all other Baluchis of Seistan belonged, the principal being the Saruni with 450 families, the Jamalzai with 300, and the Gurgieh with 400 families.

*Brahui.*—A tribe, whose two sections of the Muhammad Hassani branch, the Yaghizai and the Zerkari, with 800 families lived near Lutak.

*Sarbandi.*—This tribe, the principal Farsiwan (Shiah) tribe of Seistan, consisted of 3,000 families scattered all over the country.

*Shahreki Farsiwans.*—The group comprised about 1,000 families.

*Khimar Farsiwans.*—This tribe numbered about 250 families.

*Zarakzai Baluchis.*—This nomad tribe of about 300 families grazed their camels along the frontier between the Hamun and Duruh.

*Shebak.*—One branch (100 families) of this Shiah nomad tribe wandered between Neh and Safidava, and another lived in northern Qainat.

*Murrai.*—The Murrai was a small Baluchi tribe consisting of 100 families, who lived in the Palagan Kuh lowlands.

*Herati.*—The Herati, a Farsiwan nomad tribe of 100 families, claimed to have come originally from Herat.

*Mir Arabs.*—These people, who are Shiahs, consisted of about forty families.

*Sayyad.*—A race of fishermen and wild-fowlers, who lived on the edge of the Hamun, are called *Sayyad* (Ar.=hunter). They comprised about 700 families. Small in stature and dark in skin color, they were regarded as aboriginals, and spoke a peculiar dialect.

*Sayyids*.—These people claimed descent from the Prophet Mohammed through his grandson Hussain. The *Sayyids* numbered about 200 families in Seistan and were scattered through the chief villages, where the heads officiated as Mullahs.

In addition to the above there were two tribes, who had migrated from Baluchistan: the Makaki, who were Sunnis and included about 100 families; and the Kudbedani, with about 300 families.

In general the Baluchis, Brahuis, Afghans, Tajiks, and Arabs are Sunnis (probably some 30,000 in number), the remainder being Shiah.

#### YEZD

The province of Yezd occupies a central position in Iran both geographically and commercially. The province itself is but little inhabited and consists of a number of villages in the immediate neighborhood of the town of Yezd to the northeast, northwest, southeast, and southwest, comprising some 951 villages. The population in 1900 was estimated at 20,000 inhabitants and increased within three decades to 80,000, of whom the Parsis numbered as many as 7,000.

As water is not found at less than 200 feet below the surface, the climate is very dry. The winds come down from the north and east in spring and summer with great force, bringing such sandstorms that the place becomes as dark as night, while great desiccating heat waves burn up everything in their way. The plains are particularly barren, as little or no shade is obtained from trees; there are, however, large gardens in the vicinity of Yezd. In the valleys of the mountains to the west of Yezd, and at Taft, a place about sixteen miles to the southwest, trees are numerous.

The temperatures range from several degrees of frost in winter to 90°–105° in summer. When the weather is cloudy at Yezd, there is generally snow or rain falling on the mountains. In the plains the actual rainfall is very little. The snowfall is insignificant, as it melts almost immediately, but remains all the year round in sheltered spots on the mountains, and thus supplies the city with snow for refrigeration during the hot season.

Yezd stands on an elevation 4,075 feet above sea level. Great plains extend to the north and south, but gardens for at least a mile from the city gradually dominate the sand. The population has been estimated at from 50,000 to 60,000, and among these the Parsis formed an important community. About 1,000 lived in the city.

There were also 1,000 Jews. Yezd is commercially the most important point on the caravan route of 1,000 miles between Bandar 'Abbas and Meshed. Roads radiate in every direction to other important cities.

#### KHURASAN

Khurasan, which was the largest province of Iran, covers an area of about 150,000 to 200,000 square miles. It is essentially mountainous, but fertile and relatively well-watered in the north.

The mountain system, a link between the Elburz and the Paropamisus, has always formed a considerable obstacle to the marauding hordes of nomads from Soviet Turkestan. Several parallel ridges flank the wide valleys of Bujnurd, Quchan, and Meshed. The northern portion, consisting of two parallel ranges, forms the vertically scarped frontier range which runs in an almost unbroken line from Gifan in the west to Sarakhs in the east. The Kuh-i-Shah Jehan, reported to be the highest peak in Khurasan, exceeds 10,000 feet. There are remote valleys in the folds of the hills among which are hidden away tiny villages set in fertile patches of cultivation and surrounded by fruit trees and poplars.

There are three rivers: the Atrek, which forms the frontier from Chat-i-Atrek to Hassan Quli, being the most important; the Gorgan, which rises on the plateau of Ormutli and flows west into the Caspian; and the Hari Rud, which forms the frontier from Kafir Kala to Koshut Kala.

Into this province obtrude two large deserts, the Dasht-i-Kavir<sup>1</sup> and the Dasht-i-Lut. The former, which varies in width from 80 to 150 miles, commences near Qum and extends eastward some 400 miles to the boundary of Turshiz. The mean altitude of this desert above the sea level is only about 500 to 600 feet. The Dasht-i-Lut occupies a considerable tract in the southeast, and its area may be described as a parallelogram, the angles being marked by the towns Neh, Tabas, Yezd, and Kerman (see Gabriel, 1939).

The climate shows considerable variation from 10° F. in winter to 110° in the summer. The rainfall averages 7.82 inches, excluding an average annual snowfall of about 18 inches. The rainy months are March, April, November, and December.

A general health survey reveals that fevers are prevalent. Mosquitoes flourish up to a height of 4,000 feet, and malaria and sand-fly fever are widespread. A tropical disease known as *balik* or *salak* is

<sup>1</sup> For derivation of the word see Curzon, 1892a, vol. 2, pp. 246-247; cf Biddulph.



very common, and in appearance and characteristics is similar to the "Baghdad" or "Delhi" boil (cf. Schlimmer, pp. 81-92). Cholera occasionally visits Khurasan. Anthrax is very common in man and beast. Venereal diseases are rife.

A brief description of the important towns follows. Bujnurd, at an elevation of 3,300 feet, is located on a fertile plain covered with gardens, trees, and cultivated fields and surrounded by mountains. Its population has numbered about 10,000, most of whom were Shahdillu Kurds and spoke Kurdish. The majority are Shiah, although there are some Bahais. Chinaran, on the main road from Meshed to Quchan, had a population of about 3,000, mainly Zaafaranlu Kurds. Quchan, at an elevation of 4,280 feet, had a population of 15,000, comprised of Kurds, Turks, and Persians. Meshed, capital of Khurasan, is located at 3,197 feet, with an estimated population of 120,000. Thousands of Shiah pilgrims from Central Asia, Afghanistan, India, and Iran visit this holy shrine annually. In 1929 Sarakhs had a population of 4,000, composed of Turks, Baluchis, Kurds, Persians, and a few Turkoman refugees from the Union of Soviet Socialist Republics.

The population of Khurasan, approximately 3,000,000, is very mixed and Persians have been found principally in the northern districts (see also Ivanov, 1926).

Turkomans of the Guklan and Yamut tribes inhabited the frontier districts of the northeast.

In Quchan, Bujnurd, and Darreh Gaz the predominant tribes were Kurds. The northern frontier, especially the district of Kalat-i-Nadiri, was inhabited by Turks, who were scattered all over the northern part of the province. Their center may be said to have been the Jam Valley, where there were also many Timuris and Baluchis. These latter wandered far afield into Sarakhs and Russian territory. Tribes of Arab origin were formerly found in Turshiz, Qain, Firdaus, and Tabas.

*Guklan Turkomans.*—The Guklan Turkomans, who lived in the pasture lands of the Sumbar and Chandir valleys, were a nomadic tribe consisting of about 2,000 families. The two main sections of the Guklan Turkomans are discussed below and their habitats as of 1929 are given.

(1) The Karakul, with about 200 families, lived in the Jargalan Valley, fifteen miles from Aq Darra. In addition, forty families dwelt in the Bachha Darra and Ashk Mountains near the Soviet frontier; forty families in Amand; fifty families in Agri Kaba, near

the present Soviet frontier; and seventy families in Hissarcha and its district.

(2) The Nakhuli, with about 100 families, lived in the northern and eastern part of the Jargalan Valley. The Begi and Mullah Muhammad subtribes inhabited Gundadli, thirty-four miles east of Hissarcha.

*Yamut Turkomans.*—The banks of the Gurgan and Atrek rivers and as far north as Balkan and Krasnovodsk were occupied by the Yamut Turkomans. There were in all about 30,000 families, of which some 7,000 lived in Khurasan. In 1920 the main subsections were located as follows:

Subsections	Locality
Kujuk.....	Between Gunbad-i-Qabus and Ramian
Ikdir.....	Between Gunbad-i-Qabus and Katul
Qarachai.....	Near Gunbad-i-Qabus
Kanyakmaz.....	Between Gunbad-i-Qabus and Khajida
Jafar Bai.....	Between Gunbad-i-Qabus and Khajida (to Chikishlyar)
Charpa.....	From railway in Soviet territory to Gunbad-i-Qabus
Devenji.....	Near the Bujnurd frontier and Gunbad-i-Qabus

In 1929 subsections of the Yamut Turkomans were located as follows:

(1) The Dochi tribe with about 500 families in the area of Chinaran, Marava Tepe, and Chat. This subsection was divided into: the Kazkanli with 250 families, in the area of Chinaran and Chat near the Atrek River; the Kardaghli with 250 families in the area of Marava Tepe and on the eastern bank of the river Atrek; the Qurban Niaz tribe in Chinaran.

(2) The Qaravi tribe with about 400 families, between Marava Tepe and Kosha Tepe on the bank of the river Atrek.

(3) The Aq Turkomans with about seventy families in the area of Suqa.

(4) The "Chanqar" Turkomans with 400 families scattered throughout the mountains.

*Kurds.*—There were about 150,000 Kurds, descendants of those brought to Khurasan by Shah Abbas in order to check Turkoman inroads. The important tribal divisions were:

(1) Amarlu with 500 families, who lived northwest of Nishapur, in the Marush plain. They retained their own dialect and were Shiahs.

(2) The Shahdillu, who are of fine physique, lived in Quchan and Bujnurd, where they numbered some 75,000.

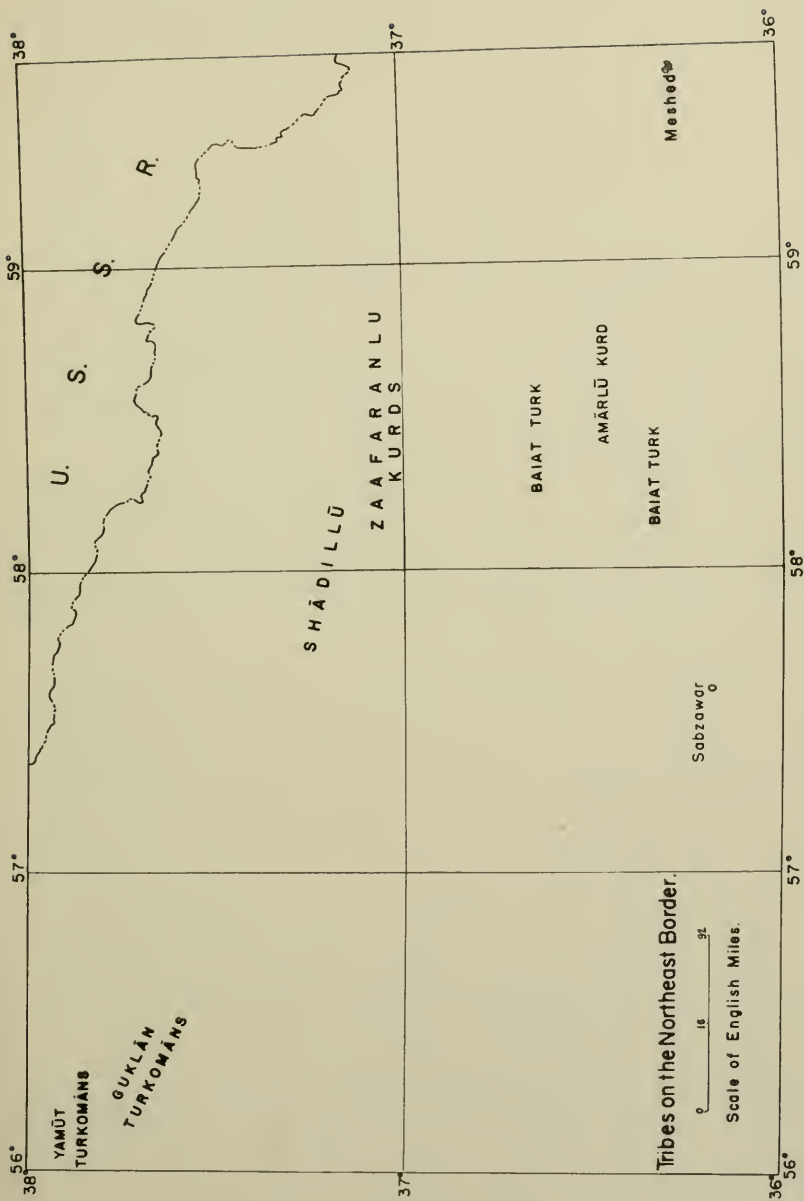


Fig. 13. Tribes of the northeast border. (E in Fig. 11.)

(3) The Zaafricanlu lived in Quchan and Shirvan. They numbered 50,000 and 12,000 respectively, and were a fine, robust, well-clothed and well-housed race. Of their total 49,000 were settled and 13,000 nomadic.

(4) The Kaiwanlu are a Kurdish tribe, expatriated by Shah Abbas together with the Zafaranlu (Quchan district) and Shahdillu (Bujnurd district) from Kurdistan about the year 1600. Scattered elements of this tribe were found in the Darreh Gaz, Quchan, Juvain, and other areas, but its headquarters may be said to have been in Radkan. Formerly nomadic like the other Kurdish tribes brought to Khurasan, the Kaiwanlu finally settled down to agriculture, and the 8,000 nomads formed but a small proportion of the whole.

*Chehar Aimak.*—This was a term applied especially to the Hazaras from Herat, and certain other tribes along the Iranian-Afghan border, among which were the Timuris (see also Stewart, p. 148, and Hackin, p. 361).

The Timuris, who are Sunnis, are similar in appearance but darker than the Arabs. The tribe consists of about 6,000 families, scattered over the Turbat-i-Shaikh Jam, Bakharz, and Rui Khaf districts. Many of the tribes are tent-dwellers, owning large flocks of goats and sheep, but the remainder cultivate the land. The Mishmast section are Shiah.

*Hazaras.*—The Hazaras were Shiah who emigrated from Hazarajat in Afghanistan. In 1891 they were conquered by the Amir Abdur Rahman, dispossessed of their lands, and enslaved. Many individuals migrated to Khurasan, while some wandered into Baluchistan. They were called Berberis by the Persians after the Band-i-Berber in Hazarajat. This name distinguished them from the Sunni Hazara tribesmen who lived partly in Herat and partly in Iranian Khurasan but did not originate from Hazarajat. The mountain Hazaras are spread over a large area of Khurasan as far as Bujnurd, Shirvan, Darreh Gaz, Sarakhs, and the valleys of the Jam and Kashaf Rud. There is a colony of them in the Merv oasis in the Turkoman Socialist Soviet Republic. Two main divisions of the tribe, the Dezangi and the Jaghur, were subdivided into many minor sections. The Hazaras are the descendants of the "1,000 families" left behind by Genghis Khan as a colony in the Oxus Valley. The chief occupation of the tribe has been agriculture, but there were also many smiths, saddlers, and carpenters.

*Turks.*—The Turks are scattered throughout Khurasan. In addition to the considerable numbers of Caucasian and Tabrizi

Turks engaged in trade and transportation on the main routes, the principal clans were Afshar, Chulai, and Qarai. Akin to them were the Qizilbash of the Jam Valley who lived mostly around Turbat-i-Shaikh Jam. These are believed to be the same tribes as the inhabitants of the Chandawal quarter of Kabul, whose kinsmen dwelt in Peshawar.

*Qarais*.—The Qarais resided in the Turshiz and Turbat-i-Haidari districts. They were almost entirely employed in cultivation. The tribe consisted of about 4,000 families.

*Baluchis*.—During various seasons of the year several nomad Baluchi tribes migrated from Sarakhs to Gaisur. The most important of these were:

(1) The Salar Khanis, consisting of some 500 families in the Rui Khaf area.

(2) The Ibrahim Khanis tribesmen, who encamped around Jangal, Bagh Bakhshi, and Gaisur during the winter months, and collected near Shahan-i-Bala and Aliak in summer.

(3) The Zardad Khanis tribe.

(4) The Jan Begis tribe, scattered widely during the winter months, but in the summer living near Sarakhs and Zuhrabad.

(5) The Murad Khanis tribe, comprising 100 families.

*Arabs*.—According to tradition the Arab tribes emigrated from Arabia about seven centuries ago and settled in the Qainat and Khaf districts. Approximately two-thirds are Sunnis, the remainder (800) being Shiahs, who were to be found around Khur, Chahak, and Muhammadabad. The Sunnis resided in the district known as Sunni Khana and also in the Khaf district near the town of Shahr-i-Nau.

Other tribes were the Mirs, Aghas, Ghulas in the Shusp area, and the Balovis in the Sarbisheh district. A few Tajiks, Zangenehs, and Maldars, who were nomads, lived in the Rui Khaf area.

The majority of the population of Iran are Shiahs, although the Kurds and Turkomans, who once formed about one-fifth of the population, and lived in the Bakharz and Bujnurd districts, are Sunnis. There were some 500 to 600 Bahais of both sexes, living in Khurasan.

The Jadid-ul-Islam ("new converts to Islam") are Jews who, to avoid persecution, outwardly adopted the faith of Islam. In actual practice, however, they observed strictly the tenets of the Jewish faith. Thus they kept Saturdays as holidays, and observed

the sixth of October as New Year's Day, burned lights in their homes on Friday nights, and kept the Passover. In public, however, they masqueraded as Mohammedans. As a prosperous community they composed about a quarter of the more important merchants.

The Zoroastrians are comparatively few in number. Meshed had a small group of Christian converts.

#### SAMNAN-DAMGHAN

This province, which comprised part of the great Dasht-i-Kavir, naturally possessed few towns. Ebtehaj (pp. 286, 288, 297) mentions: Samnan, elevation 4,373 feet, with a population of 23,388; Damghan (Tepe Hissar),<sup>1</sup> elevation 4,265 feet, with a population of about 10,000; Shahrud, elevation 4,832 feet, with a population of 14,000; Aghda [Aqda], elevation 4,252 feet; and Nain, which stands 4,022 feet above sea level and has a population of about 5,000.

This concludes the section dealing with the physical features of the country and the distribution of the population based on data obtained from numerous sources since 1920.

#### NEW INTERNAL DIVISIONS OF IRAN

During the latter part of the year 1938 the Shah made radical changes in the internal divisions of Iran. In order to bring this report up to date I requested Mr. M. Hassan Ganji<sup>2</sup> to send me any information on this subject. Mr. Ganji returned recently to Tehran from Manchester University, where he had been working under Professor H. F. Fleure in the Department of Geography. In his communication, dated November 5, 1938, Mr. Ganji sent a free translation of the actual law that led to the redivision of the administrative units of Iran. At the present time it is impossible to prepare a map showing these divisions since the provincial boundaries are not yet well defined and the present scheme itself is also undergoing certain modifications. A map of Iran, based on the new arrangements, will appear in the latter part of 1939.

With regard to the geographical names the tendency is to replace those of Arabic or Turkish origin with Persian nomenclature. Hundreds of minor names have thus been altered. Mr. Ganji sent the following list of important alterations.

<sup>1</sup> See summary of Krogman's Report, pp. 257-262.

<sup>2</sup> I am grateful to Mr. Ganji for allowing me to read his thesis for the Bachelor of Arts degree, entitled "Modern Economic Developments in Iran," April, 1938 (MS.).

## INTERNAL DIVISIONS OF IRAN

"In August, 1937, a law passed the Iranian Parliament providing for the redivision of the administrative divisions of Iran. The object of the law was to divide the country in such a way that the units may better respond to the physical, economic, and other geographical features of Iran.

"Article I of this law runs as follows: The Kingdom of Iran is according to the accompanying maps and plans divided into ten provinces (*ostans*), each including several townships (*shahrestans*), every township being subdivided into several divisions (*bakhshs*), every division in turn containing several counties (*dehestans*), and, finally, each of these having within it several villages (*dihs*) and hamlets (*ghasabahs*).

"Article II defines the limits of each province as follows:

"*Ostan* I, including the townships of Zanjan, Qazvin, Savah, Soltanabad [now Arak], Rasht and Shabsavar.

"*Ostan* II, including the townships of Qum, Kashan, Tehran, Semnan, Sari and Gorgan.

"*Ostan* III, including the townships of Tabriz and Ardabil.

"*Ostan* IV, including the townships of Khoy, Rezaiah, Mahabad, Maraghah and Bijar.

"*Ostan* V, including the townships of Elam, Shahabad, Kermanshahan, Sanandaj, Malayer and Hamadan.

"*Ostan* VI, including the townships of Khoram-Abad, Golpayagan, Ahvaz and Khoram-Shahr.

"*Ostan* VII, including the townships of Behbahan, Shiraz, Booshehr, Fasa, Abadah and Lar.

"*Ostan* VIII, including the townships of Kerman, Bam, Bandar-Abbas, Khash and Zabol.

"*Ostan* IX, including the townships of Birjand, Torbat-Haidari, Mashad [Meshed], Quchan, Bojnoord, Gonabad and Sabzawar.

"*Ostan* X, including the townships of Isfahan and Yazd.

"The word "*ostan*" in Persian means "department" or "division" and differs from "*setan*" or "*estan*" meaning "home" or "land" of a people (as, for instance, in Arabestan, Kurdestan, Afghanistan, Baluchestan, etc.). The word "*shahr*" means "town" or "city" and "*shahrestan*" is a unit that is ruled from a town.

“It should be remembered that these divisions roughly correspond with the French administrative divisions, i.e. *ostan*=province, *shahrestan*=département, *bakhsh*=canton, etc.

“*Ostans* are generally referred to in order of numbers, as, for instance, First *Ostan*, Second *Ostan*, etc.”

SOME ALTERATIONS<sup>1</sup> IN THE GEOGRAPHICAL NAMES OF IRAN

(From *Ganji*)

Old names	New names	Old names	New names
Tabas . . . . .	Golshan	Mianaj . . . . .	Mianah
Toon . . . . .	Ferdows	Ghazelozon . . . . .	Safid-Rood
Khabis . . . . .	Shahdad	Falahia . . . . .	Shadgan
Mohammarah . . . . .	Khoramshahr	Astarabad . . . . .	Gorgan
Barforoosh . . . . .	Babol	Dehnaw . . . . .	Noashahr
Aliabad . . . . .	Shahi	Gomosh-Tapah . . . . .	Gobishan
Ashraf . . . . .	Behshahr	Bandar-Jaz . . . . .	Bandar-Gaz
Soltanabad . . . . .	Arak	Gonbad-Ghaboos . . . . .	Gonbad-Kavoos
Ajichai . . . . .	Talkhah-Rood	Oroomiah . . . . .	Rezaiah
Sainghala . . . . .	Shahin-Dej (Fr. “j”)	Baloochestan . . . . .	Mocran
Sowejbolagh . . . . .	Mahabad	Khormoosa . . . . .	Bandar-Shapoor
Gharajadagh . . . . .	Arasbaran		

<sup>1</sup>For some previous changes see JRGS, vol. 80, p. 268, 1932.



## V. THE PHYSICAL ANTHROPOLOGY OF IRAN

In the previous chapters we have studied the geography and anthropogeography of Iran, the historical references to the physical characters of the inhabitants recorded during the past twenty centuries, and the recent distribution of the inhabitants. The next task is to examine the anthropometric data obtained in 1934 and by means of statistical and photographic analyses to define the racial elements in the modern population. In this chapter factual material will tend to replace speculation. Before dealing with my measurements and observations, we must, however, examine the skeletal material which has been obtained by excavation.

### SKELETAL MATERIAL FROM IRAN

Any effort to distinguish separate racial strains in modern population is seriously handicapped unless some evidence of their earliest ancestry is available. In general, there are lamentably few skeletal remains of the ancient dwellers on the Iranian Plateau. To those who have been able to present material, anthropologists concerned with this region are incalculably indebted. It is therefore with a very real gratitude that we present here the valuable work of Krogman, Schmidt, Lebzelter, Arne, Vallois, Wulsin, Newman, Lockard, and Gaul. Reference should be made also to those earlier finds discussed by Danilov and others which have been reviewed in Chapter III.

Reports on skeletal material, which has been found recently at Tepe Hissar, Shah Tepe, Luristan, Tureng Tepe, and Rayy are presented in the following section. Comparative notes on the Chanhu-Daro skull have also been included, because of the interesting speculation as to the relationship between the civilization of Iran and the Indus Valley in the third millennium B.C.

Dr. Wilton M. Krogman of the Department of Anthropology, University of Chicago, has prepared for publication a report on the skeletal material from the prehistoric site of Tepe Hissar near Damghan in northeastern Iran. These human remains were excavated by a joint expedition from the University of Pennsylvania and the Philadelphia Museum of Art under the direction of Dr. Erich F. Schmidt. Dr. Derwood W. Lockard, now of the Peabody Museum, Harvard, acted as physical anthropologist.

## SKELETAL MATERIAL FROM TEPE HISSAR

Through the kindness of Dr. Krogman I have been privileged to read his manuscript, which is scheduled to appear during 1940. The following brief extracts from his data and, more particularly, from his conclusions, are quoted here with his generous permission and the approval of Mr. Horace H. F. Jayne, director of the University Museum, Philadelphia.

The number of adult individuals, together with their chronological sequence, is as follows:

Level	Date	Crania	Mandibles
Hissar I.....	before 3000—ca. 2500 B.C.	4	4
Hissar II.....	ca. 2500—ca. 2000 B.C.	16	13
Hissar III.....	ca. 2000—ca. 1500 B.C.	138	93
Parthian, Sasanian, Islamic.....	A.D. 350	5	5
Uncertain.....	Uncertain	3	2

Hissar I stratum presents two dolichocephalic types: a small, gracile Mediterranean type and a large, rugged Proto-Nordic type.

Hissar II yielded seven male and seven female Mediterraneans and two male Proto-Nordics, a type which may well have filtered in to mix with the indigenous Mediterranean type.

Hissar III revealed additional types, which appear in the following table showing race and sex distribution.

Racial Group	Males	Females
Mediterranean.....	51	32
Proto-Nordic.....	39	1
Alpine.....	3	0
Asiatic (plus Alpine?).....	1	0
Negroid.....	11	0

In the above table Krogman uses the term Asiatic to denote the flat-faced brachycephals found east of Mongolia.

Another extremely important observation is that six crania have been classified as Pseudo-Australoid. While the cranial indices are similar to those of the Proto-Nordics, the face of the former is broader, the orbits are lower and the nasal aperture is wider. A definite Negroid type is present. In all probability these were slaves. The brachycephals, always in the extreme minority, were from this level or from the Islamic period. Krogman identifies Alpine, Armenoid, and Asiatic or Mongoloid types.

Since there exist widely divergent definitions of cranial and facial features of various types, it seems prudent to quote Krogman on some of these points. "If we summarize the general Proto-Mediterranean type it becomes dolichocranic, long-headed; orthocranic, vault of moderate height; lepten, narrow-faced; mesoconchic, orbit

of moderate height; and mesorrhine, nasal aperture of moderate breadth. In comparison, the Chanhu-Daro skull [p. 277 in this Report] is long-headed, broad-faced, and has a low orbit and a broad nasal aperture."

CRANIAL CHARACTERS

	North European (Nordic)	South European (Mediterranean)
Shape . . . . .	Sub-dolichocephalic to mesocephalic	Dolichocephalic
Contour . . . . .	Flat on sides; sagittal curve a high arch	Sagittal curve full; height medium
Forehead . . . . .	Medium in width; well arched	Narrow; smooth and rounded
Occiput . . . . .	Full, but not pronounced; medium breadth; muscular ridges heavy	Bulging (occiput <i>en chignon</i> ); medium to narrow breadth; muscular ridges slight
Capacity . . . . .	Large	Medium

FACIAL CHARACTERS

	North European (Nordic)	South European (Mediterranean)
Contour . . . . .	Narrow; long; "pointed" below	Medium in height and width; oval
Zygomatic . . . . .	Narrow; compressed	Narrow; evenly arched
Orbit . . . . .	Medium; straight; rounded	Large; straight; angular
Nose . . . . .	Leptorrhine to mesorrhine	Leptorrhine to mesorrhine
Supraorbital ridges . . . . .	Pronounced	Slight
Mandible . . . . .	Large; gonial angle everted or straight; chin prominent; ascending ramus moderate; notch medium in depth	Small; gonial angle straight; chin moderate; ascending ramus broad; notch shallow

Place and level	Type	No.	Length	Breadth	Cephalic index
Hissar I . . . . .	Male . . . . .	1	198.00	131.00	66.16
Hissar I . . . . .	Female . . . . .	1	175.00	131.00	74.85
Hissar II . . . . .	Mediterranean males . . . . .	7	189.14	130.57	69.26
Hissar II . . . . .	Mediterranean females . . . . .	7	178.29	132.14	74.10
Hissar II . . . . .	Proto-Nordic males . . . . .	2	187.50	137.00	73.14
Hissar III . . . . .	Mediterranean males . . . . .	51	186.25	133.12	71.65
Hissar III . . . . .	Mediterranean females . . . . .	32	180.33	131.58	72.97
Hissar III . . . . .	Proto-Nordic males . . . . .	39	191.67	135.95	70.85
Hissar III . . . . .	Proto-Nordic female . . . . .	1	175.00	139.00	79.43
Hissar III . . . . .	Pseudo-Australoid males . . . . .	6	192.00	135.83	70.80
Hissar III . . . . .	Mediterranean males and females and Proto-Nordic males . . . . .	124	186.38	133.60	71.75
Hissar III . . . . .	Negroid males . . . . .	11	188.64	131.45	69.66
Hissar III	Islamic . . . . .				
	Brachycephals				
	Alpine males . . . . .		177.40	136.20	76.77
	Armenoid female . . . . .		163.00	144.00	88.34
	"Mongoloid" male . . . . .		185.00	140.00	75.68
	"Mongoloid" female . . . . .		171.00	137.50	80.45
All adult crania grouped . . . . .		161	185.64	133.58	72.06

MEDITERRANEAN CRANIAL TYPE

Place and level	Sex	No.	Length	Breadth	Cephalic index
Hissar I . . . . .	Female . . . . .	1	175.00	131.00	74.85
Hissar II . . . . .	Male . . . . .	7	189.14	130.57	69.26
Hissar II . . . . .	Female . . . . .	7	178.29	132.14	74.10
Hissar III . . . . .	Male . . . . .	51	186.25	133.12	71.65
Hissar III . . . . .	Female . . . . .	32	180.33	131.58	72.97

## MEDITERRANEAN CRANIAL TYPE

Place and level	Sex	No.	Length	Breadth	Cephalic index
Mohenjo-Daro	Male	2	178.50	128.00	71.71
Mohenjo-Daro	Female	4	180.17	118.33	63.45
Nal	Male	1	188.50	132.00	70.02
Sialkot	Female	1	.....	.....	71.10
Bayana	Male(?)	1	.....	.....	71.30
Al 'Ubaid	Male	8	192.80	140.10	72.60
Kish "A"	Male	2	186.50	131.00	70.23
Kish "A"	Female	1	176.00	124.00	70.45
Ur	Male	3	193.67	135.00	69.80
Ur	Female	4	184.75	131.50	71.25
Anau	Female	1	185.00	141.00	76.20
Alishar (Chalcolithic)	Female	1	179.00	130.00	72.60
Alishar (Copper Age)	Male	7	182.10	135.00	73.40
Alishar (Copper Age)	Female	1	177.00	137.00	77.40
Hissarlik III	Male	2	192.00	136.75	71.20
Hanai Tepe "B"	Female	1	179.00	128.00	71.50
"Mediterranean Type" (Dixon)		..	190.00	135.00	71.10

## PROTO-NORDIC CRANIAL TYPE

Hissar I	Male	1	198.00	131.00	66.16
Hissar II	Male	2	187.50	137.00	73.14
Hissar III	Male	39	191.67	135.95	70.85
Hissar III	Female	1	175.00	139.00	79.43
Mohenjo-Daro	Male	3	197.00	130.00	66.02
Al 'Ubaid	Male	5	.....	.....	72.60
Kish "A"	Male	1	196.00	137.00	70.00
Alishar (Copper Age)	Male	1	192.00	136.00	70.90
Combe Capelle	Male	1	200.00	132.00	66.00
Obercassel	Male	1	194.00	144.00	74.23
"Caspian" (Dixon)		..	183.00	133.00	72.60

## AUSTRALOID TYPE

Hissar III (Pseudo-Australoid)	Male	6	192.00	135.83	70.80
Mohenjo-Daro	Male	3	197.00	130.00	66.02
Aditanallur "A"	Male	1	187.80	132.20	70.80
Aditanallur "A1"	Male	1	183.00	124.00	67.80
"Proto-Australoid" (Dixon)		..	190.00	132.00	69.50

## ALPINE TYPE

Hissar III	Male	3	177.00	133.67	75.32
Mohenjo-Daro	Male	1	172.00	131.00	76.16
Alishar (Early Bronze)	Male	2	180.50	142.50	79.10
Alishar (Hittite Empires)	Male	8	182.90	144.60	79.20
Alishar (Hittite Empires)	Female	3	174.30	141.00	80.70

According to Krogman "the population at Tepe Hissar was long-headed, of two contrasting types, the one large-skulled, rugged, massive, the other smaller-skulled, smooth, gracile. To these types have been given the names Proto-Nordic and Mediterranean, respectively. If numbers be any criterion the Mediterranean type was basic and earliest, the Proto-Nordic, the newcomer and latest. It must be remembered, however, that in the all-too-small sample of Hissar I apparently both types are present. There may have

been contemporaneity, but until Hissar III the Mediterranean type was by far in the majority.

"The use of the terms Proto-Nordic and Mediterranean is in large part a concession to the present-day distribution of the two major types of Caucasian (White) long-heads in Europe: the North Europeans, or Nordics, the South Europeans, or Mediterraneans. They represent today the present dichotomy emphasized by the contrasting cranial types we have recognized at Tepe Hissar.

"It is highly probable that the Proto-Nordics at Tepe Hissar represent a southerly movement of the Neolithic Steppe-type which, in a northwesterly movement, gave rise also to the North European or Nordic type. In time, however, the rugged long-heads of Tepe Hissar are much nearer the parent stock; they are, therefore, essentially *Proto-Nordics* in a temporal sense, as well as in their morphological relationship upon the basis of a common ancestry.

"The temporal relationship helps to explain, I think, the appearance of the Proto-Nordic type at contemporary sites under differing names. Since it is now generally held that the Steppe-type represents the culmination in the Neolithic of the evolutionary progress of certain Upper Paleolithic types, e.g. Combe Capelle, it is entirely possible and highly probable that early peoples stemming off from a common type partake in greater measure of characteristics found in ancestral-forms. It is in this sense that 'Proto-Nordic,' 'Caspian,' 'Eurafrican' and similar terms are equated. In the final analysis, a term, be it purely geographic or descriptive of apparent morphologic makeup, is little else than a convenient peg for an ethnic hat. The term Proto-Nordic merely aids in conforming to modern style!

"It must be further stated of the Proto-Nordic type that the appearance at Hissar III conforms in time to the general ethnic upheaval which culminated in an 'Aryan,' 'Indo-European,' 'Indo-Aryan' movement. It must be insisted once more that such terms are referable to cultural movements, not to physical types. The big, long-headed peoples of Tepe Hissar are identical in type with the initiators of the cultural wave: they are Proto-Nordics in the sense referred to.

"The Mediterraneans at Tepe Hissar represent the mideasterly component of a slender long-headed type found in Neolithic times from England on the west to Indonesia on the east. They, too, represent an evolved type that in the Upper Paleolithic almost certainly gained a contribution from a (Proto-) Negroid-Grimaldi(?) stock. With this substratum as a heritage it is not surprising that

emergent forms present evidence of mixture to a greater or lesser degree.

"At Tepe Hissar the Mediterranean type emerges as one relatively free from a background containing possible Negroid elements. It is essentially a Caucasian (White) long-headed population conforming in all major characteristics to the peoples of the Mediterranean Basin. The sporadic occurrence of mixed Mediterranean-Negroid individuals does not warrant their identification as 'Hamites' (a culturo-linguistic term), or warrant the assumption of 'Dravidic' or 'Australic' components.

"The other types that occurred at prehistoric Tepe Hissar—Negroids and Alpines—played no real part in the physical make-up of the population. The Negroids can best be explained on the basis of the random contact with caravans and their slaves. The Alpines likewise are probably intruders, either from Central Asia (true Mongols) or from the Caucasus. Asiatics (Mongoloids) occur only in one problematic instance."

#### SKELETAL MATERIAL IN NATURAL HISTORY MUSEUM, VIENNA

Viktor Lebzelter described eleven skulls (nine from Hamadan; two from Basra, Iraq) which are in the Natural History Museum, Vienna. The detailed descriptions and full quota of measurements can be examined by referring to this article. I shall summarize briefly his conclusions and quote some of the measurements for comparison with other series in this report. The numbers refer to the individual catalogue cards. Nos. 1950 and 1951 were Persians from Basra.

#### SKULLS IN NATURAL HISTORY MUSEUM, VIENNA

No.	Capacity	G.O.L.	G.B.	M.F.D.	Biz.B.	Big.B.	N.H.	N.B.	C.I.	N.I.
3513	1250	189	140	104	135	95	51	28	74.07	54.90
3516	....	190	136	95	...	..	..	..	71.58	.....
3517	....	175	124	89	...	..	..	..	70.86	.....
1950	1460	182	136	93	129	92	60	25	74.33	41.67
3509	1140	164	127	94	120	91	50	28	77.44	56.00
3514	1260	181	136	97	(120)	89	46	(24)	75.14	52.17
1951	1300	169	141	97	130	95	50	25	83.41	50.00
3510	1310	162	137	94	116	85	50	28	84.57	56.00
3511	1160	159	135	95	123	90	46	26	84.91	56.52
3512	1330	166	136	92	122	88	50	22	81.93	44.00
3515	....	169	136	92	...	..	..	..	80.47	.....

Lebzelter observes the following types: (1) Eurafrican, possibly Nordic; (2) a brachycephalic, high-vaulted type, with a broad nose; (3) a dolichocephalic type, with a primitive face and a broad nose, forehead and occiput of Eurafrican appearance with many morphological characters of australiform type.

## SKELETAL MATERIAL FROM SHAH TEPE, NEAR ASTERABAD

From T. J. Arne we have the following information:<sup>1</sup>

The region of Asterabad was visited in 1890 by de Morgan and later in the same year by Sven Hedin (pp. 51 et seq). Colonel Yate passed through this region in 1894. T. J. Arne, who excavated Shah Tepe in 1933, states (pp. 41-42) that the people who lived on the steppe during the Copper Age belonged to a relatively homogeneous race, dolichocephalic or mesocephalic, which seems proved by Fürst's measurements on the following skulls:

Level	Period	Males	Females	Children
I.....	A.D. 700-900.....	10	6	3
II.....	ca. 2000 B.C.....	4	0	1
III.....	3000-2000 B.C.....	3	2	0

Other fragmentary human remains were also brought back to the Anatomiska Institution at Lund in southern Sweden. Dr. G. V. Backman contributed some of this information based on Fürst's paper which will appear during 1939 in the series edited by Sven Hedin entitled "Report from the Scientific Expedition to the North-west Provinces of China under the leadership of Sven Hedin" (Series VII, Archaeology and Anthropology).

The general results of Arne's expedition were published in 1935.

During the 2,500 years which lay between the prehistoric occupation and the inhabitation by Moslems, in all probability the steppe was occupied by a people who were more or less nomadic and dwelt in tents as do most of the modern peoples of this region.

The Turkoman steppe was one of the densest centers of population during the Copper Age. Arne (p. 42) adds that "it is tempting to represent the population of this period as Indo-European." Nevertheless, we do not know with certainty if the people who spoke the Indo-European language, or who at the time of their invasion of Iran introduced this language, were really dolichocephalic, or mesocephalic as were the prehistoric inhabitants of Shah Tepe. We know neither the physical type, the language, nor the culture of the invaders who struggled against those northern Iranian peoples who have left as indications of their occupancy a certain gray-black ware. It is possible that in these nomadic despoilers we ought to see the most ancient Indo-Europeans of the Iranian region or we have to postulate two successive waves of Indo-European peoples (cf. Kapfers, 1934b).

<sup>1</sup> These data from Arne and Hedin were obtained in Stockholm during July, 1938.

Frankfort<sup>1</sup> (pp. 31–33) suggests Anatolia and the Trans-Caucasus as a dispersal center for the gray-black ware. At the same time, he finds there a short-headed, Armenoid population. Nevertheless, the inhabitants of the steppe during the third millennium before the Christian era could not have had a close relationship with the Armenoid group; besides, the knowledge of contemporaneous reciprocal conditions in Iran and Asia Minor is still so vague that one may not say definitely that the culture of Anatolia and the Caucasus is the older.

#### SKULLS FROM LURISTAN

In consideration of the dearth of craniological material for the early inhabitants of Iran, I have translated the following full extracts from a recent paper by H. V. Vallois (pp. 119–134) on two skulls excavated by M. Ghirsman:

(1) In a simple earth burial, tomb No. 4 at Tepe Jamshidi, northern Luristan, a skeleton was found associated with painted pottery attributed to the first half of the second millennium B.C. Sex male(?), age 20–30, skull mesocephalic, orthocephalic, and metriocephalic, capacity 1385 cc.

In *norma verticalis* the skull is ovoid with a narrow forehead and little developed occiput; the parietal bosses are relatively well marked and the zygomatic arches slightly visible. The sutures on the vault are very complicated.

In *norma lateralis* the forehead appears well curved, at first vertical, then inclining moderately to the vertex; the region posterior to the vertex descends very abruptly to the upper part of the occipital bone.

In *norma occipitalis*, the skull has the classical *en maison* form without the trace of a keel. . . .

The face is very shallow, broad, hypereuryprosopic, and orthognathous. . . . The nasal aperture is platyrrhine but not in the least Negroid. . . . The orbits are mesoseme and the interorbital breadth is narrow. The palate is brachystaphaline. . . . The chin is prominent. . . . The teeth are in good condition with the exception of a small area of caries on each of the third lower molars.

(2) Tomb No. 2 at Tepe Bad-Hora, located in the Assad-Abad [Asadabad] plain at the foot of Kuh-i-Alwand, yielded a skeleton holding an infant in its arms. This burial was associated with

<sup>1</sup>Since this important contribution is available to every student I have refrained from quoting passages.



painted pottery of a type common in the latter half of the second millennium B.C. Sex almost certainly female, age 20-30, skull mesocephalic with a tendency toward brachycephaly, head height low, chamaecephalic and tapeinocephalic, capacity 1236 cc.

In *norma verticalis* the shape of the skull is ovoid but more rounded than in skull No. 1 and the forehead is much larger; the occiput is entirely rounded and the zygomatic arches are invisible. In *norma lateralis* the forehead is oblique and the vault very elongated; the posterior part is little developed. . . . In *norma occipitalis* the form is globular, a little as in children. . . . The fronto-parietal index is eurymetopic.

The face, which is higher and less broad than in skull No. 1, is leptoprosopic, the total facial index hyperleptoprosopic. The face is definitely orthognathous. The nasal aperture, relatively narrow, is mesorrhine and in general suggests the classical Semitic type. The orbits are square, mesoconch, with a marked obliquity below and outside. The interorbital space is very narrow. The palate is broad and short, markedly brachystaphaline. . . . The chin is very prominent. . . . The upper dental index is mesodont, the lower megadont. . . . Caries was present only in one lower canine and two upper molars, the latter being almost totally decayed.

In describing the general racial and cultural relations between ancient Iran and Mesopotamia, Vallois quotes the results obtained on skeletal material from Kish<sup>1</sup> and Ur of the Chaldees.<sup>2</sup> It is not without interest to establish that these same Mediterraneans, who furnish the essential element of the population of the Mesopotamian empires, appear to be also, at the same periods, the principal constituents of the countries situated to the east and to the north of Persia. At Nal in the south of Baluchistan, S. Sewell has recently found a skull, attributed to the first Copper Age, whose conformation is identical with that of the Sumerians of Ur.<sup>3</sup>

There are also the recent discoveries in the Indus Valley at Mohenjo-Daro, where in deposits contemporaneous with Ur [and Kish] . . . some poorly preserved human remains were found.<sup>4</sup> In

<sup>1</sup> Cf. Buxton and Rice, 1931; also L. H. D. Buxton *in* Langdon, 1924, pp. 115 et seq.

<sup>2</sup> Sir Arthur Keith in "Al 'Ubaid, The Cemetery" (Ur Excavations, vol. 1, pt. 2, Oxford, 1927), pp. 214 et seq.

<sup>3</sup> S. Sewell and B. Guha, "Report on the Bones excavated at Nal" (Mem. Arch. Survey India, 1929), p. 35; App. 5, p. 56.

<sup>4</sup> This information is important because Iran lies midway between Mesopotamia (Iraq) and the Indus Valley and, as the excavations proceed, evidence of early cultural contacts is being revealed.

studying the eleven skulls Sewell and Guha,<sup>1</sup> and later Friederichs and Müller,<sup>2</sup> recognized several types: the first is Mongoloid; the second is Australoid according to Sewell and Guha while some anthropologists describe it as Veddoid; and the third corresponds to the Mediterraneans of Sergi (Hamites of Friederichs and Müller) and also marks the extension of the Sumerian type into the Indus Valley. Let us add that the Armenoids are not represented at Mohenjo-Daro, but Friederichs and Müller found two of them in the neighboring and more recent site of Harappa.

In conclusion, at Anau near Ashkhabad in Soviet Turkestan, six skulls were excavated a long time ago from a neo-Eneolithic tumulus of undetermined date (3000-4000 B.C.?). G. Sergi,<sup>3</sup> who studied them, has described them as dolichocephalic or slightly mesocephalic, and stated that they belonged to a Mediterranean group, which even at this remote period was widely scattered.

Returning to his series Vallois describes skull No. 1 as possessing a general conformation which recalls clearly the Mediterranean race . . . but the facial part differs in being Armenoid and there is also a slight flattening of the occiput.

Skull No. 2 also shows the characters of both Mediterranean and Armenoid influence, with a slight predominance of the latter.

Neither of these skulls shows any Eurafican affinities. Vallois arrives at the conclusion that during the second millennium before the Christian era Luristan presented exactly the same anthropological elements that occur in neighboring regions of western Asia. There, as here, existed first Mediterraneans,<sup>4</sup> whose diffusion was considerable since they are found on this side of Persia, in Mesopotamia, as well as beyond in Turkestan, Baluchistan, or India. It is certain that this stock has played a basic role in the development of the great civilizations of the East. In addition, there exists beside it the Armenoid element, derived probably from the highlands

<sup>1</sup> "Human Remains," from Sir John Marshall, "Mohenjo-Daro," London, 1931.

<sup>2</sup> "Die Rassenelemente im Indus-Tal während des 4. und 3. vorchristlichen Jahrtausends und ihre Verbreitung," in "Anthropos," vol. 28, 1933, p. 383.

<sup>3</sup> "Description of Some Skulls from the North Kurgan, Anau in Russia" (Pumpelly, Exploration in Turkestan with an Account of the Basin of Eastern Persia and Sistan, Expedition of 1903, Washington, 1905). See also "Atti Soc. romana di Antr.," 1907, vol. 13, pp. 305-321.

<sup>4</sup> I suggest that the earliest inhabitants of Mesopotamia were Proto-Mediterraneans, driven from the high desert on the west on account of the change of climate. See Field 1932a, b, d; 1933 and 1934.

of Armenia and Anatolia, but this has had much more influence in Luristan than in Mesopotamia.

It is curious that these two great racial stocks exist in these areas in modern times. Buxton and Rice observed in the modern population of Babylonia the presence, side by side, of Mediterraneans and Armenoids, the former being in the majority. In Persia, the researches of Duhouset (1863), Houssay (1887), and others, in particular those of Mr. and Mrs. Harald Krischner (1932.C), prove the existence of two fundamental types: one dolichocephalic (C.I. 73-75), particularly frequent in the southeast, which corresponds to the ancient Persians and belongs without doubt to the Mediterranean race; the other mesocephalic, but tending toward brachycephaly (C.I. 78-79), corresponding to ancient Media, which was located essentially in the middle and northern part of the country and contains a notable Armenoid element.

The persistence across the centuries of the two racial types encountered at Kish, in spite of wars and invasions which have devastated all these regions and destroyed their successive civilizations, appears to be one of the most notable results of the first anthropological studies in the Near East.

To these conclusions, Vallois adds three comments: Firstly, all the human remains found in Mesopotamia as well as in Persia belong clearly to the White or European races. No skull shows the characteristic Mongoloid flattening and broadening of the face.<sup>1</sup> There is thus no basis for the opinions of some authors, particularly Ball and Lacouperie, that the Sumerians were a people with Mongoloid affinities, since the results of physical anthropology entirely oppose every conception of this kind:

In the second place, it is noticeable that there is a complete absence of the Negro or Negroid element; in particular no skull showed the least trace of prognathism. This statement is in direct opposition to the opinions of Hamy, Quatrefages, Houssay, etc., and more recently of Hall and Hüsing, who state that there once existed in Mesopotamia and in Persia Negroid populations forming a link between the Negroes of Africa and the peoples of India and Oceania. But the Negroid characters that had been believed to exist among the modern populations of Susiana and southern Baluchistan indicate

<sup>1</sup> In Iraq I found some Mongoloid features in certain individuals among the modern population. A discussion of these cases may be found in my Iraq report (cf. Field, 1935b).

the presence of an ancient Veddoid and non-Negroid element (von Eickstedt, pp. 311-312) . . . .

In conclusion, the two Luristan skulls have no Nordic affinities. Besides, because of its position between India and Europe, some authors considered Iran as the place of origin of the Indo-Europeans, and thus of the Nordic race if they can be identified as the bearers of the Aryan civilization.

Examination of modern Persians has already proved the absence or at any rate but slight development, of a Nordic element. The study of these two skulls confirms this absence, at least for this region and for the period to which they have been attributed. Without dwelling on the complex origin of the Nordics, it is apparent that the anthropological studies in Iran do not for one moment offer any argument in favor of the theory which makes it the cradle of the large blond dolichocephals of northern Europe.

#### ANTHROPOMETRIC STATISTICS

Measurement	No. 1	No. 2
Capacity (calculated) . . . . .	1385	1236
Horizontal arc . . . . .	505	483
Sagittal frontal arc . . . . .	125	120
Sagittal parietal arc . . . . .	123	129
Sagittal occipital arc . . . . .	119	107
Total sagittal arc . . . . .	367	356
Greatest occipital length . . . . .	178	169.5
Greatest breadth . . . . .	137	133
Basi-bregmatic height . . . . .	129.5	118.5
Basion-nasion height . . . . .	98.5	89
Minimum frontal diameter . . . . .	89	92
Maximum frontal diameter . . . . .	114	(112)*
Cephalic index . . . . .	76.9	78.4
Length-height index . . . . .	72.7	69.9
Breadth-height index . . . . .	94.5	89
Fronto-parietal index . . . . .	64.9	69.1
Frontal index . . . . .	78	(82.1)
Nasion-prosthion diameter . . . . .	55	66
Nasion-gnathion diameter . . . . .	(97)	112
Bizygomatic breadth . . . . .	123	117
Basion-prosthion diameter . . . . .	96	84
Interorbital diameter (anterior) . . . . .	18	18
Nasal length . . . . .	41	48
Nasal breadth . . . . .	21.5	24
Orbital breadth . . . . .	38/30.5	31.5/38
Palatal breadth . . . . .	42/38	40/40
Upper molar length . . . . .	38	39
Upper facial index . . . . .	44.7	56.4
Total facial index . . . . .	(78.8)	95.7
Nasal index . . . . .	59.7	50
Orbital index . . . . .	80.2	82.8
Palatal index . . . . .	90.4	100
Prognathic index . . . . .	97.4	94.3
Upper dental index . . . . .	38.5	43.8
Total angle of profile . . . . .	94°	90°
Mandibular length . . . . .	98	(96)

Measurement	No. 1	No. 2
Bicondylar breadth.....	....	108
Bigonial breadth.....	92	82
Lower molar length.....	44.5	42
Length-breadth bigonial index.....	93.8	(85.4)*
Ascending ramus index.....	43.8	58.7
Dental index.....	45.1	47.1

\* Measurements in parentheses could not be accurately determined.

At the time when the preceding report was already in press Vallois was given an opportunity to examine three additional calvaria with some fragmentary mandibles, excavated recently at Tepe Giyan, in the Nehavend Valley of northern Luristan. The fragmentary calvaria have been assigned the letters A, B, and C.

A. From a tomb of level III, containing the same pottery as skull No. 1, with which it was presumed to be contemporaneous; this is the most complete, belonging to a relatively vigorous male, about forty years of age. In *norma verticalis* the skull is ellipsoid. The supraorbital crests and the glabella are well-marked, while the forehead is oblique. G.O.L. 190; G.B. 132 or slightly more; C.I. 69.4 or probably 70-72; Frontal index 77.4.

B. From level I, attributed to the end of the second millennium; the skull, the occipital portion, belongs to an individual of from 20 to 30 years of age, and is dolichocephalic or mesocephalic(?). It is associated with a small, incomplete mandible of female type with all the teeth erupted and little worn and no trace of caries. The chin is well formed.

C. From level I, attributed to the end of the second millennium; this skull belongs to an adult, from 30 to 40 years of age, and is analogous in form to A. It is ellipsoidal in form and undoubtedly dolichocephalic, although the cephalic index cannot be calculated. Since the lower part of the frontal bone is missing, no observations can be made on the supraorbital crests. Associated with the calvarium there is a large mandible in poor condition with extremely worn teeth, as far as the neck in certain cases, but without a trace of caries; the third right molar had been lost for a long time. The chin is also well marked. A palatine vault, where almost all the teeth have disappeared, with traces of necrosis and of an abscess in the alveolar border, accompanied it . . . .

The most interesting fact is that these three skulls show that the influence of the dolichocephalic type in Luristan appears to have been stronger during the period considered here than in Nos. 1 and 2. Naturally there has always existed the Mediterranean element and

in A one can be certain that this is an example of the first Kish variety, the Eurafrikan type of Sergi.

Vallois writes<sup>1</sup> that the laboratory of Anthropology of the Faculty of Medicine at Toulouse possesses the following skulls from Iran:

SKULLS FROM NECROPOLIS OF SIALK NEAR KASHAN

Period	Millennium	Number
Copper.....	5 .....	6
Bronze.....	4 .....	10
Bronze.....	3 .....	3
Iron.....	2 .....	2
Iron.....	1 .....	18
Total .....		39

SKULLS FROM NECROPOLIS OF SUSA

Period	Number	
2400-2300 B.C. (III).....	1	
2300-2200 B.C.....	4	
2000-1900 B.C.....	3	
(Elamite) 1500-1400 B.C.....	2	
Sasanid A.D.....	4	
A.D. 400-500.....	1	
Total.....		15

The five skulls described in the preceding pages are now in the Institut de Paléontologie Humaine, Paris.

Vallois adds that he has access also to other series from Assyria, and from Eneolithic and Phoenician periods in Syria.

SKULLS FROM TURENG TEPE NEAR ASTERABAD

Dr. Frederick R. Wulsin excavated eight skulls while conducting archaeological work at Tureng Tepe in behalf of the William Rockhill Nelson Trust of Kansas City. They came into the possession of the University Museum of Philadelphia and were presented by the Director, Mr. Horace H. F. Jayne, to the Peabody Museum of Harvard University. Through the kindness of Professor E. A. Hooton I am permitted here to quote the anthropometric measurements and observations recorded by Mr. M. T. Newman. The numbers refer to the catalogue in the Peabody Museum, but the burial records are filed in the University Museum, Philadelphia.

Dr. Wulsin writes<sup>2</sup> as follows: "These skulls came from a habitation site, which was attributed to the Copper or the Bronze Age. It contained three burial levels: one practically at the surface, suggesting that the mound had eroded down a little since the burials were made, and two several meters lower down. These eight skulls were from

<sup>1</sup> Letter received by the author on September 19, 1938.

<sup>2</sup> In a letter dated July 7, 1938.

CRANIAL MEASUREMENTS AND INDICES

Measurements	N/648	N/649	N/651	N/652	N/654	N/655	N/656	N/658
Glabello-occipital length.....	179	175	176	166	163	175	179	170
Greatest breadth.....	140	149	145	144	145	144	(150)	139
Basic-bregmatic height.....	138	131	137	139	124	.....	135	135
Left parietal thickness.....	7	6	6	5	6	5	6.3*	6
Minimum frontal diameter.....	99	101	96	89	97	93	100	98
Auricular height.....	120	117†	118	116	112	119	.....	121
Frontal height.....	111	110	115	115	108	104	119	103
Frontal angle.....	51	50	49	49	49	53	.....	56
Total facial angle.....	90	84	82	84	.....	.....	.....	83
Mid-facial angle.....	101	89	92	88	.....	.....	.....	92
Alveolar angle.....	62	68	56	(71)	.....	.....	.....	61
Bizygomatic breadth.....	134	136	134	(131)	134	.....	(143)	129
Nasion-menton height.....	127‡	123¶	133**	104††	.....	.....	134††	.....
Nasion-prosthion height.....	78	77	77	64	.....	.....	84	75
Basion-nasion height.....	105	102	104	96	95	.....	103	98
Basion-prosthion length.....	96	103	105	95	.....	.....	107	96
Nasal height.....	54.5	54	55.6	54	.....	.....	59	52
Nasal breadth.....	24.2	23.2	25.2	28.5	.....	.....	29	26.5
Left orbital height.....	34.3	34	33.2	.....	.....	(34.2)	35.5	33
Left orbital breadth.....	40	42	39	.....	.....	(42)	43	42
Right orbital height.....	35	34.4	33	34	34	.....	36.2	33
Right orbital breadth.....	40	42.4	39.3	38	40	.....	43	43
Nasalla-upper breadth.....	13	14.4	12	11	14	.....	13.3	13

\* Right parietal in this instance.  
 † 1 mm. added to compensate for break in vault.  
 ‡ 4 mm. for tooth wear.  
 ¶ 2 mm. added for tooth wear.  
 \*\* 3 mm. added for tooth wear.  
 †† 2 mm. added for tooth wear.  
 ††† 2 mm. added for tooth wear.

CRANIAL MEASUREMENTS AND INDICES—Concluded

Measurements	N/648	N/649	N/651	N/652	N/654	N/655	N/656	N/658
Nasalia-lower breadth	18	16.5	15	15	20	.....	20.4	16
Interorbital breadth	20.5	22	20	19.3	.....	.....	24	23
Biorbital breadth	96	104	96	.....	.....	.....	108	103
External palatal length	57	57	58	48	.....	.....	60	56
External palatal breadth	66	68	69	57	.....	.....	69	63
Condylo-symphysial length	(102)	103	110	88	97	90	107	112
Bicondylar breadth	129	113	118	115	128	120	137	118
Symphysial height	33	33.3	.....	27	(31)	34	38.1	36
Bigonial breadth	101	98	99	90	(97)	96	115	98
Ascending ramus minimum breadth	35	35	37.4	31	34.2	32	39	27
Mean angle mandible	(115)	126	113	106	115	106	116	133
Horizontal circumference	159	522	508	494	487	516	.....	491
Nasion-opisthion	163	(367)	359	356	338	363	370	356
Transverse arc	324	.....	322	320	310	321	.....	315
Indices								
Cephalic	78.3	85	82.5	86.7	89	82.3	84	81.8
Height-length	72	75	78.0	83.7	76	.....	75.5	79.5
Height-breadth	98.5	88	94.5	96.5	85.5	.....	90	97
Fronto-parietal	70.7	68	66	61.8	67	69.5	66.6	70.5
Auricular height-length	67	67	67	69.9	68.8	68	.....	71.3
Cranial module	152	152	153	150	144	.....	155	148
Facial	94.8	90.5	99.3	79.4	.....	.....	93.8	.....
Upper facial	58	56.6	57.5	48.8	.....	.....	58.7	58
Cranio-facial	95.7	91	92.5	91	92.5	.....	95.5	92.8
Nasal	44.2	43.4	45.2	52.8	.....	.....	49	51
Left orbital	86.5	81	85.7	.....	.....	82	82.5	78.5
Nasalia-transverse	.....	80	72.8	96	.....	.....	65	81.3
Interorbital	21.3	21	20.8	.....	.....	.....	22	22.1
External palatal	115.8	119	118	118	.....	.....	115	112.5
Mandibular	79	91	93	61	75.7	75	78	95
Zygo-gonial	75.4	72	74	69.5	72.5	.....	80.5	76
Fronto-gonial	102	97	103	100	100	103	115	100
Zygo-frontal	73.9	74	71.6	68	72.5	.....	70	76



the surface level. Stratigraphically they may be of any age; the matrix in which they lay was old, but a modern burial would go into the same matrix. I think they are several centuries old, because the bones were too close to the grass roots for a contemporary burial; the mound has eroded down at least fifty cm. and probably seventy-five cm. since those graves were dug. On the other hand, I feel sure that they are neither of the Copper nor of the Bronze Age, because all the burials of that period were contracted, with many offerings, whereas these were extended. Offerings occurred in the top level, but were rare, and differed in kind from those found below: they looked like parts of costumes, instead of being pots. It appears to me that the burials were made some time between 1000 B.C. and A.D. 1200; I am inclined to think they are of various ages within some such interval. Some of the burials, notably No. 649, a strapping warrior, contained iron weapons, and one yielded iron coffin nails."

SKELETAL MATERIAL FROM RAYY, 1936

Through the kindness of Mr. Horace H. F. Jayne, Director of the University Museum in Philadelphia, and Dr. Erich Schmidt, leader of the Rayy Expedition, the following notes are published here for the first time. Mr. James H. Gaul, now working at the Peabody Museum, Harvard University, made these notes in 1936 while a member of the Rayy Expedition. The following skulls were measured in a Drum House (*nakhareh khāna*), a twelfth century Seljuk tower base in the neighborhood of Rayy [ancient Rhages]. This ancient site covers many square miles near Shah Abdul Azim, a few miles south of Tehran.

The following measurements were recorded on middle adult male crania, except for No. X-4, which was female.

Measurements	No. X-5	No. X-4	No. X-1
Head length.....	165	161	176
Head breadth.....	143	139	147
Head height.....	134	133	136
Circumference.....	495	478	514
Minimum frontal diameter.....	93	95	99
Frontal height.....	105	101	116
Bizygomatic breadth.....	130	120	123
Nasion-menton height.....	111	116	117
Nasion-prosthion height.....	68	72	67
Basion-prosthion height.....	97	92	100
Basion-nasion length.....	94	99	106
Nasal height.....	48	50	51
Nasal breadth.....	26	22	22
Deformation.....	Slight left parietal bulge	Slight left parietal bulge	None
Bicondylar width.....	120	104	...

Measurements	No. X-5	No. X-4	No. X-1
Symphysial height.....	32	30	33
Bigonial diameter.....	98	86	94
Minimum breadth ascending ramus.....	32	32	29
Indices			
Cephalic breadth.....	86.66	86.14	83.52
Height-length.....	81.21	83.23	77.27
Height-breadth.....	93.70	95.68	92.51
Facial.....	85.38	96.66	95.12
Upper facial.....	52.30	60.00	54.47
Cranio-facial.....	91.25	86.33	83.67
Nasal.....	54.16	44.00	43.13
Fronto-parietal.....	70.80	68.34	67.34

## GROUPS ACCORDING TO CEPHALIC INDEX

	No.	Sex	Head	Nose	Face	Head height
Dolichocephals.....	1....	M	long	medium	long	low
	4....	M	long	medium	wide	high
	6....	M	long	wide	wide	low
Mesocephals.....	3....	M	medium	.....	.....	.....
	10....	F	medium	.....	.....	.....
	15....	M	medium	long	long	high
	2....	F	wide	medium	medium	medium
	5....	M	wide	medium	medium	.....
	7....	M	wide	.....	.....	high
Brachycephals.....	8....	F	wide	platyrrhine	.....	medium
	9....	M	wide	.....	.....	.....
	12....	F	wide	long	long	high
	13....	M	wide	long	.....	high
	14....	M	wide	.....	.....	medium
	16....	M	wide	leptorrhine	medium	medium

(1) A normal skull, with good teeth.

(2) Left parietal is broken; teeth are good.

(3) No observations made on this normal calvarium.

(4) At the junction of the lambdoid-sagittal suture occurs a Wormian bone.

(5) Basal part of skull is lacking, including the foramen magnum; thus the skull height is only approximate. The occiput is flattened, with the resultant high and wide appearance of the head. The right parietal bulges somewhat.

(6) The sagittal suture is sunken; no deformation observable.

(7) The left of the frontal bone and the left maxilla are lacking; the occiput is flattened.

(8) Half of the right parietal is missing; the nose is very short, the skull base is short, with the appearance of being squeezed together, the result of incomplete growth. The extreme bulge of the left parietal is obviously the result of disease, and in life this person

was probably an idiot. Dr. Macdowell of the American Hospital, Tehran, has suggested that possibly the disease *Ostia malasia* has affected this skull.

(9) On this calvarium there is a noticeable bulge to the left parietal bone, though the occiput has been flattened. This high skull fragment is so irregular that it too would seem to be abnormal.

(10) The left maxilla and left temporal bones are lacking. The occiput protrudes.

(11) On this calvaria, not included in the previous table, there occur Wormian bones along the lambdoid suture. The occiput protrudes.

(12) Half of the right parietal is missing. It is to be noted that, though this is an adult person, the frontal suture is not closed. Large nasal spine is observable. Wormian bones occur on the lambdoid suture.

(13) Right parietal is mostly lacking. The third molars in the upper jaw are not erupted, though they have erupted in the mandible. The first molar, lower left, is split, and probably in the living appeared as two units. The teeth are otherwise good. Wormian bones are present in the lambdoid suture.

(14) Sunken sagittal and lambdoid sutures are to be observed; occiput protrudes.

(15) This skull is in good condition. The third molars in the upper jaw have not erupted, but have erupted in the mandible. From the condition of the bones, the wear on the teeth, and general appearance, it is probable that this was a young adult. However, the sagittal suture is closed and obliterated. Teeth are in good condition.

This skeleton was found in a pit at RTH; date is Islamic II; and most of the skeleton was found in good condition.

The following measurements were obtained: maximum length of femur, 0.473; bicondylar length, 0.471; length of tibia, 0.391.

Applying the Pearson formula for height, Gaul found the reconstructed stature to be 171 cm. (5 feet 7 inches).

(16) Left half of the frontal is missing; slight bulge on the left parietal. On the lambdoid suture occurs a Wormian bone; teeth are in fair condition.

Upon arranging the indices, the cranial material seems largely heterogeneous. Numbers 8 and 9 may be discarded as being abnormal. The majority of skulls are brachycephalic: Nos. 2, 5, (7),<sup>1</sup>

<sup>1</sup> Measurements uncertain.

12, 13, 14, and 16. On the other hand Nos. 1, 4, and 6 are dolichocephalic and Nos. (3), 10, and 15 are mesocephalic.

The above crania belonged to Islamic I (seventh to tenth centuries A.D.) but Nos. 14 and 15 were attributed to Islamic II (tenth to twelfth centuries A.D.).

#### CRANIA IN UNITED STATES MUSEUMS

In addition to the skulls in American museums already described are two mentioned by Meigs (p. 30): "1. No. 731. Parsee, or Persian fire-worshipper, from the 'Tower of Silence,' Bombay, India: woman, aetat. 40. I. C. 75.

"2. No. 743, Parsee, or Persian fire-worshipper, from the 'Tower of Silence,' near Bombay: woman, aetat. 50. I. C. 89."

During 1934 I saw several skulls of relatively recent date at Rayy and at Persepolis. Reports on these and more recently found skeletal material will be published in due course.

Prior to attending the International Congress of Anthropological and Ethnological Sciences held in Copenhagen, in August, 1938, I wrote to the Directors of many museums and institutions to ascertain whether they possessed any human skeletal material. In order to save other physical anthropologists from similar efforts I append herewith a list of those European institutions which do *not* possess skeletal material from Iran.

Country	Place	Institute
Belgium	Brussels	Musées Royaux d'Art et d'Histoire
England	Cambridge	Museum of Ethnology and Archaeology
England	Oxford	University Museum
Finland	Helsinki	Kansallismuseo
Germany	Berlin	Gesellschaft für Anthropologie, Ethnologie und Urgeschichte
Germany	Berlin	Museum für Volkerkunde
Holland	Amsterdam	Anatomisch Instituut, Universiteit van Amsterdam
Holland	Leiden	Rijksmuseum van Natuurlijke Historie
Holland	Utrecht	Anatomisch Laboratorium, Rijks-Universiteit
Italy	Florence	Museo Nazionale di Antropologia e Etnologia
Italy	Rome	Instituto di Antropologia, Città Università
Norway	Oslo	Zoologisk Museum
Poland	Cracow	Institutum Anthropologicum Universitatis Jagellonicae
Poland	Lwow	Zaklad Antropologiczno-etnologiczny
Poland	Warsaw	Institut für Anthropologische Wissenschaften
Poland	Warsaw	Panstwowe Muzeum Zoologiczne
Switzerland	Zürich	Anthropological Institute, University of Zürich
U.S.S.R.	Moscow	Museum of Anthropology, State University

In addition to the Tepe Hissar report Krogman has described the skeletal material from Alishar Hüyük in Anatolia in vol. 30 of the *Oriental Institute of the University of Chicago*, 1938. As this report is readily accessible no extracts have been inserted here.

Since there existed cultural contacts between Iran and the Indus Valley at an early date (see Stein, 1938b, pp. 38-64; also Frankfort), it will not be out of place to summarize the description of an ancient skull from northwestern India.

#### SKULL FROM CHANHU-DARO, INDIA

Dr. Wilton M. Krogman and William H. Sassaman of the Laboratory of Anatomy and Physical Anthropology, Western Reserve University, Cleveland, Ohio, described a skull (No. 3324, K) found at Chanhu-Daro, Nawabshah District of Sind, India, attributable to the Harappa culture of ca. 3000-2600 B.C.

In 1935-36 the Joint Expedition of the American School of Indian and Iranian Studies and the Museum of Fine Arts of Boston, under the field directorship of Dr. Ernest Mackay,<sup>1</sup> undertook a systematic examination of Mound II at Chanhu-Daro, located twelve miles east of the present bed of the Indus River, and about eighty miles south-southeast of Mohenjo-Daro. Below is a description of a skull found in this mound:

The skull is long, low and broad at the forehead; the face is broad, low, flat and only slightly projecting; the nose and palate are broad; and the orbits are low. The long skull (G.O.L. 178.0, G.B. 126.5, C.I. 71.07) and the broad face (Biz.B. 124.0) are disharmonic features.

The conclusions are as follows: the Chanhu-Daro skull is that of a female aged 22-25; it was excavated from a large storage jar, there being no other parts of the skeleton present, associated with a conch shell and a small collection of metal objects; this represents a Proto-Mediterranean type in which ancestral Negroid traits have manifested themselves. The disharmonic face is here considered as an individual variation, not an admixture with an eastern Asiatic type. In only one character—the length-breadth ratio of the vault—does the Chanhu-Daro skull conform with the ideal Proto-Mediterranean<sup>2</sup> type.

We shall now pass to the methods and technique employed in recording my anthropometric data.

<sup>1</sup> Field director of Field Museum-Oxford University Joint Expedition to Kish, Iraq, 1923-26.

<sup>2</sup> See Krogman's definition on pp. 258-259 in this Report.

## ANTHROPOMETRIC METHODS AND TECHNIQUE

In the previous chapters I have described the land and the people of Iran, presented a compilation of historical references to its people, and made a survey of the more modern population by provinces.

The various waves of migration during historical times have undoubtedly affected the physical characteristics of the inhabitants. Anthropometric research both in the Nile Valley and in the Mesopotamian Valley, on the other hand, show that although numerous invaders have swept in by force of armed conquest the basic population seems to have changed little physically during the past six thousand years.

A detailed anthropometric study of Iran has never been undertaken, due to the difficulties of travel and the hostility of the armed tribesmen. These difficulties have been greatly modified by the disarmament of the tribes and the establishment of a powerful central authority in Tehran. Furthermore, few peoples enjoy being measured, observed, photographed, and having their hair and blood samples taken. Apart from the slight physical discomfort, there are ancient and deeply rooted superstitions regarding the power invested in the foreigner possessing a photograph, a cutting of hair, or a drop of blood. There are, in addition, certain political and religious factors which often cause misunderstanding as to the purpose of such anthropological investigation. Fear is inevitably aroused that the stranger is working in behalf of the local government to report on the general physique of a group for purposes of military conscription. Also, since the anthropologist is recording numerous physical features as well as scars and tattooed marks or designs, it is sometimes suspected that he may be searching for a criminal at the request of the authorities. Moreover, foreigners being Christian in faith, are unwelcome in many places, particularly in the neighborhood of a sacred Mohammedan shrine. Consequently, anthropologists are received with very little enthusiasm, despite a discreet scattering of small coins.

Before the scientist is allowed to encounter these difficulties, however, he must be armed with the sanctions of the government. Prior to leaving the United States I visited the Department of State in Washington in order to discuss certain phases of the Expedition with Mr. Wallace Murray, Chief of the Division of Near Eastern Affairs. Mr. Murray notified the American Minister to Iran, Mr. William H. Hornibrook, of the proposed arrival of the members of the Field Museum Expedition and requested him to facilitate our

research work in Iran. Mr. Hornibrook accordingly secured audiences with the President of the Council, the Minister of the Interior, and the Chief of Police.

In order to take photographs in Iran it was essential to obtain a permit from the Tehran Police. This document was ornamented with a passport photograph of its bearer, together with the authorization in Persian, duly stamped by the officer in charge. It was also necessary to secure special permits in order to make anthropometric studies. To these permits were added special concessions with the notation that the members of the Expedition be granted permission to collect zoological and botanical specimens for Field Museum. The authorizations were placed on one sheet of paper with my photograph attached, together with a list of the members of the Expedition. This document was then signed by the President of the Council, the Minister of the Interior, and the Chief of Police. A letter was sent by the Minister of the Interior to the Governor of each province which the Expedition planned to visit, and copies of these letters were given to me to be presented in person to the Governors.

The traveler is permitted to leave Tehran only by the issuance of a permit (*javaz*), as there are police posts at intervals along every road, where the papers are inspected and the time of arrival and departure is recorded in a ledger.

At the end of three weeks the permits were in order, and during our work in Iran we received the most cordial cooperation on every hand.

The Expedition consisted of Richard A. Martin, now Curator of Near Eastern Archaeology at Field Museum, who acted as photographer and took charge of zoological collecting, and myself. In addition, we were accompanied by Yusuf Lazar, who served most efficiently in numerous capacities. Since October, 1934, he has been my part-time collector in Iraq and through his efforts many additional zoological and botanical specimens have been received by the Museum.

The assistance of a recorder, while not essential, is most desirable. It is challenging accuracy to attempt to take more than two measurements before writing the figures on the anthropometric blank. The loss of time involved in recording may well result in additional restlessness on the part of the subject. Moreover, a recorder repeats each number after the observer so that the chance of error is minimized. Throughout Iran I was fortunate in having the following capable assistants to fulfill this office: Dr. George Miles at Rayy;

Mrs. Myron B. Smith at Yezd-i-Khast; a student from the Alliance Israélite at Isfahan; Mr. Donald McCown at Kinareh; and S. Y. Showket for the Lurs in Baghdad. The recording of the observations I always prefer to do myself, although in some circumstances dictation is necessary.

With each group of subjects it is essential to have a competent interpreter, who, whenever feasible, should also be the recorder. For this reason Mr. Showket was of invaluable help in Iraq since he had worked with me on previous expeditions and speaks English, Arabic, Turkish, Kurdish, and Chaldean fluently. In addition, two middle-aged and intelligent members of each group are always selected to lend confidence to the other subjects, to assist with the measurement of stature and sitting height, and to check both on the stated age of the individual and on the vital statistics. For example, the subject may reply to the question regarding the number of brothers living or dead, that he has three brothers living and none dead. At this point one of the assistants interrupts with a fierce query regarding his younger brother, who died five years before. The subject will almost invariably reply that he is dead and therefore of no further consequence.

Another native assistant is assigned to take hair samples. Each specimen of hair is placed in an envelope and sealed by the recorder, who marks the field number of the individual on the envelope, as well as on the anthropometric blank to show that a hair sample has been taken. If blood samples are being obtained two local men assist the medical officer with the delicate task of persuading each subject to the minor operation. It may be said, in short, that the services of local assistants are invaluable.

Anthropometry is the technique of expressing quantitatively the form of the human body. The number of measurements for purposes of racial classification are limited only by the scope of human ingenuity. In Europe, for example, I once saw a physical anthropologist who was engaged in taking 1,000 recordings on each of a small series of skulls! As a result of international agreement certain prescribed measurements are followed so that the statistical results can be compared. Practical experience has taught me that there is a definite limit to the number of measurements and observations to which the subjects will submit in the Near East. For this reason I discussed the selection of desirable anthropometric data with Dr. E. A. Hooton, Sir Arthur Keith, and Dr. L. H. Dudley Buxton, and



the appended list is the result of our combined choice in view of the limitations imposed by local circumstances.

The following instruments, obtained from P. Hermann and Rickenbach, in Zürich, were used.

(1) An anthropometer was employed for measuring the stature and sitting height. This instrument is a graduated metal rod, in sections, fixed to a metal base and provided with a sliding horizontal branch.

(2) The spreading calipers (*Tasterzirkel*), with two arms, pivoted as in a drawing compass, were held in position with a branch reposing on the palm of each hand. The forefinger guided the metal ends of the calipers to the desired point until they were satisfactorily adjusted for the reading.

(3) The sliding calipers or compass (*Gleitzirkel*) is a calibrated metal bar with a sliding arm.

(4) A steel tape with metric graduation was used.

The landmarks for determining the exact location of points upon which the extremities of the instruments should be placed were those of the International Agreement for the unification of anthropometric measurements made on living subjects, contained in the report of the commission appointed by the Fourteenth International Congress of Prehistoric Anthropology and Archaeology at Geneva (1912), to supplement the work commenced by the Thirteenth Congress at Monaco (1906). This report, translated by W. L. H. Duckworth, is quoted in A. Hrdlička's "Anthropometry" (pp. 25-31). In taking all measurements the closest possible contacts were made between the arms of the instruments and the surfaces or points designated, without exerting any pressure on the skin except in the one case of bigonial breadth.

The most significant measurable differences in the races of mankind are in stature, trunk length, and form of head, face, and nose. The following measurements were recorded:

(1) *Stature*.—The subject, with shoes removed, stood erect with heels together in the military attitude. The anthropometer was held in a strictly vertical position. The upper limbs were pendant, the palms of the hands turned inwards, with the fingers pointed downward, and the axis of vision horizontal. The height of the vertex above the ground was measured in this position. In a case of thick hair the horizontal arm was brought as close as possible in contact with the scalp. In order to prevent the general tendency of an indi-

vidual to throw his head too far back, he was instructed to fix his eyes on a mark made on the opposite wall at approximately eye level. If the subject would not remove his footgear, its height was subtracted before recording the stature. In dealing with undrilled peoples this measurement is difficult due to the wide margin of possible error. Statures of stooped or deformed persons were eliminated from the averages.

(2) *Sitting height* was obtained by seating the subject either on a four-gallon gasoline can about 35 cm. high or upon a wooden stool or box. The knees were flexed, the dorsal aspect of the trunk made contact with the anthropometric rod in the sacral region and between the shoulder blades. The axis of vision remained horizontal. The height of the vertex from the ground was then measured and later the height of the seat subtracted to give the correct sitting height. It was found advisable to carry either a standard gasoline can or a wooden box, since the native stools varied in height, and it was easier to subtract a constant figure for the height of the seat from the ground. Care was taken that the subject sat on the tuberosity of the ischium rather than on the femoral muscles and also that he assumed an erect posture with the vertebral column in the normal position of stature. The shoulders were not thrown back too far nor the sternum unduly elevated.

(3) *Head length* (glabella to opisthocranium) was measured with the spreading calipers from the most prominent point of the glabella to the most distant point on the occiput as shown by the maximum determinable spread of the branches of the compass. The two landmarks were taken in the median line and a slight pressure was used on the ends of the calipers.

(4) *Head breadth* (euryon to euryon) was measured with the spreading calipers from the widest points above the supramastoid and zygomatic crests. The ends of the instrument were pressed lightly to the sides of the head and moved in an anterior to posterior line until the maximum reading, generally found above and behind the tips of the ears, was obtained.

(5) *Minimum frontal diameter* was recorded by measuring the shortest horizontal diameter between the two temporal crests on the frontal bone. The ends of the spreading calipers were guided by each forefinger to the deepest part in the curve of each temporal line above the lateral angular processes of the frontal bone.

(6) *Bizygomatic breadth* (zygion to zygion) was obtained by placing the spreading calipers in a horizontal plane on the most widely

separated points of the external surfaces of the zygomata. No pressure was applied.

(7) *Bigonial breadth* (gonion to gonion) was measured with the spreading calipers in a horizontal plane between the most prominent points on the external surfaces of the angles of the lower jaw. Firm pressure was applied as the ends of the instrument were brought as closely as possible into contact with the bone without causing discomfort to the subject. It was found advisable to rest the forefinger on the gonia and to question the subject if the pressure were painful so that when he replied, the movement of the gonia would give the correct points. Care was taken to avoid the fleshy portions of the masseter muscles and to avoid having them expanded by the subject.

(8) *Total facial height* (menton to nasion) was measured with the spreading calipers<sup>1</sup> from the lowest portion in the middle of the bony chin (menton) to the point in the median sagittal line where the nasal bones join the frontal bone (nasion). This measurement is a projection from the points of reference on to a vertical plane. Nasion, the most elusive anatomical landmark, was found by palpation or, when this was impossible, by estimating its position, which always lies above a horizontal line connecting the two inner canthi (see Ashley-Montagu, pp. 473-476). The head was held as nearly as possible in the Frankfort plane.

(9) *Upper facial height* (nasion to stomion) was measured with the spreading calipers from nasion to the projected point between the two front incisor teeth where they enter the gum of the upper jaw. The lower arm of the instrument after this measurement was disinfected whenever the instrument touched the lip or gum.

(10) *Nasal height* (nasion to subnasale) was measured with the spreading calipers from nasion to the point where the nasal septum joins the upper lip. No pressure was applied. This measurement was taken as a length and not as a projection from these points on to a vertical plane.

(11) *Nasal breadth* (alare to alare) was measured with the spreading calipers held in a horizontal plane to determine the maximum normal external breadth of the nasal alae, without the exertion of any pressure.

(12) *Ear length*.—The pinna of the left ear was measured with the sliding compass so as to give the maximum length. The rod was held parallel to the long axis of the ear. In case the ear had no lobe, the

<sup>1</sup> This instrument was employed for measurements 8-11 although in the future I shall use the sliding compass.

point of attachment of the pinna to the cheek was taken. In some cases, with exceedingly elevated or flaring pinna, the largest chord was measured.

(13) *Ear breadth* was obtained with the sliding compass by measuring the distance between two lines parallel to the long axis of the ear, one of these lines being tangent to the anterior, the other to the posterior border of the helix.

With regard to the visual observations there is possible a great range of detail but after a careful selection there are certain minima which should be included and which will be noted later in the tables, with their subdivisions.

Since only Army records provide reliable age estimates in Iraq and Iran, I record the age given to the nearest five-figure interval. For this reason the ages for each group studied cluster around 25, 30, 35, etc. If a specific age, such as 23, is recorded outside of the regular five interval groups, I had good reason to believe the subject's statement.

Following the method suggested by Hrdlička (1920, p. 44) in arriving at his estimate, the observer is guided by the general development and appearance of the subject; by the eruption of certain teeth, particularly the permanent molars; by marks of puberty; and by signs of aging such as gray hair, wrinkling, bending of the spine, loss and wear of the teeth, alveolar absorption, changes in sight and hearing, clubbing of the fingers, arcus senilis, a whitish ring on the border of the cornea in old people caused by the presence of cells laden with fat and cholesterol ( $C_{27}H_{46} \cdot OH + H_2O$ ), etc. It must, however, be borne in mind that none of the signs individually or collectively can be taken as precise indices of age in years. They develop at widely different ages in individuals, and even in the same person the appearance of the various signs of aging may be irregular. Thus, gray hair may occur even in young adults, and the same is true of certain changes in the eyes and ears.

In other words, the observer can not hope for closer approximation to the right age than within five years, plus or minus. For statistical purposes such an approximation will be sufficient since those persons under eighteen and individuals seventy-one or more years of age were eliminated from the averages. I believe that there is some anthropometric value in measuring and observing a limited number of individuals over seventy years old; the changes in growth and other respects can be studied by comparing these individuals with

the general averages. In consequence I have included in the raw data a few persons who appeared to be beyond the usual age limit.

Although the classes or gradations will be found in the tables under each Iran group, my system of recording the other observations should have some explanation.

The differences in hair form and texture speak for themselves. Under hair color, however, the blond classification was omitted, as no example was recorded. Hair quantity, either head, beard, or body, has six divisions which are an attempt to distinguish between an average presence of face hair, for instance, and a heavy beard (plus), a very heavy beard (double plus), and an extraordinary amount of facial hair (triple plus). Minus designates less than average and double minus almost absent.

Under eye color a distinction was made between blue-brown and *blue*-brown, the latter being predominantly blue and therefore lighter. This applies also to green-brown and *green*-brown. Subdivisions for iris and sclera are self-explanatory. Rings are narrow bands on the outer rim of the pupil, apparently blue or gray in color, and are not examples of arcus senilis.

Nasal profile in each instance was originally entered under one of four classifications. The term concave is generally understood. A nose was recorded as convex whether this curve was slight or marked. In observing straight noses, however, we found a number of cases where, although the nose was straight in general conformity, there was a slight depression below the highest point of the bridge. This type of nose may be considered straight, but there is a distinction that we felt should be noted and for this reason it was recorded as wavy. Concavo-convex designated those noses whose concavity of the bridge terminated in a snub tip. In a broad sense such noses may be classed as convex.

The nasal tip, without regard to the alae, was thin, average, thick (plus), or very thick, almost bulbous (double plus).

Classifications under nasal wings or alae should be clear, since they grade from compressed to the markedly flaring nostril of Negroid peoples.

In respect to teeth, it must be pointed out that by under-bite we referred to those individuals whose lower jaw was shot forward so that the lower teeth projected in front of the upper, an observation that can usually be made without the subject's opening his mouth. Cases of this are infrequent, as most people tend to have a slight over-bite.

Loss of teeth was recorded in detail, and the numbers were grouped later in six categories for convenience. Incomplete eruption, especially of third molars, was noted on each blank, as well as instances of crowding, irregularity, and staining. In order not to overburden the text, individual reference numbers for these observations have not been given but are available from my files.

In addition to condition of teeth, the classifications for which will be readily understood, we made an attempt to estimate the degree of wear for each man. Slight wear was barely perceptible, plus denoted some wear, double plus marked wear, and triple plus very badly worn teeth, when the dentine had been considerably exposed. If caries was visible it was noted.

Although the subjects were not undressed for the survey, a general impression of musculature and health was recorded. In detail, instances of smallpox scars, scalp disease, fever, headache, stomach pain, cataract, trachoma, "Baghdad boils," and anomalies were marked when they were reported or could be recognized by a cursory examination. Fever, headache, and stomach disorders are common in the Near East and we were faced constantly with the difficulty that the men either were unable or refused to reply to our questions.

In addition to the above racial criteria, records were kept of tattooing, with regard to design, where it had been applied on the body, and for what purpose, of cauterization scars, called *kawi* or *chowi* in Iraq, and of the use of henna, as these data are to be compiled later for a volume on body-marking in Southwestern Asia.

Wherever artificial cranial deformation was observed it was noted on the anthropometric blank. The most prevalent type of deformation was caused by the Armenian cradle where the child is strapped down with the occiput resting on a hard pillow (Fig. 7; see also van Gennep, p. 77 and Fig. 4). Unless the mother is wise enough to turn the cradle around from time to time, the occipital region becomes asymmetrically flattened because the child prefers one position, either looking toward the lighted doorway, or, if the eyes are weak, away from the door.

To aid in racial classification and provide a permanent record of this fast-changing population, we obtained as complete a series of photographs of each group as possible. Plates of these individuals with identification numbers are to be found following the text, arranged according to groups and ascending ages. This is in accordance with a suggestion offered by Dr. Aleš Hrdlička. Should the

reader desire to locate the photograph of a subject whose number is referred to in the discussion, he can turn to the index of plates (pp. 652-653) where the individual numbers are seriated. In examining the facial features in profile, the reader must discard any photographs in which the horizontal median line of the head was obviously not at right angles to the camera.

The camera used by Richard Martin was an Agfa (9×12 cm.). In order to obtain a uniform series of photographs each subject was placed at the same distance from the camera. A white sheet was hung behind each individual so that the background would be neutral in tone and there would be no necessity for blocking out the background upon our return to the Museum.

On some of the faces there appear blemishes due to stains on the negative caused by blistering of the emulsion (e.g. Plate 76, Fig. 4). On the other hand the scar on the neck of No. 3299 (Plate 105, Fig. 2) shows clearly in the photograph.

Wherever practicable we secured hair samples and blood samples, analyses of which by specialists will appear in other publications (see Kennedy *in* Field, 1935b, pp. 460-461).

It will be noted that each man was photographed with a number attached to his clothes. These numbers were merely for use in the field and bear no relation to the final individual numbers which have been used throughout the text and appear beneath the photograph of each subject in Number 2 of this volume.

During August and September, 1934, I measured 299 individuals, who have been studied and treated statistically in their respective sections. Following are the full groups before individuals had been omitted because they were above or below the age standards or because of some deformity.

Place	People	Number of individuals	Final groups
Isfahan.....	Jews.....	99	87
Yezd-i-Khast.....	Villagers.....	48	46
Kinareh.....	Villagers.....	74	74
Pusht-i-Kuh.....	Lurs.....	53	52
Rayy.....	Excavation workmen.....	18	14
Miscellaneous.....	Various.....	7	7
	Total.....	299	280

#### STATISTICAL ANALYSES

In dealing with the metrical data some arbitrary classifications must be adopted. For example, it is advantageous to be able to speak broadly of the stature of an individual as tall, medium, or

short. In order to conform to the Harvard anthropometric laboratory system, the following divisions were made:

STATURE		TOTAL FACIAL INDEX	
x-160.5	Short	x-84.5	Euryprosopic
160.6-169.4	Medium	84.6-89.4	Mesoprosopic
169.5-x	Tall	89.5-x	Leptoprosopic
CEPHALIC INDEX		NASAL INDEX	
x-76.5	Dolichocephalic	x-67.4	Leptorrhine
76.6-82.5	Mesocephalic	67.5-83.4	Mesorrhine
82.6-x	Brachycephalic	83.5-x	Platyrrhine

When the figures had been tabulated according to the above system it was considered desirable to add the divisions used by Sir Arthur Keith (pp. 11-76) in his Introduction to my Iraq Report (Field, 1935b), so that the series, and more specifically the percentages within each category, from Iran would be directly comparable with those from Iraq.

For purposes of reference the following tables have been added:

STATURE		SITTING HEIGHT (Trunk Length)	
x-1599	Short	x-749	Very short
1600-1699	Moderate or medium	750-799	Short
1700-1799	Tall	800-849	Medium
1800-x	Very tall	850-899	Long
		900-x	Very long

HEAD BREADTH		HEAD SIZE	
120-129	Very narrow	1300 cc. or less	Small
130-139	Narrow	1301-1449	Medium
140-149	Wide	1450 cc. or more	Large
150-x	Very wide		

CEPHALIC INDEX	
x-70.0	Ultradolichocephalic
70.1-75.0	Dolichocephalic
75.1-79.9	Mesocephalic
80.0-84.9	Brachycephalic
85.0-x	Ultrabrachycephalic

MINIMUM FRONTAL DIAMETER		BIZYGOMATIC BREADTH	
x-99	Very narrow	x-124	Narrow
100-109	Narrow	125-134	Medium
110-119	Wide	135-x	Wide
120-x	Very wide		

TOTAL FACE LENGTH		UPPER FACE LENGTH	
x-109	Short	x-63	Short
110-119	Moderately short	64-69	Moderately short
120-129	Moderately long	70-75	Moderately long
130-x	Long	76-x	Long

NASAL HEIGHT		NASAL BREADTH	
x-49	Short	x-29	Very narrow
50-59	Medium	30-35	Medium narrow
60-x	Long	36-41	Medium wide
		42-x	Wide



## LIST OF ANTHROPOMETRIC ABBREVIATIONS

B= head breadth	go-go= bigonial breadth
B'= minimum frontal diameter	go-go/J= zygo-gonial index
B'/B= fronto-parietal index	G.O.L.= glabello-occipital length
B'/J= zygo-frontal index	J= bizygomatic breadth
B/L= cephalic index	L= glabello-occipital length
Big. B.= bigonial breadth	L.L.= lower limb length
Biz. B.= bizygomatic breadth	M.F.D.= minimum frontal diameter
C.I.= cephalic index	N.B.= nasal breadth
E.B.= ear breadth	N.H.= nasal height
EB/EL= ear index	NB/NH= nasal index
E.I.= ear index	N.I.= nasal index
E.L.= ear length	R.S.H.= relative sitting height
F.P.I.= fronto-parietal index	S.H.= sitting height
G.B.= greatest breadth	T.F.H.= total facial height
G.H.= total facial height	T.F.I.= total facial index
G'H= upper facial height	U.F.H.= upper facial height
GH/J= facial index	U.F.I.= upper facial index
G'H/J= upper facial index	Zyg.fr.I.= zygo-frontal index
	Zyg.go.I.= zygo-gonial index

## THE JEWS OF IRAN

Before examining in detail the group of Jews measured and studied in Isfahan it seems desirable to quote Curzon (1892a, vol. 1, pp. 510-511) with regard to the population and social organization of the Jews in Iran.

"Five years ago [i.e. in 1887] the number of Jews in Persia was conjecturally returned as 19,000; but I incline to the opinion that this total is below the mark. I have, indeed, been supplied with a table in which their total census is fixed at 65,000, but this appears to be a gross exaggeration. The chief centers of Jewish residence are Teheran (4,000), Hamadan (2,000), Isfahan (3,700), Shiraz (3,000), Urumiah, Meshed, Kashan, Saveh, Kermanshah, and Bushire.

"As a community, the Persian Jews are sunk in great poverty and ignorance. They have no schools of their own, except in the synagogues, where they are only taught to repeat their prayers, which the majority do not understand. Except in Teheran, Hamadan, Kashan, Khonsar, and Gulpaigan only Hebrew is taught, and not Persian . . .

"Throughout the Mussulman countries of the East these unhappy people have been subjected to the persecution which custom has taught themselves, as well as the world, to regard as their normal lot. Usually compelled to live apart in a Ghetto, or separate quarter of the towns, they have from time immemorial suffered from disabilities of occupation, dress, and habits, which have marked them out as social pariahs from their fellow creatures. The majority of

Jews in Persia are engaged in trade, in jewelry, in wine and opium manufacture, as musicians, dancers, scavengers, pedlars, and in other professions to which is attached no great respect. They rarely attain to a leading mercantile position. In Isfahan, where there are said to be 3,700, and where they occupy a relatively better status than elsewhere in Persia, they are not permitted to wear the *kolah* or Persian head-dress, to have shops in the bazaar, to build the walls of their houses as high as a Moslem neighbour's, or to ride in the streets. In Teheran and Kashan they are also to be found in large numbers and enjoying a fair position. In Shiraz they are very badly off. At Bushire they are prosperous and free from persecution. As soon, however, as any outburst of bigotry takes place in Persia or elsewhere, the Jews are apt to be the first victims."

Father Alexander of Rhodes (see Machault) wrote in 1659 that the Jews were compelled "to make a public promise to the effect that if, before the expiry of thirty more years, their Messiah failed to appear in accordance with their declarations repeated each day with the most incredible audacity, they should then all become Mohammadans . . . . They were held to their word . . . the King, the more kindly to induce the Jews to obey the edict, gave thirty piastres to each man and fifteen to each woman of that sect."

According to the Jewish Encyclopaedia (New York, 1905), "it has been sufficiently shown that there have been Jews in Persia since the earliest times,<sup>1</sup> and that the history of the Jews has been associated with Persia in various ways. The Biblical allusions to Rhages (Avestan, 'Rhagha'; Old Persian, 'Rhaga'), Ecbatana (Old Persian, 'Hagmatana'; Modern Persian, 'Hamadan'), and Susa might be added to others that prove the fact. The presence of Israelites in Iran may have been due originally to deportation from other countries or to colonization, to relations arising from conquest or from political connections; but trade and commerce also must have contributed . . . ."

#### JEW OF ISFAHAN

In Isfahan there is a large ghetto, which according to tradition has been established for about twenty-five hundred years. Since those Jews whom I studied in Iraq proved to be of considerable interest, I decided to begin my anthropometric survey by measuring a series of people in the Isfahan ghetto.

<sup>1</sup> Jewish eunuchs were numerous at the Persian court. Nehemiah could not have been cup-bearer of Artaxerxes, if he had not been a eunuch (Neh. II, 6); note also that he attended the king as butler in the presence of the queen (Esther IV, 6-8).

According to the Jewish Encyclopaedia (pp. 659-660), the Jews claim to have founded Isfahan, saying that it was built by the captives brought there by Nebuchadnezzar after he had taken Jerusalem. Reference is made to such authorities as Moses of Chorene and the Arabic writers, Ibn al-Fakih, Al-Istakhri, Ibn Haukal, Al-Mukad-dasi, Yakut, Abu Al-Fida, and Ibn Khaldun. It is told that the Jews took with them earth and water from Jerusalem and that to whatever place they came they weighed the earth and water found there. When they reached the town of Jayy (Shahristan) in Persia the earth and the water there corresponded in weight with the samples from Jerusalem. As a result they founded a colony a mile or two east of Jayy and gave it the name of Al-Yahudiyah, which later became Isfahan.

The founding of the Jewish colony may have taken place in the third century, under Shapur II. Mansur ibn Badhan is reported to have said that upon investigation the founder of any rich merchant family of Isfahan would be revealed as some idolater or Jew. Under Perozes (457-484) the Jewish community was accused of having killed two Magi and as a result the monarch not only put to death half of the Jews in Isfahan, but he also had the Jewish children brought up in the temple of Horwom as fire-worshippers.

During the first few centuries after their establishment the Jews prospered greatly. Benjamin of Tudela, who traveled during the twelfth century, reported about 15,000 Jews in Isfahan. Sar Shalom was appointed rabbi of Isfahan towns of the Persian Empire by the prince of the captivity, who resided at Baghdad. Under the kings of the Sufi dynasty, who made Isfahan their residence, the Jews suffered great violence at the hands of the Moslems. Chardin states that the Jews were obliged to wear a special mark on their dress to distinguish them from Moslems. Their caps had to be of a different color from those worn by believers and they were forbidden to wear cloth stockings; they did have, however, one principal and several small synagogues. He adds that Shah Abbas I (1595-1628) gave 400 francs to every male convert to Islam and 300 francs to every female convert. These offers were repeated by Shah Abbas II (1639-66). Babai b. Lutaf of Kashan, the Judaeo-Persian poet, described in verse the persecutions of the Jews of Isfahan under Shah Abbas I; and Arakel of Tabriz, the Armenian historian, devotes a chapter to their persecution by Shah Abbas II.

Under Fath Ali Shah (1798-1834) the Jews suffered their severest persecutions. The Persian nomads constantly invaded the Jewish

quarter, violated the women, massacred the men, pillaged the houses, and destroyed those objects which they could not carry away. I. J. Benjamin in 1850 found at Isfahan about 400 families, three synagogues, and eight rabbis (*hakamin*). Babai records that the principal synagogue, still held in great veneration, was called "Serat bat Asher." This place of worship, which escaped when the other synagogues were set on fire by Mirza Masudi under Shah Abbas II, is the object of pilgrimage for there is a tradition that Serah, the daughter of Asher, was buried there. According to Confino (p. 339) there were about 6,500 Jews in Isfahan. In this city was born the false prophet, Abu Isa or Mohammed ibn Isa al-Ispahani, from whom arose the Judaeo-Persian sect Al-Ispahaniyah, who are also called Al-Isawiyyah or Isawites. Probably the Mohammedans believed that Antichrist would arise in this city because of its large Jewish population.

According to the Encyclopaedia of Islam (vol. 2, pp. 529-530), Isfahan "was formerly composed of two adjacent towns, Djayy, on the site later occupied by the Shahrستان, the 'city properly so called,' and Yahudiya, 'the Ghetto,' a Jewish colony established there, it is said, by Nebuchadnezzar,<sup>1</sup> or under Yazdigird I at the request of his Jewish wife, Shoshan-dukht (Blochet, Section 54)."

Curzon (1892a, vol. 2, p. 21) states that "in the early Mohammedan period, about 931 A.D., the city, already known as Isfahan, passed into the hands of the Dilemi or Buyah dynasty, who ruled as petty princes in Fars and Irak, at which time it consisted of two quarters, known as Yehudieh, or Jews' Town, and Shehrستان, or Medinah, i.e. the city proper, which were finally united within a single wall by Husein, the Rukn-ed-Dowleh, father of the even more famous Asad-ed-Dowleh, of that line."

Herzfeld (1935, p. 106) quotes from a Pahlavi pamphlet bearing the title "Shahrhā e Erān": "in § 26 . . . it is said that Hamadan was founded by Yazdegerd I, 399-420. Hamadan, of course, is much older. To what the notice refers becomes clear in another section (47): Susa and Shushtar are built—obviously a wrong popular etymology—by the queen *Shūshandukht*, wife of Yazdegerd, mother of Bahrām V, and daughter of the 'king of the Jews' the *rēš-galūtak*. That is the important historical fact. The third statement is § 53: 'Gay is built by Yazdegerd at the request of his wife Shūshandukht, who founded a Jewish colony there.' Gay, later called al-Yahūdiyya, the ghetto, is the quarter of Isfahan with the great bazaar; almost all the Muhamme-

<sup>1</sup> "Cf. Schreiner, 'Revue des Etudes Juives,' vol. 12, p. 259."

dan sanctuaries of that quarter are converted from the Jewish. The notice, dated only eighty years after the event, is as true as the information regarding Hamadan. The Jewish colonies of Hamadan and Isfahan do not go back, as is supposed, to the Assyrian and Neo-Babylonian epoch, but to the beginning of the fourth century A.D. And the combination is obvious: the so-called tomb of Esther is the tomb of queen Suzan who founded the Jewish colony there. In Shūshandukht, the mythical queen Esther became a reality; after 800 years her name was forgotten, her role not."

When the members of the Field Museum Expedition visited Isfahan in 1934 I was informed that there were about 4,000 Jews living in the ghetto. With the permission of the Governor and the sanction of the Chief of Police, I visited the Alliance Israélite, and the Director, Mr. Joseph Cohen, very courteously agreed to assist me in making anthropometric studies on a group of Isfahan Jews.

Late one evening we drove in an ancient *arabana* to the ghetto, which is located about a mile from the Maidan. Turning off from the wide main street, we entered a narrow alley with low mud walls on either side. About a thousand paces farther we passed through an arch and turned down a still narrower street until we arrived at a dark, forbidding doorway, where the carriage stopped. We had passed many faces with typical Jewish features and so had been confirmed our expectation of finding that the racial characteristics of this secluded community in central Iran had persisted to a marked degree. We visited the school and made plans for work.

At seven o'clock on August 20, 1934, we returned to the *Madrasseh* and began the anthropometric studies, which included the taking of frontal and profile photographs of each individual. Dr. Walter P. Kennedy took blood samples from fifty-four individuals (Field, 1935b, p. 461). In several cases permission was firmly refused and in others, out of respect for the age of the individual, no attempt was made to obtain a blood sample. No. 3540 objected violently, almost causing a riot, so that we abandoned this test.

Despite the heat and the remarkable uncleanness of our subjects, I measured 100 individuals between sunrise and sunset, since this was the only time at our disposal. It was desirable to obtain a series of approximately 100 Irani Jews for comparison with the Jews of Iraq and other parts of Southwestern Asia. Strangely enough one Moslem intruded himself among the series but when questioned a second time admitted that he was not a Jew. Later, in compiling the statistics we found it necessary to omit one man who was a pitui-

tary dwarf, three men who were not born in Isfahan, and eight individuals who were over 70 years of age. The series, therefore, which is computed in the averages, consisted of eighty-seven Isfahan Jews.

*Age.*—The average age for the group was 29.30 years and 60 per cent of the individuals were under forty years of age. The average was relatively high because it was more difficult to entice the younger men from their occupations.

## AGE DISTRIBUTION

Age	Number	Per cent	Age	Number	Per cent
18-19.....	5	5.75	45-49.....	10	11.49
20-24.....	15	17.24	50-54.....	9	10.34
25-29.....	10	11.49	55-59.....	3	3.45
30-34.....	13	14.94	60-64.....	4	4.60
35-39.....	8	9.20	65-69.....	4	4.60
40-44.....	4	4.60	70-x.....	2	2.30

*Skin.*—The color was lighter than that of the average inhabitant of Isfahan. Individually it ranged from that of a typical northern European to medium brown. The constant exposure to the weather, combined with the general uncleanness of this group, had tended to give the middle-aged and older individuals a tanned and weather-beaten appearance. The secondary shadings of different parts of the body were in no way peculiar, but the exposed parts were considerably darker than those habitually clothed. On the head, which is always covered, the skin was light in color in many cases and nearly as white as in Europeans.

In particular instances the following details regarding complexion were recorded: No. 3512 (Pl. 20, Figs. 3, 4), very pink and white; No. 3533, very light; Nos. 3479 (Pl. 33, Figs. 3, 4) and 3497 (Pl. 19, Figs. 3, 4), reddish white; Nos. 3490 (aged 36; Pl. 21, Figs. 3, 4) and 3513 (aged 22; Pl. 15, Figs. 3, 4), sallow. No. 3508 (Pl. 20, Figs. 1, 2) had numerous lentigines caused by the actinic rays of the sun. According to one subject, there were twenty Jews in the Isfahan ghetto who had red hair. Ripley (1899a, p. 386) points out that Weisbach (p. 214) described the Sephardim Jew at Constantinople as having "hair and eyes generally dark, sometimes, however, tending to a reddish blond. This rufous tendency in the Oriental Jew is emphasized by many observers. Dr. Beddoe found red hair as frequent in the Orient as in Saxon England, although later results do not fully bear it out. This description of a reddish Oriental type corresponds certainly to the early representations of the Saviour; it is the type, in features perhaps rather than hair, painted by Rembrandt—the Sephardim in Amsterdam being familiar to him, and

appealing to the artist in preference to the Ashkenazim type. This latter is said to be characterized by heavier features in every way. The mouth, it is alleged, is more apt to be large, the nose thickish at the end, less often clearly Jewish perhaps. The lips are full and sensual, offering an especial contrast to the thin lips of the Sephardim. The complexion is swarthy oftentimes, the hair and eyes very constantly dark, without the rufous tendency which appears in the other branch. The face is at the same time fuller, the breadth corresponding to a relatively short and round head."

MORPHOLOGICAL CHARACTERS OF ISFAHAN JEWS

*Hair*.—The hair was black or dark brown, the latter occasionally containing a rufous element. The texture was medium with a tendency toward fineness. In form the hair had low to deep waves but there was also an indication of curly-frizzly hair. Gray hair, to any appreciable extent, was seldom noticed before the fortieth year, although at fifty years of age and more, grayness was as a rule advanced. Four individuals (4.55 per cent) had applied henna to the hair to conceal grayness. Seventy-two hair samples from this series were obtained.

HAIR

Color	Number	Per cent	Form	Number	Per cent
Black	36	44.44	Straight	0	.....
Very dark brown	1	1.23	Very low waves	2	2.67
Dark brown	18	22.22	Low waves	63	84.00
Brown	0	.....	Deep waves	8	10.67
Reddish brown	2	2.47	Curly-frizzly	2	2.67
Light brown	0	.....	Woolly	0	.....
Red	0	.....			
Black and gray	13	16.05	Total	75	100.01
Dark brown and gray	6	7.41			
Light brown and gray	0	.....	Texture	Number	Per cent
Gray	4	4.94	Coarse	11	15.07
White	1	1.23	Coarse-medium	1	1.37
			Medium	41	56.16
Total	81	99.99	Medium-fine	5	6.85
			Fine	15	20.55
			Total	73	100.00

Hair on the head was abundant, but in some cases there was partial baldness independent of those persons where age militated against the retention of hair. Six individuals had scalp disease.

The only subjects who did not possess beards were several young men. Out of fifty-five men, seven Jews had little or no beards; twenty-three slight, eleven heavy, and fourteen very heavy beards were recorded. Every person with the exception of three young men wore a mustache, no matter how slight the growth might be.

Abnormal hairiness of the body was not recorded and the general impression retained was that these Jews tended to have less body hair than many of the groups from Iraq.

*Eyes.*—In general the eyes were predominantly brown, but a definite and rather strong infiltration of lighter elements showed in the mixed eyes—blue-brown, green-brown, and gray-brown—which tended to be associated with reddish complexions. Of the irises 75 per cent were homogeneous, a very high number, considering the percentage of mixed eyes. The sclera were clear in 71 per cent of the group and speckled in 26 per cent.

EYES					
Color	Number	Per cent	Iris	Number	Per cent
Black.....	0	.....	Homogeneous.....	60	75.00
Dark brown.....	64	73.56	Rayed.....	6	7.50
Blue-brown.....	4	4.60	Zoned.....	14	17.50
Blue-brown.....	1	1.15			
Green-brown.....	8	9.20	Total.....	80	100.00
Green-brown.....	5	5.75			
Gray-brown.....	3	3.45	Sclera		
Blue.....	0	.....	Clear.....	62	71.26
Gray.....	0	.....	Yellow.....	0	.....
Light brown.....	0	.....	Speckled.....	23	26.44
Blue-gray.....	1	1.15	Speckled and bloodshot..	2	2.30
Blue-green.....	1	1.15	Speckled and yellow.....	0	.....
Total.....	87	100.01	Total.....	87	100.00

The eyes, or more properly eye-slits, were horizontal as in Europeans, but in some cases, for example No. 3496 (Pl. 29, Figs. 3, 4), they were perceptibly oblique with the external canthi higher, and in No. 3487 (Pl. 30, Figs. 1, 2) they were oblique with the external canthi lower than the internal.

The insanitary conditions prevailing in the ghetto affect the eyes, which are subject not only to various forms of disease but are also irritated by the intense glare of the sun and the frequent eddies of dust carried along the narrow streets. We found five cases of filmed eyes, many instances of inflammation, conjunctivitis, iridocyclitis, and macular cataracts, and three individuals who were blind in one or both eyes.

*Nose.*—The nose was predominantly convex but one-third of the series had straight noses. The nasal wings were medium in breadth with a flaring tendency. In general the nasal tip was thin with a slight downward inclination and correspondingly recurved alae, which exposed the medial walls of the septum.



NOSE

Profile	Number	Per cent	Wings	Number	Per cent
Wavy	1	1.15	Compressed	7	8.05
Straight	28	32.18	Compressed-medium	4	4.60
Concave	13	14.94	Medium	49	56.32
Convex	41	47.13	Medium-flaring	23	26.44
Concavo-convex	4	4.60	Flaring	2	2.30
			Flaring plus	2	2.30
Total	87	100.00	Total	87	100.01

Tip Thickness	Number	Per cent
Thin	42	51.22
Average	22	26.83
Plus	14	17.07
Double plus	4	4.88
Total	82	100.00

*Mouth.*—The majority of the lips were thicker than those of the average European and there was considerable eversion in 3.41 per cent of the series, although 4.54 per cent had thin lips. Ten individuals (11.36 per cent) were recorded as being mouth-breathers.

*Teeth.*—The general condition was fair to good. Indeed the teeth were much better than those of the Jews in Iraq. In one-third of the cases there was marked wear. No. 3534 had severe caries, but because of the lack of time the pathological condition of the teeth was not recorded on all the subjects. Seven individuals (7.96 per cent) had markedly stained teeth and a number of other Jews possessed discolored teeth.

TEETH

Wear	Number	Per cent	Condition	Number	Per cent
None	59	67.82	Very bad	9	12.68
Slight	1	1.15	Bad	11	15.49
Plus	13	14.94	Fair	14	19.72
Double plus	14	16.09	Good	30	42.25
Triple plus	0	.....	Excellent	7	9.86
Total	87	100.00	Total	71	100.00

Loss	Number	Per cent	Bite	Number	Per cent
None	6	12.77	Under	2	2.44
1-4	17	36.17	Edge-to-edge	1	1.22
5-8	2	4.26	Slight over	67	81.71
9-16	18	38.30	Marked over	12	14.63
17+	4	8.51	Total	82	100.00
Total	47	100.01			

In accordance with all the other groups observed, the occlusion was a slight over-bite with a general tendency to marked over-bite. Incomplete eruption was noted in six men (6.82 per cent) and crowding in three instances (3.41 per cent). There were five cases (5.70 per cent) of irregular teeth.

*Musculature.*—In general this was good, although there were obvious cases of malnutrition. The activity of the Jews tends to develop musculature and there were no examples of obesity observed within the ghetto, which is in direct contradistinction to the Irani vendors in the *Sug*, who seem to grow fat early in middle age. "These people [the Jews]," Ripley (1899a, p. 382) remarks, "are, anthropologically as well as proverbially, narrow-chested and deficient in lung capacity. Normally the chest girth of a well-developed man ought to equal or exceed one-half his stature, yet in the case of the Jews as a class this is almost never the case."

Musculature	Number	Per cent	Health	Number	Per cent
Poor.....	0	.....	Poor.....	0	.....
Fair.....	11	12.64	Fair.....	10	11.49
Good.....	66	75.86	Good.....	77	88.51
Excellent.....	10	11.49	Excellent.....	0	.....
Total.....	87	99.99	Total.....	87	100.00

The health of the population is good. The keen struggle for existence and the high rate of infant mortality reduce the number of weaklings before they reach maturity. Six individuals (6.82 per cent) had smallpox scars.

There were several unusual pathological cases. No. 3524 was unable to stand, possibly because of infantile paralysis. The knee jerks were absent and there was no Argyll-Robertson pupil, that is, a myopic pupil which fails to contract when light is thrown into the eye, although it still contracts in accommodation. According to Dr. Kennedy this was not a syphilitic case. No. 3529, omitted from the series, was a pituitary dwarf, although with no bossing of the fontanelle. He had a very large head, and the tibiae were rachitic, but no Hutchinson's teeth were present. A characteristic malformation of the two upper central permanent incisors, seen in patients with inherited syphilis, was first described by Hutchinson. In such an instance there is a crescentic notch in the anterior surface and at the cutting edge of the tooth, which is peg-shaped, stunted, and set obliquely in the gum, pointing either medially or laterally. No. 3552 had a slightly acromegalic appearance. The lengthening of the face and the size of the hands and feet suggested unbalanced metabolism.

No. 3493 (Pl. 39, Figs. 1, 2), omitted from the series, had a sebaceous wen, an indolent, encysted skin tumor, about the size of a hen's egg, on the right side of the occipital bone.

Among the Jews no example of tattooing was observed either in this series or throughout the ghetto. In addition to the use of

henna on the hair, we noted its frequent application to finger nails. No. 3490 (Pl. 21, Figs. 3, 4) wished "to celebrate his wedding" and No. 3525 had decorated his nails "because of weak wrists." (Cf. Field, 1935b, pp. 88, 440, 444.)

## STATISTICAL ANALYSIS

*Stature.*—Fifty-seven per cent of the Jews of Isfahan were medium in stature with an almost equal number in the short and in the tall categories (see p. 309). The fact that eighteen individuals (21 per cent) were tall is remarkable, because from observation I should have stated that there were extremely few above the maximum of the medium classification.

The stature (164.94) was below the average for the entire area and the sitting height (80.84) was also toward the lower end of the scale. When the figures are grouped according to Keith's divisions, the following table appears:

Stature	SITTING HEIGHT (Trunk Length)											
	900-x		899-850		849-800		799-750		749-x		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1800-x . . . .	2	2.33	0	.....	0	.....	0	.....	0	.....	2	2.33
1799-1700 . .	0	.....	7	8.14	6	6.98	1	1.16	0	.....	14	16.28
1699-1600 . .	0	.....	3	3.49	33	38.36	16	18.60	0	.....	52	60.45
x-1599 . . . .	0	.....	0	.....	3	3.49	12	13.95	3	3.49	18	20.93
Totals.	2	2.33	10	11.63	42	48.83	29	33.71	3	3.49	86	99.99

This table shows that there were only two men (2.33 per cent) in the tall (1800-x) class, and they each had an equal proportion of limb and trunk length. There were three Jews in the shortest categories as the result of short trunk lengths. Forty-two men (48.83 per cent) had medium trunk lengths and fifty-two (60.45 per cent) were medium in stature. There were thirty-two Jews (37.20 per cent) with short trunk lengths, thirty-one (36.04 per cent) of whom were also short in stature. These Jews, therefore, were medium in both standing and sitting height with a tendency toward shortness in both measurements. No. 3524 was omitted from the series.

As far as could be determined without undressing the subjects, the majority presented a body of medium development. No special differences from the average European were observed in the various parts of the body. The hands and feet were generally well formed and not particularly large. No. 3482 (Pl. 35, Fig. 4) had six fingers on each hand. No other case of anomalies was recorded. The fingers and toes were not long, although the latter were thickened because no shoes were worn.

Examination of the head and facial measurements indicated an unusually large range which in the case of the head length (173-205, mean 186.06) and the head breadth (135-158, mean 144.28) may have been due to deformation caused by the so-called Armenian cradle (Fig. 7). There were two examples of marked artificial or pathological cranial deformation. Nos. 3474, omitted from the series, and 3477 (Pl. 35, Fig. 3) showed occipital flattening of the lambdoid region.

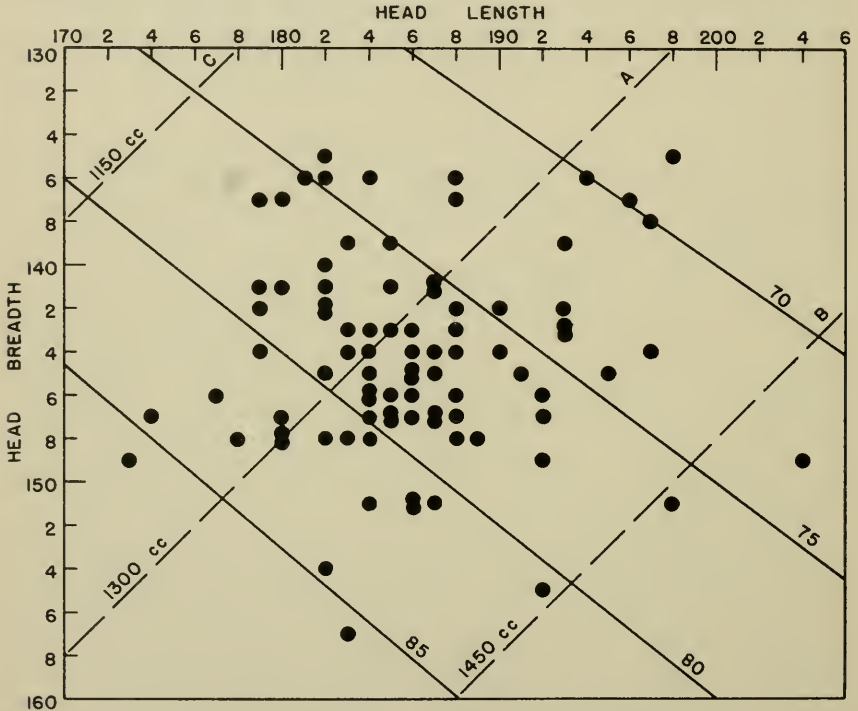


FIG. 14. Head length, breadth, and capacity of eighty-six Isfahan Jews.

*Head Measurements.*—Heads were medium to small in size with a well-filled brain case. When the cephalic indices (mean 77.43) are grouped according to head size to show five divisions, the following table results:

GROUPS ACCORDING TO CEPHALIC INDEX												
	x-70.0		70.1-75.0		75.1-79.0		80.0-84.9		85.0-x		Totals	
Heads	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Small....	0	....	5	5.81	21	24.42	7	8.14	1	1.16	34	39.53
Medium..	2	2.33	9	10.46	29	33.72	9	10.46	1	1.16	50	58.13
Large....	0	....	1	1.16	1	1.16	0	....	0	....	2	2.32
Totals..	2	2.33	15	17.43	51	59.30	16	18.60	2	2.32	86	99.98

This table places two Jews with medium-sized heads in the hyperdolichocephalic class and two in the large-sized group, one being mesocephalic, the other dolichocephalic. Fifty men (58 per cent) are medium in head size and fifty-one are mesocephalic. There are sixteen (18.60 per cent) brachycephals, nine of whom are medium and seven small in head size. Two Jews are hyperdolichocephalic and at the other end of the scale appeared two hyperbrachycephals. Among these individuals in the extreme categories three are medium and one is small in head size.

In general, this group of Jews had heads medium to small in size and mesocephalic (59.30 per cent) with an almost equal number above and below this arbitrary grouping, although the Harvard classifications (p. 309) show a much stronger dolichocephalic tendency.

The forehead, often deeply furrowed, was well developed and the supra-orbital sulcus was frequently accentuated by the massing of bone in the region of the glabella and continuing along the supraciliary ridges. Nasion was generally clearly defined, the arch of the nose springing from the base of this small furrow. There seemed to be considerable variation in the development of the frontal region, although the brow ridges never ranged into the double plus group.

The maximum breadth of the head (144.28) and the minimum frontal diameter (111.90) are of particular interest since of the four groups which I examined the Jews had the widest heads and the narrowest minimum frontal diameters. This was in distinct contrast to the Lurs. For the Jews the results of these two measurements have been grouped as follows:

Head breadth	MINIMUM FRONTAL DIAMETER								Totals	
	x-99		100-109		110-119		120-x		No.	%
	No.	%	No.	%	No.	%	No.	%		
120-129	0	.....	0	.....	0	.....	0	.....	0	.....
130-139	0	.....	5	5.88	10	11.77	0	.....	15	17.65
140-149	0	.....	17	20.00	44	51.76	1	1.17	62	72.93
150-x	0	.....	0	.....	6	7.06	2	2.35	8	9.41
Totals	0	.....	22	25.88	60	70.59	3	3.52	85	99.99

There were no Jews in the narrowest groups of either measurement. While eight men (9.41 per cent) had very wide heads (150-x) there were only three with very wide frontal diameters (120-x). Sixty-two Jews (72.93 per cent) had wide heads, and sixty had wide minimum frontal diameters. It is remarkable that twenty-two individuals (25.88 per cent) should fall in the narrow frontal group

since the heads tended to be unusually broad in maximum diameter. There thus appears to be a constriction in the frontal region as determined by the minimum frontal diameter, particularly in relation to the development of the maximum head breadth.

Nos. 3565 and 3481 (Pl. 22, Figs. 1, 2) were omitted from the series.

*Facial Measurements.*—The face can best be examined by comparing the relation of the breadth to the length and later the absolute and relative length of the face.

Total face length	BIZYGOMATIC BREADTH							
	x-124		125-134		135-x		Totals	
	No.	%	No.	%	No.	%	No.	%
x-114.....	0	.....	5	6.02	1	1.20	6	7.22
115-124.....	1	1.20	27	32.53	17	20.48	45	54.21
125-x.....	0	.....	14	16.87	18	21.69	32	38.56
Totals.....	1	1.20	46	55.42	36	43.37	83	99.99

The total face lengths (mean 123.45) and the bizygomatic breadths (mean 134.20) show an unusually wide dispersion for both measurements. This is also indicated by the range for the former being 115-144, and for the latter 125-144. There is, however, only one individual (No. 3547) in the narrow-faced group (x-124), but six men with short faces. Forty-six Jews (55.42 per cent) are medium in face width and forty-five fall in the medium face length category. Although the percentage of men with wide faces is slightly greater than that of the men with long faces, a marked leptoprosopic tendency is demonstrated by the table of total facial indices on page 309. Nos. 3481 (Pl. 22, Figs. 1, 2), 3494 (Pls. 36, 37), 3495 (Pl. 28, Figs. 1, 2) and 3530 were omitted.

According to the threefold classification 69.88 per cent are leptoprosopic, while only four individuals (4.82 per cent) are euryprosopic.

The outline of the face is roughly triangular, caused by the relatively projecting malars, which are often associated with a broad chin. Those individuals with well-developed masseter muscles have a more or less rectangular face. In general the bigonial breadth is low, with an average for 86 individuals of 107.86, the range being from 94 to 125.

The hirsute character of the chin prevented this from being clearly defined for study purposes. During measurement of total face heights I observed that in many cases the chin was well developed, often angular, and rarely receding, although in younger individuals No. 3475 (Pl. 22, Figs. 3, 4) might be considered typical. The projection of the occipital torus was relatively prominent.

The relationship between the total face height (123.45) and the upper face height (72.40) seems to be of paramount importance in dealing with the subdivisions of the Mediterranean Race, since variations in the index point toward significant racial differences. The groups appear as follows:

Total face height	UPPER FACE HEIGHT								Totals	
	x-63		64-69		70-75		76-x		No.	%
	No.	%	No.	%	No.	%	No.	%		
x-109.....	0	.....	1	1.19	0	.....	0	.....	1	1.19
110-119.....	1	1.19	11	13.09	8	9.52	1	1.19	21	24.99
120-129.....	1	1.19	7	8.33	27	32.14	12	14.29	47	55.95
130-x.....	0	.....	0	.....	2	2.38	13	15.48	15	17.86
Totals.....	2	2.38	19	22.61	37	44.04	26	30.96	84	99.99

There were two men with shorter upper faces and only one short total face height. While 30.96 per cent of the group had very long upper faces, only 17.86 per cent had very long total faces. In general the faces were medium in length with an apparent trend toward shortness despite the medium to long tendency of the upper face heights. Only nine individuals (10.71 per cent) were of the "Ram-faced" type. Nos. 3494 (Pls. 36, 37), 3495 (Pl. 28, Figs. 1, 2) and 3530 were omitted.

Prognathism was on the whole little more marked than it is in Europeans, although the size of the nose tended to give an unbalanced appearance to the face when viewed in norma lateralis. The nose, which was large and accipitrine, was markedly leptorrhine, there being twenty-three men (27.06 per cent) in the mesorrhine class and none in the platyrrhine division (see p. 309). There was considerable variation in the nasal profile, although a number (47.13 per cent) were convex. The nasal septum was prevalently inclined downward. In many cases the recurvation of the alae exposed in profile the medial wall of the nostril. The upward range of the nasal measurements was in no small degree caused by advancing age and must to some extent be correlated with growth changes.

The nasal length (53.82) and the nasal breadth (34.19) give an index of 63.86. When the individuals are grouped the following table results:

Nasal length	NASAL WIDTH								Totals	
	x-29		30-35		36-41		42-x		No.	%
	No.	%	No.	%	No.	%	No.	%		
x-49.....	0	.....	11	12.94	4	4.71	0	.....	15	17.65
50-59.....	2	2.35	41	48.23	18	21.18	3	3.52	64	75.28
60-x.....	0	.....	2	2.35	4	4.71	0	.....	6	7.06
Totals.....	2	2.35	54	63.52	26	30.60	3	3.52	85	99.99

There are also two individuals with very narrow medium long noses, six (7.06 per cent) with long noses (60-x), and three with wide, medium long noses. Sixty-four Jews (75.28 per cent) have noses of medium length and fifty-four (63.52 per cent) are moderately narrow. In general, the nose is medium to short and moderately narrow to moderately wide in breadth. The indices, however, according to the Harvard classification (p. 309) show that three-quarters of the group are leptorrhine.

The ears were found to be fairly well formed, lying normally near the head but sometimes markedly abstanding, which was probably due to the type of felt hat worn. The length of the ear seemed to have increased markedly with advancing years. The separation of the lobule was at times more or less deficient.

Among the group studied there was no one with any marked facial asymmetry. The neck was usually of medium development and quite cylindrical. The general tendency was for the neck to be short rather than long.

At the conclusion of these metric data and observations there comes the problem of attempting to describe in words the features which distinguish the Jews of Isfahan from the other three groups measured and observed in Iran.

Which of these individuals could be recognized without question as being Jews? Imagining myself in the main bazaar in Isfahan I see these faces passing in the crowd. It would, however, be easier under such circumstances to recognize the Jewish element of the population because the general appearance, a gesture, or a facial movement might easily betray the owner as either Jewish or distinctly non-Moslem.

The first task is to select the photographs of those individuals who strike me as definitely Jewish. The following persons fall into this category:

3475 (Pl. 22, Figs. 3, 4)	3495* (Pl. 28, Figs. 1, 2)
3476* (Pl. 10, Figs. 3, 4; Pl. 32, Figs. 1, 2)	3496* (Pl. 29, Figs. 3, 4)
3477 (Pl. 35, Fig. 3)	3500 (Pl. 21, Figs. 1, 2)
3478* (Pl. 28, Figs. 3, 4)	3501 (Pl. 32, Figs. 3, 4)
3480 (Pl. 33, Figs. 1, 2)	3502 (Pl. 25, Figs. 3, 4)
3481* (Pl. 22, Figs. 1, 2)	3503 (Pl. 34, Figs. 3, 4)
3483* (Pl. 34, Figs. 1, 2)	3507 (Pl. 24, Figs. 1, 2)
3484 (Pl. 35, Figs. 1, 2)	3508 (Pl. 20, Figs. 1, 2)
3487 (Pl. 30, Figs. 1, 2)	3517 (Pl. 27, Figs. 3, 4)
3494 † (Pls. 36, 37)	3521 (Pl. 27, Figs. 1, 2)

\* Those individuals most characteristic of the Isfahan Jews.

† Selected by Mr. Joseph Cohen as the typical Jew of the series.



The next step is to analyze the reasons for selecting this group of individuals. In some instances, e.g. No. 3476 (Pl. 10, Figs. 3, 4; Pl. 32, Figs. 1, 2), the profile is unmistakably Jewish. The shape of the skull does not seem to be of any great significance and the characteristic features seem to lie in the facial region. From the frontal aspect some special features include: the angle of the orbits, the massing of bone in the supraorbital region with a corresponding sulcus above, the sharp incurvation below the malars to form a depression in the center of the cheek, and finally, the ovoid face.

On the basis of analysis of the measurements and indices of the selected group of twenty typical Jews it would appear that their metric differences from the total series are probably to some extent due to age, the mean being 51.00, which is 11.70 years older than the combined group. The selected individuals have somewhat longer ears and larger noses associated with the changes of middle life and senility. It must, however, be noted that within the selected group the age ranges from 30-69 years whereas in the total series this is 18-70. When we compare the twenty selected Jews with the total series we find that the former are shorter in stature by 2.19; shorter in trunk length by 1.24; longer in head length by 0.24; wider in head breadth by 0.57; broader in minimum frontal diameter by 1.32, in bizygomatic breadth by 2.55, and in bigonial breadth by 2.36; longer in total facial height by 3.85, in upper facial height by 2.60, and in nasal height by 2.08; broader in nasal width by 2.16; longer in ear length by 0.92 and narrower in ear breadth by 0.39.

Thus the twenty selected Jews are shorter in length of trunk and leg, and show no differences in head dimensions, but they possess wider and longer faces, the length having increased in proportion more than the breadth. The noses are longer and broader.

There is possibly a brachycephalic element in these accentuated Jews, which is slightly stronger than in the total series.

In general there seem to be some definite Jewish characters among the examples selected but how much deception is caused by the beard I am not prepared to state. The safest criterion used for purposes of this type of classification is the rapid general summing-up of all these features, a process almost as instantaneous as the eye can focus, which determines in the mind of the physical anthropologist whether or not an individual belongs to a certain group.

Among the atypically Jewish individuals discarded from the first sorting, are young persons who obviously do not show specialized features as markedly as do the adults of a group, because infantile

characters tend to be less differentiated than adult features. Among the young individuals there occur not only some with Jewish features but also some of non-Jewish appearance. There is no necessity for a discussion of the former, who are probably aspirants for the Jewish group. There are, however, three individuals who appear to differ markedly from the standard, which resulted from examination of this group.

No. 3506 (Pl. 23, Figs. 3, 4) belongs to a primitive Mediterranean type with a short, broad face and a concave nose.

No. 3482 (Pl. 35, Fig. 4) has a very high head and his features suggest Mongoloid admixture, which is further indicated by his straight, sparse beard. The width of the bizygomatic arches is 139 with a bigonial breadth of 115, associated with a long face whose total facial height is 129. The cephalic index is 78.6 and he is tall for this group with a stature of 169.6, the average being 164.94. He might well pass for an inhabitant of Bukhara in Soviet Turkestan.

No. 3499 (Pl. 10, Figs. 1, 2; Pl. 29, Figs. 1, 2) might be mistaken for a northern European. He is short in stature (159.7), with medium zygomata (136), very narrow bigonial breadth (102), a short face due to a marked reduction in the lower portion, and a cephalic index of 76.2. No. 3506 (Pl. 23, Figs. 3, 4) also has a low stature (157.6), medium zygomata (131), narrow bigonial breadth (102), and a remarkably short face, both in total facial height (113) and in upper facial height (65). His cephalic index is 74.2.

Some of the other discarded individuals fall into one of these three classes or mixtures, but it is safe to state that within this group of Jews studied in the Isfahan ghetto there are a number of individuals, who, irrespective of age or minor variation, could not be classified as Jews on the basis of photographic analysis. This is not unusual, despite the fact that here we are dealing with a segregated group of the population, who, according to tradition, have lived in one small locality during the past 2,500 years. While type tends to beget type, yet it must be recalled that the chance fusing of chromosomes undoubtedly produces wide variants and sometimes even "sports." Thus, in a stable population wide ranges of individual variation may occur within the group even when there has been no infusion of extraneous characters through exogamous mating, such as may have been effected at Isfahan whether by natural selection, or through violence as a result of individual desire and free license—often the concomitants of a local edict to persecute and to harass the Jews.

In the preceding paragraphs particular emphasis has been laid on those individuals who appear to differ from the general Jewish type. It must be recalled that the Jews of Isfahan appear to have retained many physical features which segregate them from the remainder of the population in this city and ally them to other Jewish groups in southwestern Asia.

In my forthcoming publication entitled "The Anthropology of Iraq" there will appear measurements and observations on 106 Jews recorded in Iraq during 1934. Part of this series (47) is from the small village of Sandur between Dohuk and Amadia in northern Iraq (Field, 1937c).

#### INDIVIDUALS OMITTED FROM THE STATISTICAL SERIES

(1) No. 3474 was born at Hamadan, ancient Ecbatana, the Achmetha of the Bible, capital of Media Magna. Artificial cranial deformation had been practiced on this individual and there was marked asymmetrical occipital flattening. With regard to the Jewish population in Hamadan, this city, according to Dubeux (p. 26), in 1818 "contained about 9,000 houses and from forty to fifty thousand inhabitants, including 600 Jewish families." In more recent times there were reported to be 5,000 Jews in Hamadan.

(2) No. 3529, a hat-maker by trade, was a pituitary dwarf (cf. p. 298). The head, afflicted with scalp disease, was very large and entirely out of proportion to the rest of the body, for example: stature 118.5, sitting height 790, head length 175, head breadth 160, cephalic index 91.4.

(3) No. 3571 was born at Saghez in Iran Kurdistan. While this old man was a splendid type of Jew, particularly in profile, he appeared to be different in type from the Isfahan Jews. For instance, his cephalic index of 89.9 placed him in the hyperbrachycephalic class. It would be interesting to obtain a series of measurements on Saghez Jews for comparative purposes.

(4) No. 3572 was born at Shiraz, and for this reason can not be included in the Isfahan series. The hair in the frontal region grew in peculiar whorls.

(5) The following individuals from Isfahan, whose measurements and observations are included in the raw data, have been omitted from the statistical series because they were over seventy years of age: Nos. 3486 (Pl. 39, Figs. 3, 4); 3493 (Pl. 39, Figs. 1, 2); 3498 (Pl. 38, Figs. 1, 2); 3515 (Pl. 38, Figs. 3, 4); 3550, 3554, 3560.

(6) No. 3510 was also omitted. No photograph was taken.

## MEASUREMENTS AND INDICES OF TWENTY TYPICAL ISFAHAN JEWS

Measurements	No.	Range	Mean	S.D.	C.V.
Age . . . . .	20	30-69	51.00±1.82	12.10±1.29	23.72±2.53
Stature . . . . .	20	152-175	162.75±0.97	6.42±0.68	3.94±0.42
Sitting height . . . . .	20	72-89	79.60±0.55	3.63±0.39	4.56±0.49
Head length . . . . .	20	173-205	186.30±1.00	6.66±0.71	3.57±0.38
Head breadth . . . . .	20	138-155	144.85±0.54	3.60±0.38	2.49±0.27
Minimum frontal diameter . . . . .	19	105-120	113.22±0.45	2.92±0.32	2.58±0.28
Bizygomatic diameter . . . . .	19	125-144	136.75±0.78	5.05±0.55	3.69±0.40
Bigonial diameter . . . . .	19	98-121	110.22±0.83	5.36±0.59	4.86±0.53
Total facial height . . . . .	18	115-144	127.30±1.01	6.35±0.71	4.99±0.56
Upper facial height . . . . .	20	60-84	75.00±0.73	4.85±0.52	6.47±0.69
Nasal height . . . . .	20	48-67	55.90±0.56	3.68±0.39	6.58±0.70
Nasal breadth . . . . .	20	31-48	36.35±0.63	4.20±0.45	11.55±1.23
Ear length . . . . .	20	48-71	59.90±0.80	5.28±0.56	8.81±0.94
Ear breadth . . . . .	20	29-43	35.40±0.53	3.51±0.37	9.92±1.06
Indices					
Relative sitting height . . . . .	20	44-53	48.80±0.33	2.22±0.24	4.55±0.49
Cephalic . . . . .	20	71-88	78.00±0.48	3.51±0.34	4.04±0.43
Fronto-parietal . . . . .	19	72-83	77.89±0.31	2.01±0.22	2.58±0.28
Zygo-frontal . . . . .	19	76-91	82.98±0.47	3.04±0.33	3.66±0.40
Zygo-gonial . . . . .	18	72-86	81.49±0.78	4.90±0.55	6.30±0.71
Total facial . . . . .	17	85-104	90.80±0.66	4.05±0.47	4.46±0.52
Upper facial . . . . .	19	46-60	54.59±0.38	2.43±0.27	4.45±0.49
Nasal . . . . .	20	52-83	64.90±1.28	8.52±0.91	13.13±1.40
Ear . . . . .	20	45-76	59.90±1.19	7.92±0.84	13.20±1.41

## MEASUREMENTS AND INDICES OF JEWS OF ISFAHAN

Measurements	No.	Range	Mean	S.D.	C.V.
Age . . . . .	87	18-70	39.30±1.08	14.95±0.76	39.03±2.00
Stature . . . . .	86	152-184	164.94±0.46	6.30±0.32	3.82±0.20
Sitting height . . . . .	87	72-92	80.84±0.26	3.60±0.18	4.45±0.23
Head length . . . . .	87	173-205	186.06±0.39	5.46±0.28	2.93±0.15
Head breadth . . . . .	86	135-158	144.28±0.34	4.68±0.24	3.24±0.17
Minimum frontal diameter . . . . .	86	101-124	111.90±0.29	4.04±0.21	3.61±0.19
Bizygomatic diameter . . . . .	86	120-149	134.20±0.37	5.10±0.26	3.80±0.20
Bigonial diameter . . . . .	86	94-125	107.86±0.38	5.24±0.27	4.86±0.25
Total facial height . . . . .	84	105-144	123.45±0.49	6.65±0.35	5.39±0.28
Upper facial height . . . . .	87	60-84	72.40±0.36	4.95±0.20	6.84±0.28
Nasal height . . . . .	86	40-67	53.82±0.33	4.52±0.23	8.40±0.43
Nasal breadth . . . . .	86	28-48	34.19±0.26	3.60±0.19	10.53±0.54
Ear length . . . . .	86	44-75	58.98±0.40	5.48±0.28	9.29±0.48
Ear breadth . . . . .	87	26-43	35.79±0.27	3.69±0.19	10.31±0.53
Indices					
Relative sitting height . . . . .	86	44-53	49.20±0.10	1.42±0.07	2.89±0.15
Cephalic . . . . .	86	68-86	77.43±0.26	3.60±0.19	4.65±0.24
Fronto-parietal . . . . .	85	72-89	77.77±0.23	3.15±0.16	4.05±0.21
Zygo-frontal . . . . .	86	76-95	84.02±0.24	3.24±0.17	3.86±0.20
Zygo-gonial . . . . .	85	72-92	80.77±0.25	3.45±0.18	4.27±0.22
Total facial . . . . .	83	80-109	92.30±0.39	5.25±0.27	5.69±0.30
Upper facial . . . . .	86	43-63	54.11±0.28	3.84±0.20	7.10±0.37
Nasal . . . . .	85	48-83	63.86±0.56	7.68±0.40	12.03±0.62
Ear . . . . .	86	45-84	61.14±0.51	7.04±0.36	11.51±0.59

We have already examined the metric data on the group of twenty Jews selected on the basis of photographic analyses. For the sake of direct comparison, the measurements and indices of this selected group and those of the entire series obtained in Isfahan appear together on page 308.

There now remains the task of grouping the total series of Isfahan Jews according to the Harvard classificatory system for stature, cephalic index, total facial index and nasal index.

	STATURE			TOTALS
	SHORT ( $x-160.5$ )	MEDIUM ( $160.6-169.4$ )	TALL ( $169.5-x$ )	
Number . . . . .	19	49	18	86
Per cent . . . . .	22.09	56.98	20.93	100.00

	CEPHALIC INDEX			TOTALS
	DOLICHOCEPHALIC ( $x-76.5$ )	MESOCEPHALIC ( $76.6-82.5$ )	BRACHYCEPHALIC ( $82.6-x$ )	
Number . . . . .	32	49	5	86
Per cent . . . . .	37.21	56.98	5.81	100.00

	TOTAL FACIAL INDEX			TOTALS
	EURYPROSOPIC ( $x-84.5$ )	MESOPROSOPIC ( $84.6-89.4$ )	LEPTOPROSOPIC ( $89.5-x$ )	
Number . . . . .	4	21	58	83
Per cent . . . . .	4.82	25.30	69.88	100.00

	NASAL INDEX			TOTALS
	LEPTORRHINE ( $x-67.4$ )	MESORRHINE ( $67.5-83.4$ )	PLATYRRHINE ( $83.5-x$ )	
Number . . . . .	62	23	0	85
Per cent . . . . .	72.94	27.06	.....	100.00

In the preceding tables we see that the Jews of Isfahan are medium in stature with approximately equal percentages in the tall and short divisions, meso- to dolichocephalic, leptoprosopic, and leptorrhine.

For the convenience of those anthropologists who wish to make other calculations or correlations based on my figures, the complete raw data have been tabulated so that the measurements and indices appear on opposite pages in the text which now follows.

In all tables measurements or indices marked with an asterisk have been omitted from the averages.

## MEASUREMENTS

No.	Age	Stature	SH	L	B	B'	J	go-go	GH	G'H	NH	NB
3474*	50	169.3	843	167	147	110	134	115	116	64	55	33
3475	38	169.5	752	182	145	116	142	119	127	73	59	32
3476	55	163.0	767	182	142	115	135	113	131	77	55	35
3477	60	152.1	806	173	149	109	135	110	125	78	55	35
3478	50	163.0	797	185	139	113	134	115	132	79	55	36
3479	60	172.0	822	183	157	116	146	106	125	66	59	38
3480	60	169.2	870	191	145	114	136	116	133	78	58	36
3481	37	157.2	760	187	144	...	125	100	121	78	59	33
3482	51	167.6	820	187	147	116	139	115	129	75	54	40
3483	65	169.6	810	188	147	114	141	103	133	76	59	34
3484	68	161.1	804	184	143	113	140	107	124	70	53	44
3485	52	165.2	813	182	141	110	138	113	124	76	54	40
3486*	80	158.5	766	178	141	113	135	104	113	61	50	36
3487	52	154.4	780	187	147	118	141	113	139	83	60	36
3488	53	164.0	817	183	148	116	138	106	123	76	58	33
3489	45	164.5	814	185	147	108	132	108	128	71	52	36
3490	36	160.1	798	184	144	116	136	107	122	71	53	30
3491	55	164.0	790	183	144	115	132	106	132	76	57	32
3492	45	169.0	830	193	139	108	137	105	134	83	53	32
3493*	80	150.3	773	183	147	105	130	100	125	73	55	38
3494	65	164.1	844	180	148	111	142	116	...	79	60	32
3495	49	161.2	777	193	143	108	133	115	...	64	55	43
3496	50	167.5	817	192	155	118	143	108	127	77	53	34
3497	32	164.8	822	184	145	115	135	105	127	73	56	32
3498*	72	163.5	765	177	146	115	139	108	129	73	61	44
3499	50	159.7	762	185	141	111	136	102	119	78	54	..
3500	35	175.2	842	192	149	115	140	121	124	67	59	37
3501	60	161.0	803	184	146	115	132	113	124	73	54	39
3502	42	152.7	790	177	146	110	129	107	120	71	52	31
3503	65	166.4	832	204	149	115	139	113	141	82	59	46
3504	33	165.0	826	187	141	109	138	107	121	63	47	31
3505	26	164.1	831	185	143	106	130	107	110	62	45	33
3506	38	157.6	776	182	135	113	131	102	113	65	45	36
3507	40	152.2	740	188	142	109	131	105	122	70	48	37
3508	33	161.8	792	190	142	110	135	111	121	76	55	31
3509	36	167.9	808	179	141	110	130	104	122	70	50	32
3510*	34	154.2	740	181	138	108	125	102	124	75	55	32
3511	40	159.7	797	184	148	110	127	104	122	74	54	32
3512	34	161.4	824	182	136	107	126	94	120	69	46	30
3513	22	167.2	804	197	144	107	131	108	127	72	55	38
3514	21	173.1	882	180	147	115	130	99	121	67	55	31
3515	73	160.4	792	189	159	112	134	111	119	71	58	43
3516*	23	173.0	847	187	145	105	130	102	120	76	58	29
3517	46	162.7	770	183	143	113	137	104	130	82	67	36
3518	27	159.3	773	188	144	113	132	99	122	70	53	31
3519	40	165.0	810	182	142	105	129	100	128	73	55	36
3520	30	172.2	847	196	137	110	129	106	126	75	54	32
3521	45	170.3	772	182	140	172	128	108	118	72	52	37
3522	30	163.0	803	180	147	108	130	102	115	65	45	32
3523	28	163.3	812	192	147	116	135	113	125	70	44	33

\*Omitted from Isfahan series.

## INDICES

No.	EL	EB	RSH	B/L	B'/B	GH/J	G'H/J	NB/NH	EB/EL	go-go/J	B'/J
3474*	61	37	49.9	88.0	74.8	86.6	47.8	60.0	60.7	85.8	82.1
3475	54	35	44.4	79.7	80.0	89.4	51.4	54.2	64.8	83.8	81.7
3476	58	34	47.0	78.0	81.0	97.0	57.0	63.6	58.6	83.7	85.2
3477	62	35	53.0	86.1	73.2	92.6	57.8	63.6	56.5	81.5	80.7
3478	61	34	48.9	75.1	81.3	98.5	58.9	65.5	55.7	85.8	84.3
3479	75	40	47.8	85.8	73.9	85.6	45.2	64.4	53.3	72.6	79.5
3480	68	38	51.4	75.9	78.6	97.8	57.4	62.1	55.9	85.3	83.8
3481	48	33	48.3	77.0	86.8	....	....	55.9	68.8	....	....
3482	64	42	48.9	78.6	78.9	92.8	54.0	74.1	65.6	82.7	83.5
3483	62	43	47.8	78.2	77.6	94.3	53.9	57.6	69.4	73.1	80.9
3484	70	36	49.9	77.7	79.0	88.6	50.0	83.0	51.4	76.4	80.7
3485	70	43	49.2	77.5	78.0	89.9	55.1	74.1	61.4	81.9	79.7
3486*	62	32	48.4	79.2	80.1	83.7	45.2	72.0	51.6	77.0	83.7
3487	61	35	50.5	78.6	80.3	98.6	58.9	60.0	57.4	80.1	83.7
3488	65	30	49.7	80.9	78.4	89.1	55.1	56.9	46.2	76.8	84.1
3489	58	28	49.4	79.5	73.5	97.0	53.8	69.2	48.3	81.8	81.8
3490	50	33	49.8	78.3	80.6	89.7	52.2	56.6	66.0	78.7	85.3
3491	60	34	48.2	78.7	79.9	100.0	57.6	56.1	56.7	80.3	87.1
3492	60	38	49.1	72.0	77.7	97.8	60.6	60.4	63.3	76.6	78.8
3493*	70	39	51.4	80.3	71.4	96.2	56.2	69.1	55.7	76.9	80.8
3494	60	34	51.4	82.2	75.0	81.7	55.6	53.3	56.7	81.7	78.2
3495	60	40	48.2	74.1	75.5	81.9	48.1	78.2	66.7	86.5	81.2
3496	52	31	48.8	80.7	76.1	88.8	53.8	64.2	59.6	75.5	82.5
3497	61	37	49.9	78.8	79.3	94.1	55.1	57.1	52.5	77.8	85.2
3498*	66	40	46.8	82.5	78.8	92.8	52.5	72.1	60.6	77.7	82.7
3499	61	37	47.7	76.2	78.7	87.5	57.4	....	60.7	75.0	81.6
3500	59	41	48.1	77.6	77.2	90.7	47.9	62.7	69.5	86.4	82.1
3501	60	29	49.9	79.4	78.8	93.9	55.3	72.2	48.3	85.6	87.1
3502	63	29	51.7	82.5	75.3	93.0	55.0	59.6	46.0	83.0	85.3
3503	61	36	50.0	73.0	77.2	101.4	59.0	78.0	59.0	81.3	82.7
3504	61	40	50.0	75.4	77.3	87.7	45.7	65.9	65.6	77.5	79.0
3505	60	33	50.6	77.3	74.1	84.6	47.7	73.3	55.0	82.3	81.5
3506	56	34	49.2	74.2	83.7	86.3	49.6	80.0	68.0	77.9	86.3
3507	48	35	48.6	75.5	76.8	93.1	53.4	77.1	72.9	80.2	83.2
3508	58	34	48.9	74.7	77.5	89.6	56.3	56.4	58.6	82.2	81.5
3509	57	36	48.0	78.8	78.0	93.9	53.9	64.0	63.2	80.0	84.6
3510	56	35	48.0	76.2	78.3	99.2	60.0	58.2	62.5	81.6	86.4
3511	54	32	49.9	80.4	74.3	96.1	58.3	59.3	59.3	81.9	86.6
3512	54	34	51.1	74.7	78.7	95.2	54.8	65.2	63.0	74.6	84.9
3513	56	34	48.0	73.1	74.3	97.0	55.0	69.1	60.7	82.4	81.7
3514	57	37	51.0	81.7	78.2	93.1	51.5	56.4	64.9	76.2	88.5
3515*	60	41	49.4	84.1	70.4	88.8	53.0	74.1	68.3	82.8	83.6
3516	57	39	49.0	77.5	72.4	92.3	58.5	50.0	68.4	78.5	80.8
3517	60	39	47.3	78.1	79.0	94.9	59.9	53.7	65.0	75.9	82.5
3518	60	30	48.5	76.6	78.5	92.4	53.0	58.5	50.0	75.0	85.6
3519	58	42	49.1	78.0	73.9	99.2	56.6	65.5	72.4	77.5	81.4
3520	56	40	49.2	69.9	80.3	97.7	58.1	59.3	71.4	82.2	85.3
3521	66	37	45.3	76.9	80.0	92.2	56.3	71.2	56.1	84.4	87.5
3522	60	37	49.3	78.3	76.6	88.5	50.0	71.1	61.7	78.5	83.1
3523	65	37	49.7	76.6	78.9	92.6	51.9	75.0	56.9	83.7	85.9

\* Omitted from Isfahan series.

No.	Age	Stature	MEASUREMENTS									
			SH	L	B	B'	J	go-go	GH	G'H	NH	NB
3524	26	.....	803	186	147	112	134	109	116	70	57	33
3525	45	172.2	850	198	135	111	129	103	120	73	55	34
3526	22	157.0	800	186	145	115	125	99	108	67	48	36
3527	20	167.3	764	188	136	111	131	104	134	76	58	33
3528	31	157.5	790	190	144	115	137	122	128	73	63	37
3529*	20	118.5	790	175	160	115	128	100	103	53	40	30
3530	21	162.4	802	189	148	111	138	112	...	68	56	31
3531	..	168.6	856	186	151	110	132	106	116	67	54	32
3532	20	166.7	797	182	154	117	141	112	121	73	53	33
3533	35	171.5	853	193	142	108	130	109	119	74	53	30
3534	20	179.5	885	185	147	110	136	116	124	70	48	32
3535	55	161.5	800	192	146	107	133	100	115	75	50	41
3536	49	151.6	735	186	143	107	126	103	116	67	52	35
3537	46	162.0	782	181	136	105	130	100	118	71	57	30
3538	18	164.7	801	187	141	108	126	105	121	70	50	39
3539	25	176.0	872	185	146	111	133	105	122	64	47	34
3540	20	167.5	810	182	148	120	141	114	121	75	58	31
3541	45	154.8	735	188	148	108	141	111	119	68	54	31
3542	50	163.0	800	186	151	115	141	110	118	68	50	31
3543	23	171.6	846	198	151	120	141	113	124	73	57	35
3544	21	168.8	810	193	143	108	128	104	132	77	55	32
3545	31	183.2	922	180	148	112	140	110	123	78	56	35
3546	22	158.0	787	188	143	115	130	118	118	66	53	33
3547	30	166.8	810	184	136	114	124	106	123	77	53	32
3548	34	171.2	822	179	144	116	132	108	126	78	64	31
3549	18	153.0	781	174	147	111	128	102	114	65	48	32
3550*	80	164.0	750	188	138	110	133	107	129	76	61	38
3551	26	169.0	785	188	146	108	131	104	117	71	57	41
3552	30	173.5	858	194	136	113	131	112	141	80	57	38
3553	20	167.3	823	195	145	116	135	106	123	73	57	33
3554*	90	154.8	738	186	146	112	134	100	134	82	64	37
3555	50	163.7	782	186	146	112	132	106	133	74	53	35
3556	..	171.8	862	197	138	112	130	113	117	70	52	34
3557	30	163.8	807	184	151	121	143	116	122	74	60	37
3558	28	161.3	794	188	137	113	132	112	127	74	49	36
3559	18	158.8	788	180	137	119	128	107	114	67	50	33
3560*	75	163.3	783	184	142	115	135	113	131	81	60	33
3561	18	166.8	833	178	148	112	135	109	126	77	58	30
3562	45	160.4	777	186	144	117	138	112	127	78	56	38
3563	20	162.3	807	184	147	111	130	104	119	70	49	32
3564	34	159.3	772	179	142	116	137	109	137	77	58	32
3565	25	167.2	818	184	113	132	104	104	124	68	50	29
3566	28	165.7	797	184	146	117	135	108	114	64	43	31
3567	15	165.0	822	179	137	104	127	108	115	64	42	47
3568	35	157.4	813	183	139	103	132	104	126	69	45	30
3569	18	181.0	905	187	151	114	133	112	121	73	54	36
3570	24	169.0	853	186	145	111	130	106	132	73	54	38
3571*	60	160.8	782	178	160	116	145	116	124	80	61	31
3572*	27	161.0	806	195	149	118	140	112	118	63	46	34

\*Omitted from Isfahan series.



## INDICES

No.	EL	EB	SH	B/L	B'/B	GH/J	G'H/J	NB/NH	EB/EL	go-go/J	B'/J
3524	55	36	....	79.0	76.2	82.6	52.2	57.9	65.5	81.3	83.6
3525	62	35	49.4	68.2	82.2	93.0	56.6	61.8	56.5	79.8	86.1
3526	53	31	51.0	78.0	79.3	86.4	53.6	75.0	58.5	79.2	92.0
3527	71	40	45.7	72.3	81.6	102.3	58.0	56.9	56.3	79.4	84.7
3528	60	38	50.2	75.8	79.9	93.4	53.3	58.7	63.3	89.1	83.9
3529*	59	35	66.7	91.4	71.9	80.5	41.4	75.0	59.3	78.1	89.8
3530	55	42	49.4	78.3	75.0	....	49.3	55.4	80.8	81.2	80.4
3531	48	34	50.8	81.2	72.9	87.9	50.8	59.3	70.8	80.3	83.3
3532	54	37	47.8	84.6	76.0	85.8	51.8	62.3	68.5	79.4	83.0
3533	63	37	49.7	73.6	76.1	91.5	56.9	56.6	58.7	83.9	83.1
3534	55	32	49.3	79.5	74.8	91.2	51.5	66.7	58.2	85.3	80.9
3535	61	42	49.5	76.0	73.3	86.5	56.4	82.0	68.9	75.2	80.5
3536	56	38	48.5	76.1	74.8	92.1	53.2	67.3	67.9	81.8	84.9
3537	50	33	48.3	75.1	77.2	90.8	54.6	52.6	66.0	76.9	80.8
3538	63	38	48.6	75.4	76.6	96.0	55.6	78.0	60.3	83.3	85.7
3539	54	35	49.5	78.9	76.0	91.7	48.1	72.3	64.8	79.0	83.5
3540	61	34	48.4	81.3	81.1	85.8	53.2	53.5	55.7	80.9	85.1
3541	61	31	47.5	78.7	73.0	84.4	48.2	57.4	50.8	78.7	76.6
3542	56	35	49.1	81.2	76.2	83.7	48.2	62.0	62.5	78.0	81.6
3543	58	32	49.3	76.3	79.5	87.9	51.8	61.4	55.2	80.1	85.1
3544	60	38	48.0	74.1	75.5	103.1	60.2	58.2	63.3	80.5	84.4
3545	61	40	50.3	82.2	75.7	87.9	55.7	62.5	65.6	78.6	80.0
3546	54	33	49.8	76.1	80.4	90.8	50.8	62.3	61.1	90.8	88.5
3547	55	28	48.6	73.9	83.8	99.2	62.1	60.4	50.9	85.5	91.9
3548	59	38	48.0	80.5	80.6	95.5	59.1	48.4	64.4	81.8	87.9
3549	50	32	51.0	84.5	75.5	89.1	50.8	66.7	64.0	79.7	86.7
3550*	61	41	45.7	73.4	79.7	97.0	57.1	62.3	67.2	80.5	82.7
3551	..	36	47.6	77.7	74.0	89.3	54.2	71.9	....	79.4	82.4
3552	59	35	49.5	70.1	83.1	107.6	61.1	66.7	59.3	85.5	86.3
3553	66	43	49.2	74.4	80.0	91.1	54.1	57.9	65.2	78.5	85.9
3554*	71	40	47.7	78.5	76.7	100.0	61.2	57.8	56.3	74.6	83.6
3555	55	37	47.8	78.5	76.7	100.7	56.1	66.0	67.3	80.3	84.9
3556	56	31	50.2	70.1	81.2	90.0	53.9	65.4	55.4	86.9	86.2
3557	69	38	49.3	82.1	80.1	85.3	51.7	61.7	55.1	81.1	84.6
3558	46	35	49.2	72.9	82.5	96.2	56.1	73.5	76.1	84.9	85.6
3559	52	33	49.6	76.1	86.9	89.1	52.3	66.0	63.5	83.6	93.0
3560*	60	42	47.9	77.2	81.0	97.0	60.0	55.0	70.0	83.7	85.2
3561	63	32	49.4	83.2	75.7	93.3	57.0	51.7	50.8	80.7	83.0
3562	68	42	48.3	77.4	81.8	92.0	56.5	67.9	61.8	81.2	84.8
3563	54	37	49.7	79.9	75.5	91.5	53.9	65.3	68.5	80.0	85.4
3564	53	34	48.5	79.3	81.7	100.0	56.2	55.2	64.2	79.6	84.7
3565	60	38	48.9	....	....	93.9	51.5	58.0	63.3	78.8	85.6
3566	55	35	48.1	79.4	80.1	84.4	47.4	72.1	63.6	80.0	86.7
3567	56	40	49.8	76.5	75.9	90.6	50.4	89.4	71.4	85.0	81.9
3568	58	34	51.7	76.0	74.1	95.5	52.3	66.7	58.6	78.8	78.0
3569	65	38	50.0	80.8	75.5	91.0	54.9	66.7	58.5	84.2	85.7
3570	62	38	50.5	78.0	76.6	101.5	56.2	70.4	61.3	81.5	85.4
3571*	55	43	48.6	89.9	72.5	85.5	55.2	50.8	78.2	80.0	80.0
3572	52	32	50.1	76.4	79.2	84.3	45.0	73.9	61.5	80.0	84.3

\*Omitted from Isfahan series.

## MORPHOLOGICAL CHARACTERS OF ISFAHAN JEWS

No.	HAIR			EYES			NOSE	
	Form	Texture	Color	Color	Sclera	Iris	Profile	Wings
3474	l w	medium	br, gray	gr-br	speck	ray	conv	medium
3475	l w	coarse	dk br	dk br	clear	homo	conv	medium
3476	l w	medium	gray	gray-br	clear	zon	conv	medium
3477	...	.....	.....	dk br	clear	hom	str	medium
3478	l w	fine	gray	dk br	clear	hom	conv	cp-m
3479	l w	medium	red, gray	dk br	clear	hom	conv	m-fl
3480	l w	fine	blk, gray	dk br	clear	hom	str	m-fl
3481	l w	fine	dk br	bl-br	speck	zon	str	medium
3482	...	.....	.....	bl-br	speck	.....	str	m-fl
3483	l w	medium	br, gray	dk br	clear	hom	conv	comp
3484	l w	fine	gray, br	dk br	clear	hom	str	flar
3485	l w	medium	br, gray	dk br	clear	hom	conc	m-fl
3486	...	.....	.....	.....	.....	.....	conv	m-fl
3487	d w	medium	blk, gray	dk br	clear	hom	conv	m-fl
3488	l w	m-fine	gray, blk	dk br	clear	hom	conv	cp-m
3489	l w	medium	blk, gray	gr-br	speck	ray	conv	medium
3490	l w	medium	black	dk br	clear	hom	str	medium
3491	l w	coarse	black	dk br	clear	hom	conv	flar
3492	l w	medium	black	gr-br	speck	ray	str	medium
3493	...	.....	.....	bl-br	speck	.....	str	flar
3494	...	.....	.....	gray-br	clear	ray	str	medium
3495	l w	.....	br, gray	bl-gr	speck	ray	conv	flar
3496	l w	medium	blk, gray	dk br	clear	hom	conv	cp-m
3497	l w	fine	dk br	dk br	clear	hom	conv	medium
3498	...	.....	.....	bl-br	.....	.....	conv	flar
3499	l w	fine	gray, blk	gr-br	speck	ray	str	comp
3500	l w	m-fine	dk br	gr-br	speck	zon	conv	medium
3501	d w	medium	dk br	dk br	clear	homo	conv	m-flar
3502	l w	medium	black	dk br	clear	homo	conv	medium
3503	l w	medium	gray	dk br	clear	homo	str	flar
3504	l w	medium	black	dk br	clear	homo	conc	comp
3505	l w	medium	black	dk br	clear	homo	conc	medium
3506	l w	medium	br, gray	gray-br	clear	zon	conc	m-flar
3507	l w	fine	blk, gray	bl-br	.....	.....	conv	m-flar
3508	l w	fine	red br	dk br	clear	homo	conv	medium
3509	l w	medium	black	dk br	clear	homo	str	sp-m
3510	l w	medium	blk, gray	gr-br	speck	zon	str	sp-m
3511	l w	medium	black	dk br	speck	zon	wavy	m-fl
3512	l w	medium	br, gray	gr-br	speck	zon	conv	medium
3513	l w	medium	black	dk br	speck	.....	c-c	m-fl
3514	l w	medium	dk red br	bl-gray	speck	.....	conv	medium
3515	...	.....	.....	gray-br	.....	ray	conv	m-fl
3516	d w	coarse	black	dk br	clear	homo	str	comp
3517	l w	coarse	blk, gray	dk br	clear	homo	conv	medium
3518	l w	medium	black	dk br	clear	homo	str	medium
3519	...	.....	blk, gray	bl-br	blood	.....	conc	m-fl
3520	l w	medium	black	gr-br	speck	zon	str	medium
3521	l w	medium	blk, gray	dk br	clear	homo	conv	medium
3522	l w	medium	dk br	dk br	clear	homo	conc	medium
3523	d w	coarse	dk br	dk br	speck	.....	conc	medium
3524	d w	medium	black	dk br	speck	ray	c-c	medium

MORPHOLOGICAL CHARACTERS OF ISFAHAN JEWS

No.	HAIR			EYES			NOSE	
	Form	Texture	Color	Color	Sclera	Iris	Profile	Wings
3525	...	.....	.....	gr-br	v blood	.....	conc	medium
3526	l w	medium	dk br	dk br	clear	homo	conv	m-fl
3527	l w	fine	dk br	dk br	clear	homo	str	m-fl
3528	l w	m-fine	dk br	gr-br	speck	zon	str	medium
3529*	...	.....	dk br	dk br	clear	homo	conc	medium
3530	l w	fine	dk br	dk br	clear	hom	str	medium
3531	d w	c-med	black	dk br	clear	hom	conc	medium
3532	...	.....	black	dk br	clear	hom	conv	medium
3533	l w	medium	dk br	dk br	clear	hom	conv	m-fl
3534	l w	coarse	dk br	dk br	clear	hom	c-c	medium
3535	l w	medium	blk, gray	gr-br	speck	zon	conc	m-fl
3536	l w	fine	blk, gray	dk br	clear	hom	conv	medium
3537	l w	medium	dk br	dk br	clear	hom	conv	comp
3538	l w	medium	dk br	dk br	clear	hom	conc	medium
3539	l w	medium	dk br	dk br	clear	hom	conv	medium
3540	l w	medium	black	dk br	clear	hom	conv	medium
3541	l w	coarse	blk, gray	dk br	clear	hom	conv	medium
3542	...	.....	.....	dk br	clear	hom	conc	medium
3543	l w	medium	dk br	dk br	clear	hom	conv	medium
3544	...	.....	dk br	gr-br	clear	hom	conv	medium
3545	c-f	medium	black	gr-br	speck	zon	str	m-fl
3546	l w	medium	black	dk br	clear	hom	conv	medium
3547	l w	medium	black	bl-br	...	hom	str	medium
3548	l w	medium	black	dk br	clear	hom	conv	comp
3549	d w	m-fine	black	dk br	clear	hom	str	medium
3550	...	.....	gray, blk	dk br	...	.....	conv	m-fl
3551	d w	coarse	black	dk br	clear	hom	conv	m-fl
3552	l w	m-fine	black	dk br	clear	hom	str	m-fl
3553	...	.....	black	dk br	clear	hom	conv	medium
3554	...	.....	.....	dk br	...	.....	conv	m-fl
3555	l w	.....	black	dk br	speck	zon	str	medium
3556	...	.....	black	dk br	clear	hom	str	m-fl
3557	l w	fine	black	dk br	speck	zon	conv	m-fl
3558	c-f	coarse	black	dk br	clear	hom	str	medium
3559	l w	medium	black	dk br	clear	hom	conv	medium
3560	l w	medium	gray	dk br	speck	zon	str	cp-m
3561	l w	fine	black	dk br	clear	hom	str	medium
3562	...	.....	.....	gr-br	speck	zon	conv	m-fl
3563	l w	medium	black	dk br	clear	hom	str	medium
3564	l w	coarse	black	dk br	clear	hom	conv	medium
3565	l w	coarse	black	dk br	clear	hom	str	medium
3566	l w	fine	black	dk br	clear	hom	conv	comp
3567	...	.....	.....	dk br	clear	hom	c-c	medium
3568	l w	medium	black	dk br	clear	hom	str	medium
3569	l w	fine	black	dk br	clear	hom	conv	m-fl
3570	l w	medium	dk br	gr-br	speck	zon	tonc	m-fl
3571	...	.....	.....	dk br	speck	ray	conv	cp-m
3572	...	.....	black	dk br	clear	hom	conc	flar

\* Dwarf; omitted from averages.

COMPARATIVE DATA ON JEWS FROM SOUTHWESTERN  
ASIA AND THE CAUCASUS

In order to show the differences in physical characters between the Jews of Isfahan and those from other regions of southwestern Asia and the Caucasus, a few comparative statistics are added. Despite the fact that the smallness of some of the series prevents valid statistical comparisons it seems to me that the existing data should be tabulated in this manner to indicate possible physical and racial trends. I shall elaborate on these data in my forthcoming report on the anthropology of Iraq.

The figures from Jews in Palestine have been omitted since these would only complicate the issues. Prior to the War (1914), Weissenberg measured a number of Jewish groups in various parts of Southwestern Asia and for preliminary purposes of comparison I have used his data and those of Ivanovskii. According to Weissenberg (1911), after the conquest of the Northern Kingdom by the Assyrians in 722 B.C. and the subsequent dispersal of the Israelites, the latter mingled with the peoples among whom they were forced to settle. In this manner he accounts for the great physical differences among the Jews in southwestern Asia.

Weissenberg (1909) states that there were in 1909 approximately 40,000 Jews in the Yemen and about 3,000 in the city of Aden. For a group of fifty males the cephalic index was 74.3 with a maximum of 83.1. Fourteen females had an average cephalic index of 76.7 with a minimum of 71.3 and a maximum of 87.2. These two groups contain no blonds. In general, these Jews seem to differ in many physical aspects from the other Jews of Southwestern Asia. Indeed, Hermann Burchardt maintains that the Yemen Jews are not Beni-Israil (i.e. Sons of Israel) but Arabs who have adopted Judaism.

In the first table which follows there appear the measurements and indices of the Jews studied by Weissenberg. Since the means are given here they have not been repeated in the subsequent tables where the measurements and indices have been divided into arbitrary classifications. In order to show the minor variations these series have been grouped under more than the customary three categories used throughout this chapter.

In the following tables groups 1 and 5 were observed by Field; groups 2, 3, 4, 6, 7, 8, 13, 14, and 15 by Weissenberg; groups 9, 10, 11, and 12 by Field and Smeaton. Of the Field and Smeaton groups

Miss Winifred Smeaton (now Mrs. Homer Thomas) measured nine in group 9, three in group 10, two in group 11, and two in group 12.

## JEWS MEASURED BY WEISSENBERG

Stat.	L	B	J	GH	NH	NB	B/L	GH/J	NB/NH	
Urmia.....	165.4	131	149	138	124	56	33	82.3	89.9	58.9
Meshed.....	161.2	179	147	134	118	54	34	82.1	88.1	63.0
Shiraz.....	164.0	133	144	136	126	56	34	78.7	92.6	60.7
Urfa.....	165.0	134	143	132	122	56	34	77.7	92.4	60.7
Kurdistan.....	163.8	132	145	134	124	57	35	79.7	92.5	61.4
Baghdad.....	161.8	136	145	136	128	55	34	78.0	94.1	61.8
Georgian.....	163.6	134	158	142	125	58	34	85.9	88.0	58.6
Mountain.....	164.0	133	155	141	125	57	35	84.7	88.6	61.4
S. Russian.....	165.1	133	151	138	119	54	34	82.5	86.2	63.0
Yemen.....	159.4	137	139	130	118	54	33	74.3	90.8	61.1

The above figures are based on thirty Jews from Urmia, ten from Meshed, seventeen from Shiraz, five from Baghdad, fourteen from Kurdistan, a small series from Urfa, and fifty from Yemen. The Kurdistan series includes seven individuals from Mosul, and one from Amadia, Iraq, as well as three from Diarbekr and three from Chermuk, Turkey.

*Stature.*—In the combined group of 395 Jews the range, from 146.0 (Yemen) to 183.2 (Isfahan), shows extensive fluctuation, although 84.81 per cent are below 170.0. In the 160.0–169.9 class 236 men (59.75 per cent) appear and ninety-nine Jews (25.06 per cent) are in the shortest group ( $x$ –159.9). At the tall end of the scale (180.0+) there are only four individuals (1.01 per cent).

Thus in general the Jews of Southwestern Asia tend to be short in stature and in all probability it will be found that they are below the average mean for the peoples of Southwestern Asia. Apart from a racial criterion there is probably a close correlation here with the continual struggle for existence and a lack of proper nutrition and sunlight, all factors to which the modern Jews of this area are particularly subject.

Ripley (1899a, p. 382) comments: "Whether the short stature of the Jew is a case of an acquired characteristic which has become hereditary, we are content to leave an open question. All we can say is that the modern Semites in Arabia and Africa are all of goodly size, far above the Jewish average. This would tend to make us think that the harsh experiences of the past have subtracted several cubits from the stature of the people of Israel. In self-defence it must be said that the Christian is not entirely to blame for this physical disability. It is largely to be ascribed to the custom of early marriages among them."

STATURE

No.	x-159.9		160.0-169.9		170.0-179.9		180.0-x		Total	Minimum	Maximum	Mean
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent				
1. Isfahan.....	19	21.84	52	59.77	14	16.09	2	2.30	87	151.6	183.2	164.94
2. Shiraz.....	3	17.65	13	76.47	1	5.88	0	.....	17	156.0	178.0	164.0
3. Meshed.....	3	30.00	7	70.00	0	.....	0	.....	10	155.5	168.5	161.2
4. Urmia.....	9	30.00	14	46.67	6	20.00	1	3.33	30	156.0	181.0	165.4
5. Sandur.....	16	34.04	26	55.32	5	10.64	0	.....	47	146.1	174.5	162.11
6. Urfa.....	2	8.33	15	62.50	7	29.17	0	.....	24	159.0	174.0	165.0
7. Kurdistan.....	4	28.57	9	64.29	0	.....	1	7.14	14	154.0	167.0	163.8
8. Baghdad.....	1	20.00	4	80.00	0	.....	0	.....	5	156.5	165.0	161.8
9. Aqra.....	1	5.00	11	55.00	8	40.00	0	.....	20	155.2	177.5	167.83
10. Zakh.....	1	6.67	12	80.00	2	13.33	0	.....	15	158.5	171.8	164.86
11. Rowandiz.....	3	17.65	8	47.06	6	35.29	0	.....	17	156.5	175.7	166.22
12. Sulaimaniya.....	0	.....	6	100.00	0	.....	0	.....	6	162.0	168.0	164.47
13. Georgian.....	7	21.21	23	69.70	3	9.09	0	.....	33	149.0	174.0	163.6
14. Mountain.....	5	25.00	13	65.00	2	10.00	0	.....	20	149.5	178.0	164.0
15. Yemen.....	25	50.00	23	46.00	2	4.00	0	.....	50	146.0	175.0	159.4
	99	25.06	236	59.75	56	14.18	4	1.01	395	146.0	183.2	163.91

HEAD LENGTH

No.	x-170		171-175		176-180		181-185		186-190		191-195		196-x		Total	Min.	Max.	Mean
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent				
1. Isfahan.....	0	.....	2	2.27	11	12.50	32	36.36	26	29.55	11	12.50	6	6.82	88	173	204	185.91
2. Shiraz.....	0	.....	0	.....	7	41.18	6	35.29	2	11.76	2	11.76	0	.....	17	176	194	183
3. Meshed.....	1	10.00	3	30.00	2	20.00	3	30.00	0	.....	1	10.00	0	.....	10	170	192	179
4. Urmia.....	1	3.33	5	16.67	9	30.00	9	30.00	4	13.33	2	6.67	0	.....	30	170	192	181
5. Sandur.....	1	2.17	7	15.22	18	39.13	10	21.74	8	17.39	2	4.35	0	.....	46*	165	194	184.24
6. Urfa.....	0	.....	1	5.56	3	16.67	7	38.89	6	33.33	1	5.56	0	.....	18	172	193	184
7. Kurdistan.....	0	.....	0	.....	7	50.00	5	35.71	1	7.14	0	.....	1	7.14	14	177	198	182
8. Baghdad.....	0	.....	0	.....	1	20.00	2	40.00	1	20.00	1	20.00	0	.....	5	180	192	186
9. Aqra.....	0	.....	2	10.00	8	40.00	6	30.00	3	15.00	1	5.00	0	.....	20	172	195	181.35
10. Zakho.....	0	.....	1	6.25	0	.....	6	37.50	7	43.75	2	12.50	0	.....	16	172	193	185.88
11. Rowandiz.....	0	.....	4	23.53	4	23.53	6	35.29	3	17.65	0	.....	0	.....	17	173	188	180.24
12. Sulaimaniya..	1	16.67	2	33.33	2	33.33	1	16.67	0	.....	0	.....	0	.....	6	164	185	176
13. Georgian.....	1	3.03	2	6.06	7	21.21	10	30.30	8	24.24	3	9.09	2	6.06	33	165	198	184
14. Mountain.....	0	.....	3	15.00	4	20.00	7	35.00	4	20.00	0	.....	2	10.00	20	171	199	183
15. Yemen.....	0	.....	3	6.00	3	6.00	13	26.00	15	30.00	12	24.00	4	8.00	50	169	200	187
	5	1.28	35	8.97	86	22.05	123	31.54	88	22.56	38	9.74	15	3.85	390	164	204	182.81

\* No. 3100 omitted in head tables.

Ripley (1899a, p. 377) adds that "the European Jews are all undersized; not only this, they are more often absolutely stunted. In London they are about three inches shorter than the average for the city. Whether they were always so, as in the days when the Book of Numbers (XIII, 33) described them "as grasshoppers in their own sight," as compared with the Amorites, sons of Anak, we leave an open question. We are certain, however, as to the modern Jew. He betrays a marked constancy in Europe at the bodily height of about five feet four inches (1.63 metres) for adult men."

*Head Length.*—Among 390 Jews the range (164–204) shows a great spread between the extremes of this dimension. Three-fourths of the individuals fall within the 176–190 classifications. Only 13.59 per cent are above 190 and still fewer (10.25 per cent) are below 176. The lowest category of those of 170 or less has only five individuals (1.28 per cent) while at the other end of the scale in the division 196 and more there were fifteen men (3.85 per cent). The mean for the combined group is 182.81, which is approximately 3 mm. less than that of the Isfahan Jews. In general, the Jews of Southwestern Asia have short heads, particularly those from Sulaimaniya (176.0) and Meshed (179.0).

*Cephalic Index.*—Concerning 389 Jews the following observations can be made. In the two divisions, 75.1–84.9, occur 262 individuals (67.35 per cent). There is an almost equal number of individuals in each of the two sections. On the other hand, when the extremes are studied it will be seen that there is a great tendency toward brachycephaly and hyperbrachycephaly. At the lowest end of the scale there are eight Jews (2.06 per cent), six of whom are from Yemen, and in the next group appear fifty-five men (14.14 per cent), who are dolichocephalic, with twenty-seven from Yemen. In the hyperbrachycephalic group ranging from 85 to 91.8 there are sixty-four Jews (16.45 per cent).

The Jews of Southwestern Asia tend to be brachycephalic and frequently even hyperbrachycephalic. These high indices are due not only to a relatively short head length but also to a tendency for a widening to occur in the maximum breadth of the head.

*Total Facial Index.*—Out of 383 Jews 267 (69.72 per cent) fall within the two subdivisions between 85.1 and 95.0. In accordance with arbitrary classifications in the euryprosopic class ( $x=85.0$ ) there are forty-six Jews (12.01 per cent), with eight men (2.09 per cent) in the hypereuryprosopic group ( $x=80.0$ ). In the mesoprosopic series (85.1–90.0) there are 134 men (34.99 per cent). The leptoprosopic



CEPHALIC INDEX

No.	x-70.0		70.1-75		75.1-79.9		80-84.9		85.0-x		Total	Min.	Max.	Mean
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent				
1. Isfahan.....	2	2.30	15	17.24	52	59.77	16	18.39	2	2.30	87	70.1	86.1	77.43
2. Shiraz.....	0	.....	2	11.76	10	58.82	5	29.41	0	.....	17	74.2	83.5	78.7
3. Meshed.....	0	.....	1	10.00	1	10.00	5	50.00	3	30.00	10	70.8	88.8	82.1
4. Urmia.....	0	.....	2	6.67	4	13.33	17	56.67	7	23.33	30	74.0	87.1	82.3
5. Sandur.....	0	.....	2	4.35	13	28.26	20	43.48	11	23.91	46*	73.7	88.4	81.9
6. Urfa.....	0	.....	3	16.67	10	55.56	5	27.78	0	.....	18	73.3	83.3	77.7
7. Kurdistan.....	0	.....	1	7.14	7	50.00	4	28.57	2	14.29	14	74.2	88.2	79.7
8. Baghdad.....	0	.....	1	20.00	3	60.00	1	20.00	0	.....	5	74.6	81.4	78.0
9. Agra.....	0	.....	0	.....	4	20.00	9	45.00	7	35.00	20	76.3	89.0	83.25
10. Zakho.....	0	.....	1	6.25	7	43.75	7	43.75	1	6.25	16	73.6	89.0	80.3
11. Rowandiz.....	0	.....	0	.....	3	17.65	12	70.59	2	11.76	17	78.4	86.2	81.5
12. Sulaimaniya.....	0	.....	0	.....	0	.....	5	83.33	1	16.67	6	80.5	91.5	83.8
13. Georgian.....	0	.....	0	.....	1	3.03	13	39.39	19	57.58	33	78.3	91.8	85.9
14. Mountain.....	0	.....	0	.....	1	5.00	10	50.00	9	45.00	20	79.8	90.3	84.7
15. Yemen.....	6	12.00	27	54.00	13	26.00	4	8.00	0	.....	50	68.1	83.1	74.3
	8	2.06	55	14.14	129	33.16	133	34.19	64	16.45	389	68.1	91.8	80.6

\*No. 3100 omitted in head tables.

classification (90.1+) contains 203 Jews (53.01 per cent) of whom eleven men (2.87 per cent) are in the hyperleptorrhine class.

It must, however, be noted that in the general classificatory system adopted by Harvard there is a slight divergence in the above grouping. For example, euryprosopic ( $x-84.5$ ), mesoprosopic (84.6-89.4), and leptoprosopic (89.5- $x$ ) have been used elsewhere throughout this publication, but since the analysis of the total facial index table is studied from the viewpoint of general trends these slight discrepancies will be masked.

The Jews of Southwestern Asia fall into the mesoprosopic-leptoprosopic class with a general tendency to hyperleptoprosopy.

*Nasal Index.*—In Southwestern Asia one of the most important single classificatory criteria seems to be the length and breadth of the nose together with its shape in profile. For this reason the nasal index has been classified in five categories so that the following results become apparent.

Within the combined series of 385 Jews 43.64 per cent are in the 51-60 group with an almost equal number in the 61-70 division. In other words 326 Jews (84.68 per cent) fall within the 51-70 classifications. In the hyperleptorrhine class ( $x-50$ ), there are thirteen men (3.38 per cent), three of whom were measured in Yemen. In the mesorrhine (71-80) section there are forty-two Jews (10.91 per cent) and in the platyrrhine group (81.0- $x$ ) occur four Jews (1.04 per cent), two being from Isfahan and two from Sandur, Iraq.

In general, therefore, the Jews of the whole region are leptorrhine, although a number of Jews must be classified as mesorrhine. Platyrrhiny is almost absent.

#### SUMMARY

The position of the Isfahan Jews in relation to the stature, head length, cephalic index, total facial index, and nasal index of the selected groups tabulated above is as follows:

*Stature.*—The Jews of Isfahan (87), with a stature of 164.94, (range 151.6-183.2) seem slightly taller than the mean (163.91) of the series (395), whose range is 146.0-183.2. It must be noted that this group contains the maximum range individual (183.2) and that sixteen Jews (18.39 per cent) are above 170.0 in stature; nevertheless, those from Urmia, Aqra, Rowandiz, and Urfa are even taller.

*Head Length.*—The mean glabella-occipital length of the head of the Isfahan Jews is 185.91, which is more than 3 mm. greater than

TOTAL FACIAL INDEX

No.	x-80.0		80.1-85.0		85.1-90.0		90.1-95.0		95.1-100.0		100.1-x		Total	Min.	Max.	Mean
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent				
1. Isfahan.....	0	.....	5	5.95	24	28.57	30	35.71	19	22.62	6	7.14	84	81.7	107.6	92.3
2. Shiraz.....	0	.....	0	.....	3	23.08	8	61.54	4	15.38	0	.....	13	87.0	99.3	92.6
3. Meshed.....	0	.....	2	20.00	4	40.00	4	40.00	0	.....	0	.....	10	82.7	92.7	88.1
4. Urmia.....	0	.....	1	3.33	15	50.00	12	40.00	2	6.67	0	.....	30	83.5	98.5	89.9
5. Sandur.....	0	.....	4	8.51	19	40.43	16	34.04	7	14.89	1	2.13	47	81.6	107.3	90.73
6. Urfa.....	0	.....	2	11.11	1	5.56	10	55.56	5	27.78	0	.....	18	82.7	100.0	92.4
7. Kurdistan.....	2	14.29	1	7.14	3	21.43	3	21.43	2	14.29	3	21.43	14	75.7	107.2	92.5
8. Baghdad.....	0	.....	0	.....	0	.....	3	60.00	2	40.00	0	.....	5	90.7	99.3	94.1
9. Agra.....	1	5.00	4	20.00	6	30.00	8	40.00	0	.....	1	5.00	20	78.2	101.4	89.05
10. Zakho.....	1	6.25	1	6.25	6	37.50	4	25.00	4	25.00	0	.....	16	78.9	97.8	90.68
11. Rowandiz.....	1	5.88	1	5.88	9	52.94	6	35.29	0	.....	0	.....	17	79.9	94.7	89.03
12. Sulaimaniya.....	0	.....	0	.....	3	50.00	2	33.33	1	16.67	0	.....	6	85.2	98.5	90.7
13. Georgian.....	2	6.06	10	30.30	13	39.39	5	15.15	3	9.09	0	.....	33	78.0	97.8	88.0
14. Mountan.....	0	.....	5	25.00	7	35.00	5	25.00	3	15.00	0	.....	20	80.3	97.2	88.6
15. Yemen.....	1	2.00	2	4.00	21	42.00	17	34.00	9	18.00	0	.....	50	79.3	98.4	90.8
	8	2.09	38	9.92	134	34.99	133	34.73	59	15.41	11	2.87	383	75.7	107.6	90.63

NASAL INDEX

No.	x-50		51-60		61-70		71-80		81-x		Total	Min.	Max.	Mean
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent				
1. Isfahan.....	2	2.32	33	38.37	32	37.21	17	19.77	2	2.32	86	48.4	83.0	63.86
2. Shiraz.....	0	.....	8	61.54	5	38.46	0	.....	0	.....	13	53.4	67.9	60.7
3. Meshed.....	0	.....	4	40.00	4	40.00	2	20.00	0	.....	10	57.1	74.5	63.0
4. Urmia.....	1	3.33	14	46.67	14	46.67	1	3.33	0	.....	30	48.4	74.5	58.9
5. Sandur.....	1	2.13	21	44.68	20	42.55	3	6.38	2	4.26	47	49.1	85.0	61.6
6. Urfa.....	1	5.56	7	38.89	9	50.00	1	5.56	0	.....	18	50.0	75.0	60.7
7. Kurdistan.....	1	7.14	4	28.57	7	50.00	2	14.29	0	.....	14	50.0	71.1	61.4
8. Baghdad.....	0	.....	1	20.00	4	80.00	0	.....	0	.....	5	60.0	66.0	61.8
9. Agra.....	1	5.00	5	25.00	7	35.00	7	35.00	0	.....	20	50.0	78.4	65.44
10. Zakho.....	0	.....	5	31.25	9	56.25	2	12.50	0	.....	16	57.6	72.9	64.23
11. Rowandiz.....	0	.....	6	35.29	9	52.94	2	11.76	0	.....	17	51.7	78.7	61.51
12. Sulaimaniya.....	1	16.67	2	33.33	2	33.33	1	16.67	0	.....	6	50.0	72.9	61.23
13. Georgian.....	1	3.03	18	54.55	12	36.36	2	6.06	0	.....	33	50.0	79.6	58.6
14. Mountan.....	1	5.00	9	45.00	9	45.00	1	5.00	0	.....	20	50.0	73.1	61.4
15. Yemen.....	3	6.00	31	62.00	15	30.00	1	2.00	0	.....	50	48.2	73.5	61.1
	13	3.38	168	43.64	158	41.04	42	10.91	4	1.04	385	48.2	85.0	61.70

the mean (182.81) for the total series of 390 individuals. The range for the group in question is 173–204 in contradistinction to the range of the total series, which is 164–204. Again it must be observed that the highest individual (204) in the total series is in the Isfahan group, where seventeen Jews (19.32 per cent) have a head length of over 191.0.

The general tendency is for heads to be relatively and absolutely short in length.

*Cephalic Index.*—The Jews of Isfahan, with a range of 70.1–86.1, have a mean cephalic index of 77.43. In the dolichocephalic group ( $x$ –75.0) there are seventeen men (19.54 per cent). The majority of the individuals (52 or 59.77 per cent) fall into the mesocephalic class (75.1–79.9). There are sixteen (18.39 per cent) brachycephals (80.0–84.9) with two Jews (2.30 per cent) in the hyperbrachycephalic category (80.0–84.9). It is interesting to note that there exists an almost equal distribution of individuals above and below the mesocephalic classification. The position of the Isfahan mean (77.43) in relation to the total series shows that they fall well below the mean (80.77) and that they are at the lowest end of the scale with the exception of the Yemen Jews, whose cephalic index is 74.3.

*Total Facial Index.*—The Isfahan Jews, with a range of 81.7–107.6, possess a mean total facial index of 92.3. In the euryprosopic class ( $x$ –85.0) there are five men (5.95 per cent) with no individuals in the hypereuryprosopic group ( $x$ –80.0). In the mesoprosopic series (85.1–90.0) there are twenty-four Jews (28.57 per cent). The leptoprosopic category (90.1–100.0) contains forty-nine individuals (58.33 per cent). In the lower group (90.1–95.0) are thirty Jews (35.71 per cent), in the medium (95.1–100.1) nineteen Jews (22.62 per cent) and in the hyperleptoprosopic class (100.1+) six Jews (7.14 per cent). The arrangement of these eighty-four Jews into the above five categories shows that we are dealing with a long and narrow-faced group. The mean for the total series is 90.63, with that of the Isfahan group at 92.3.

*Nasal Index.*—Among the Jews of Isfahan the mean nasal index is 63.86 (range 48.4–83.0). In the leptorrhine division ( $x$ –70) there are sixty-seven men (77.90 per cent) with two individuals (2.32 per cent) in the hyperleptorrhine class. There is an almost equal distribution of individuals in the other leptorrhine groups (51.0–60.9 and 61.0–70.9). The mesorrhine series (71.0–80.9) contains seventeen men (19.77 per cent). In the platyrrhine classification (81.0+) there are two Jews (2.32 per cent). Thus, the Isfahan

Jews are markedly leptorrhine and their mean nasal index (63.86) is higher than that of the total series, which is 61.70.

In order to ascertain the degree of divergence or similarity among the Jews of Southwestern Asia further series of measurements, observations, and photographs must be obtained.

JEWES OF THE CAUCASUS

In the preceding tables Nos. 13 and 14 were Georgian and Mountain Jews respectively. To add information regarding these Jews, who live northwest of Iran, reference has been made to Djawachischwili. This anthropologist divides the Jews of the Caucasus into two groups, Georgian Jews and Lesghian and Shemakha Jews.

In particular the Georgian Jews, whom he places in the "Georgian-Armenian" group with the Udins, are similar to the Armenian group in the color of the hair and of the iris; the Armenians, Khurs, and Assyrians in the occurrence of the brunet type (82 per cent); the west Georgians in the cephalic index (85.14) and in brachycephaly (54 per cent); the west Georgians, Armenians, and Assyrians in the extreme leptorrhine nasal index. On the other hand, in their low stature and small circumference of chest these Georgian Jews differ markedly not only from the Georgians and Armenians but also from all other peoples of the Caucasus.

In the "Lesghian-Armenian" group fall the Lesghian and Shemakha Jews. They differ from the Georgian Jews in darker hair color, a larger proportion of brunets, increased brachycephaly and chamaeprosopy, in taller stature, and in larger chest circumference.

The similarity of the Georgian Jews to the Lesghian group and to the Armenian group can be noted as follows: dark hair color makes them similar to the Khurs, Kumyks, Assyrians; the color of the iris to the Assyrians, Udins, and the Adighe; the high percentage of brunets (92 per cent) to the Udins, Khurs, and Assyrians; the brachycephaly to the Udins; the breadth-height index to the Lesghians and Assyrians; the length-height index to the Udins, Armenians, and Assyrians; leptorrhiny to the Assyrians; the ear index to the Tatars, Karachai, and Kumyks; the stature to the Georgians, Lesghian Tatars, Lesghians, Kumyks, and Assyrians; and the trunk length to the Tatars.

JEWES OF THE CAUCASUS MEASURED BY DJAWACHISCHWILI

	No.	Stature	-/160.0 Per cent	160.1-170.0 Per cent	170.1+ Per cent
Georgian . . . . .	133	163.7	25	65	10
Lesghian . . . . .	344	165.5	20	57	23

The Georgian Jews are considerably shorter (18 mm.) than the Lesghian Jews, and both groups fall well below the average for Iraq and Iran. The majority of both series fall within the 160.1–170.0 division, but among the Georgian Jews a quarter are below 160.0 and only 10 per cent above 170.0 while the Lesghians have an almost equal number in the 160.0 and the 170.1+ categories.

	No.	G.O.L.	G.B.	C.I.	Dolicho- cephalic Per cent	Meso- cephalic Per cent	Brachy- cephalic Per cent
Georgian . .	100	185	157	85.1	10	36	54
Lesghian . .	210	182	158	86.0	3	24	72

The Georgian and Lesghian Jews are therefore relatively long- and extremely broad-headed with a brachycephalic index slightly higher in the latter due to a narrower and broader head. In both groups the high percentage of brachycephaly is noted but the indices tend to obscure the percentage of mesocephals and the few dolichocephalic individuals.

	No.	Biz.B.	No.	N.I.	Leptor- rhine Per cent	Mesor- rhine Per cent	Platy- rhine
Georgian . .	11	141	61	60.2	93	7	....
Lesghian . .	210	142	260	62.0	89	11	....

The bizygomatic breadth is large (141–142) and there is no significant difference between the two groups. It must be noted that only eleven Georgian Jews were measured.

The nose is markedly leptorrhine with about thirty men (5.5 per cent) in the mesorrhine division. No platyrrhine individuals were recorded.

Baron de Baye states that the Jews have been in the Caucasus since a very early date. At the beginning of this century the population was in the neighborhood of 50,000 and was distributed mainly in the provinces of Terek, Daghestan, and in the administrative areas of Baku, Tiflis, and Kutais. Those Jews living north of the mountain massif are called Mountain Jews, a people tall, well-built, light in skin color, with black hair and eyes. He adds that in physiognomy they have many features associated with Biblical characters. According to their tradition they were brought as prisoners to the Caucasus by order of Nebuchadnezzar circa 550 B.C.

Chantre (1885, vol. 4, pp. 254–255) states that after Nebuchadnezzar had conquered Judah and the Jewish kingdoms were finally brought to an end, many Jews migrated into the Caucasus region. They were allowed to settle in a territory situated along the Aragua.

The majority embraced the religion of the Georgians and in a number of cases mixed so thoroughly with them that the Jews completely lost their identity. According to Harkawy some descendants of the Khazars accepted the Jewish faith as a result of missionary activity in the Crimea about 1620.

Chantre adds that the Mountain Jews of Daghestan came from Iran about the end of the eighth century. Those Jews, who dwelt at Temir-Khan-Chura, conserved the tradition of their ancestors. They did not practice agriculture but were morocco leather workers and general merchants. Chantre quotes Komaroff as estimating that there were 5,384 Jews in twenty-three villages of Daghestan, but de Baye, writing in 1902, increased this estimate to 9,200 Mountain Jews in this province.

Weissenberg (1907) summarizes Kurdov's report on 190 Daghestan Jews as follows: "Almost without exception they are medium in stature with dark hair and eyes. The head is large, high, and very short. The face is broad with a high forehead and horizontal eyes. The gonial angles are slightly prominent; the nose straight, of medium size; the mouth broad, the lips thick, the ears broad; the trunk is very long and the chest well developed . . ." He concludes by pointing out that there are two types present, one showing a Mongoloid strain, suggesting the Kirghiz, the other demonstrating interbreeding with the tribes of the Caucasus.

According to Baschmakoff (1936, p. 5) the "peuples de Souche Semitique" comprise:

- (1) Ashkenazim Jews who speak a Germanic dialect, although a small group speak Aramaic . . . . . 75,000
- (2) Mountain Jews of mixed blood who speak an Iranian language ("Semite and Iranian" or "Semite and Primordial Caucasian") . . . . . 44,000
- (3) Assyrians calling themselves "Syro-Chaldeans" and pretending to be descendants of the ancient Assyrians (dialect Neo-Syrian of Urmia); blood mixed "Semite and Proto-Caucasian" or "Semite and Proto-Anatolian" . . . . . 3,500

Baschmakoff (1937, p. 24) comments on the hyperbrachycephaly of the Mountain Jews and quotes Miller's statement that they appeared in the Caucasus during the fifth century of our era.

## TEN MOUNTAIN JEWS OF THE CAUCASUS

(Nos. 1-6 from *Madshalis*; Nos. 7-10 from *Batalpaschinsk*)

1= Head length	6= Prosthion-nasion(?) height (nb. "nasenwurzel")	10= External inter-orbital breadth
2= Head breadth	7= Bizygomatic breadth	11= Nasal height
3= Head height from external auditory meatus to vertex	8= Bigonial breadth	12= Nasal breadth
4= Menton-crinion height	9= Internal inter-orbital breadth	13= Mouth breadth
5= Menton-nasion(?) height (nb. "nasenwurzel")		14= Ear length

(After von Erckert)

No.	Age	1	2	3	4	5	6	7	8	9
1	35	181	161	132	180	124	83	139	110	31
2	45	175	156	118	172	133	82	140	103	30
3	42	182	157	124	176	120	80	135	109	34
4	44	178	164	124	168	112	74	130	115	31
5	70	183	150	120	167	121	78	133	107	30
6	50	183	159	121	166	116	78	137	115	32
7	41	186	162	128	189	129	80	148	110	31
8	52	186	165	121	172	124	80	152	115	31
9	53	185	154	128	176	122	77	132	104	35
10	16	178	146	122	169	125	80	133	100	31
Mean	44.8	181.7	157.4	123.8	173.5	122.6	79.2	137.9	108.8	31.6

No.	10	11	12	13	14	2/1	3/1	3/2
1	93	58	36	51	62	89.0	72.9	82.0
2	90	61	35	55	69	89.1	67.5	75.6
3	90	58	35	50	67	86.3	68.1	79.0
4	80	52	32	53	58	92.1	79.7	75.6
5	85	58	36	54	67	82.0	65.6	80.0
6	89	51	35	50	61	86.9	66.1	76.1
7	93	57	38	59	70	87.1	68.8	79.0
8	91	58	33	58	62	88.7	65.1	73.3
9	91	50	33	53	74	83.2	69.2	83.1
10	90	58	36	50	61	82.0	68.5	83.6
Mean	89.2	56.1	34.9	53.3	65.1	86.64	69.15	78.73

No.	4/7	4/8	5/7	5/8	6/7	6/8	12/11
1	129.5	163.6	89.2	112.7	59.5	75.5	62.1
2	122.9	167.0	95.0	129.1	58.6	79.6	57.4
3	130.4	161.5	88.9	110.1	59.3	73.4	60.3
4	129.2	146.1	86.2	97.4	56.9	64.3	61.5
5	125.6	156.1	91.0	113.1	58.6	72.9	62.1
6	121.2	144.3	84.7	100.9	58.6	72.9	68.6
7	127.7	171.8	87.2	117.3	54.1	72.7	66.7
8	113.2	149.6	81.6	107.8	52.6	69.6	56.9
9	113.6	169.2	92.4	117.3	58.3	74.0	66.0
10	127.1	169.0	94.0	125.0	60.2	80.0	62.1
Mean	124.04	159.82	89.02	113.07	56.67	73.49	62.37

Von Erckert (vol. 19, p. 247) describes these ten Mountain Jews of the Caucasus as follows:

(1) True Jewish type. Hair similar to that of the Persian and Azerbaidzhan-Tatars. Eyes golden brown. Nose long and broad. Forehead perpendicular. Occipital region higher than the frontal; the head is round when viewed from the side or from above. Lips thick. Beard heavy.



(2) True Jewish type. Nose aquiline. Occipital region higher than the frontal. In norma occipitalis it is a flat, rounded quadrangle and from above the head is round. Chin pointed and sloping.

(3) True Jewish type. Mouth slightly protruding. Beard heavy.

(4) Jewish type. Facial form broad oval. Mouth protruding. Occiput higher than frontal region. In norma occipitalis and from above the head appears round.

(5) Jewish type. Occiput higher than frontal region. Outline round from above and from behind.

(6) Jewish type. Forehead perpendicular. Lips firm. Lower part of face wedge-shaped. Head highest at bregma.

(7) Face relatively long. In norma occipitalis head high. Nose triangular and straight. Forehead high. Occiput flat. Eyes brown. Hair black.

(8) Large aquiline nose. Forehead low and straight. In norma occipitalis head high. Eyes green-brown. Facial appearance Jewish (Mountain Jews). Forehead short. Head from above appears like a short egg. Nasal tip thick.

(9) Nose aquiline and very long. Forehead short and low. Head from above egg-shaped. Eyes green-brown. Mouth protruding.

(10) Hair black. Head from above oval. No occipital projection. Eyes green-brown. Mouth protruding. Chin short. Face oval. Nose straight and broad. Forehead low.

CEPHALIC INDEX

	DOLICHOCEPHALIC ( $x > 76.5$ )	MESOCEPHALIC (76.6-82.5)	BRACHYCEPHALIC (82.6-x)	TOTAL
Number . . . .	0	2	8	10
Per cent . . . .	. . . .	20	80	100.00

TOTAL FACIAL INDEX

	EURYPROSOPIC ( $x < 84.5$ )	MESOPROSOPIC (84.6-89.4)	LEPTOPROSOPIC (89.5-x)	TOTAL
Number . . . .	1	5	4	10
Per cent . . . .	10	50	40	100.00

NASAL INDEX

	LEPTORRHINE ( $x < 67.4$ )	MESORRHINE (67.5-83.4)	PLATYRRHINE (83.5-x)	TOTAL
Number . . . .	9	1	0	10
Per cent . . . .	90	10	. . . .	100.00

The head is relatively short and broad, medium in height, with medium bizygomatic and bigonial diameters, medium long and narrow nose and long ears.

These ten Mountain Jews are brachycephalic with considerable variation in total facial index, which varies from mesoprosopic to leptoprosopic. It would be interesting to see frontal and profile photographs of the euryprosopic individual. In general the nose is leptorrhine, there being only one individual in the mesorrhine category.

The Jews of the Caucasus seem to be short to medium in stature; the head medium in length but wide in maximum breadth with a resultant brachycephalic index; and the nose leptorrhine. For purposes of comparison the following table has been added so that the differences between the Georgian and Lesghian Jews and the Isfahan group can be seen.

Measurements	Isfahan	Georgian	Lesghian
Stature.....	164.94	163.7	165.5
Head length.....	186.06	185	182
Head breadth.....	144.28	157	158
Cephalic index.....	77.43	85.1	86.0
Bizygomatic breadth.....	134.20	141	142
Nasal index.....	63.86	60.2	62.0

The Caucasian Jews thus seem to be shorter and much broader in head form with a correspondingly higher cephalic index. The face is markedly wider in the region of the zygomata. The nasal index is lower.

#### YEZD-I-KHAST VILLAGERS

The town of Yezd-i-Khast<sup>1</sup> is located about eighty miles south of Isfahan on the main road to Shiraz. From the north, where the road passes over a vast, scrub-covered gravel plain, the town appears to lie within a depression and the houses can not be seen from a distance. As the traveler approaches from Isfahan the first sign of human habitation is a typical Moslem cemetery with several small, domed tombs and scattered graves. The road turns left, and suddenly the ancient and modern sections of the town become visible. Perched upon the summit of a great mound is the ancient town with its flat-topped, mud-brick houses supported on wooden poles, which stand out like stilts against the sky since the lower parts of many of the houses have long since fallen away. From a distance the old town gives the appearance of a city of the dead. At the western end can be seen a wooden drawbridge (Pl. 45, Fig. 2). Farther to the west, and covering the entire southern slope of the hill, lies the modern town, typical of central Iran, with its narrow, rambling streets, small, roofed bazaar, and crumbling mud-brick dwellings.

<sup>1</sup> For description in 1918 see A. C. Yate.

The main part of the ancient village is a maze of constricted, winding streets. The houses are constructed of sun-dried mud bricks with posts made from sections of palmwood. The ceilings are formed of palm leaf ribs plastered with mud. In the house of the head man of the village the main living room has palmwood beams as supports for the ceiling. The buildings are one or two stories high, with an open courtyard in the center, and the main living room is generally in the upper story. The rooms, which are of moderate dimensions, are often without windows. Heavy mats are sometimes used at the doorways instead of wooden doors.

In this village, as is usual in Iran, the people are relatively poor, because their fields, the one source of income, yield only enough to feed them. They dress cheaply and lightly. The lower garment worn by the men consists of a white cotton or cloth robe, plain or striped, which hangs to the ground, covered by a woven cloak or coat. On the head, due to official ruling at the time of our visit, the majority of the men wore the *pahlavi*, a black hat with a broad peak, adopted formerly as the national headgear. The women had dark blue or black outer garments which reached to the ground, and about their heads were wrapped blue or black cloths, by means of which their faces could be veiled on the approach of a stranger. Some of the women had inserted a metal ring through one of the nasal alae. Among the men the head was often closely cropped or even partly shaved. The neck was uncovered. Most individuals of both sexes wore no footgear of any kind except on special occasions.

Family life is characteristic of that in most small village communities in Southwestern Asia. Thin palmstrip mats, spread on the floor, serve as seats and are used for beds. The villagers eat in the morning and evening, their food consisting mainly of rice. Meat is rarely enjoyed since there are few sheep or chickens to be obtained. Domestic animals of all kinds are scarce and the donkeys laden with brushwood and water seem unreasonably emaciated and overworked. Even dogs in the village are few, probably because of the food shortage. The population's one central meeting place is the *chaikhaneh*, where the prominent members of the village congregate.

Several visits were made to the old town. The drawbridge was barred by a massive, wooden door, which swung noisily on its wooden hinges. A narrow street led into the center of the ruins. On either side crumbling mud-brick walls and buildings gave an air of continued disuse for numberless generations. Several very poor families lived in this deserted village. Through many open doorways small

buildings or courtyards were seen to be in every stage of disrepair. Toward the eastern extremity of the town stood a doorway with a wooden lintel bearing an ancient inscription (Pl. 45, Fig. 1). The door, formerly of two panels, one of which remained, was in a relatively good state of preservation. Because of the inscription and designs, the lintel and part of the door should be removed by the Department of Antiquities to Tehran for safety. Through this door lay an ancient, ruined mosque, which is said to be the *imam-zadeh* of *Sayyid* Ali (Pl. 44). There is a large crack in the center of the dome, which appears to have been caused by an earthquake. The walls, also, have large breaks in them. On the building still remain traces of painting, but many designs have been scribbled by rude youths who no longer bear any veneration for this sanctuary. The visitor feels that it is dangerous even to walk under the dome, since at any moment it might crash to the ground.

Wandering through various small chambers, most of which are open to the sky, we came to the end of the village, perched precariously on the summit of the rock. From this point, as we faced south, we viewed the wide river valley. At present only a small stream trickles through the hollow. The bed of the stream is but a few meters below the average level of the river valley, indicating that its erosive power has not been great during the past few centuries. There is a tradition that this valley once filled with water was navigable by boats.

One of the oldest inhabitants stated that when the drawbridge was closed or destroyed the town was inaccessible and the inhabitants were safe from Bakhtiari raiders, soldiers, or tax collectors.

Dr. John Fryer, the English traveler, who in 1676 visited Yezd-i-Khast (which he calls Esduchos), referred (p. 257) to the town as "what might be fabulously delivered of Semiramis's pendulous gardens and Summer-houses, there being Tenements made over this Moat out of the ancient Fortifications, barring the Persian encroachments on their Confines, whose Mouldring Sands have left the jetting Rocks the bare supporters of these hanging Buildings."

According to Curzon (1892a, vol. 2, p. 68), "this was the spot from which Zeki Khan, the inhuman half-brother of Kerim Khan Zend, who had assumed the real sovereignty on the Vekil's death, while marching northwards in 1779 against his nephew Ali Murad Khan, ordered the leading inhabitants of Yezdikhast, one after the other, to be hurled down, because the villagers declined to satisfy his merciless cupidity. Eighteen had already perished. For his

nineteenth victim the monster selected a *seyid*, whose wife and daughter he commanded at the same time to be delivered to the soldiery. This sacrilege proved too much for the tolerance even of his own attendants. That night they cut the ropes of his tent, which collapsed upon him. The villagers rushed in and satisfied a legitimate vengeance by stabbing the brute to death." The story, says Curzon, was first related by Ensign Franklin, who was at Yezd-i-Khast only seven years after the tragedy had occurred. Sir R. Ker Porter, in 1818, and other travelers at about the same time, talked at Yezd-i-Khast with an old man, the sole survivor of the catastrophe, who, though cruelly maimed by the fall, had not been killed, and had managed to crawl away and save his life.

With regard to the antiquity of this town C. A. de Bode (vol. 1, p. 64) writes as follows: "Yezde-hast is certainly prior to the Arab Conquest and is traceable to Gebr origin by the very name it bears, the Zend word *Yezd-hast* being interpreted by *God willed it*."

During our brief visit from August 21 to 24, 1934, despite the general unwillingness of the villagers to submit to anthropometric study, by means of friendly coercion and some bribery, varying from ten shis to one kran, I measured forty-eight men, one of whom was too old and one too Negroid to be included in the series. These men were then photographed by Richard Martin. Mrs. Myron B. Smith acted as recorder.

It was impossible to obtain complete statistical information on the families of this population. During examination I asked each subject the number of brothers, sisters, sons, and daughters living or dead in his family, but many individuals refused to answer.

*Age*.—The mean age for 46 individuals was 37.85 and there was a wide dispersion, although more than half the individuals were less than thirty-four years of age.

## AGE DISTRIBUTION

Age	Number	Per cent	Age	Number	Per cent
20-24.....	2	4.35	50-54.....	3	6.52
25-29.....	9	19.57	55-59.....	0	....
30-34.....	14	30.44	60-64.....	4	8.70
35-39.....	5	10.87	65-69.....	0	....
40-44.....	6	13.04	70-x.....	1	2.17
45-49.....	2	4.35			

## MORPHOLOGICAL CHARACTERS OF YEZD-I-KHAST VILLAGERS

*Skin*.—The color varied from medium light (northern European) to tawny brown. No. 3442 was excluded in this and other categories because of his accentuated Negroid features. The secondary shading

of different parts of the body were, so far as observed, in no way particular, and the exposed parts, as elsewhere, were generally darker than those habitually covered. It seems to me that the best description of the skin color is to say that it was weather-beaten. On the head, which is always covered, the skin was occasionally as white as in brunet Europeans. No. 3430 (Pl. 2, Figs. 1, 2; Pl. 59, Figs. 3, 4) is a good example of a subject with light-colored skin.

*Hair.*—This varied from dark brown to black in color. In form it had low waves with a general tendency toward straightness. The texture ranged from fine to coarse with the majority on the finer side of the scale. Gray hair, to any appreciable extent, was seldom noticed before the fortieth year, but in late middle-age grayness was as a rule advanced. Beards were not the fashion and as a result the greater number shaved, although No. 3425 (Pl. 4, Figs. 3, 4; Pl. 64, Figs. 1, 2) had a coarse, heavy beard. With few exceptions mustaches were worn.

HAIR					
Color	Number	Per cent	Form	Number	Per cent
Black	17	37.78	Straight	0	.....
Very dark brown	0	.....	Very low waves	9	19.57
Dark brown	21	46.67	Low waves	37	80.43
Brown	0	.....	Deep waves	0	.....
Reddish brown	0	.....	Curly-frizzly	0	.....
Light brown	0	.....	Woolly	0	.....
Red	0	.....			
Black and gray	4	8.89	Total	46	100.00
Brown and gray	0	.....			
Light brown and gray	0	.....	Texture	Number	Per cent
Gray	3	6.67	Coarse	9	20.00
White	0	.....	Coarse-medium	2	4.44
Total	45	100.01	Medium	7	15.56
			Medium-fine	8	17.78
			Fine	19	42.22
			Total	45	100.00

*Eyes.*—The eyes were all dark brown in color except in two instances where there were blue and green mixtures. The high incidence of homogeneous irises (over 90 per cent) is correlated with the dark brown color of the eyes which made identification of a rayed or zoned eye virtually impossible. The sclera were clear, with the exception of those nine instances (19.57 per cent) which were speckled and that of one individual whose sclera was bloodshot.

In this village, although the eyes did not seem to be as bloodshot as is the general rule in this region, there were numerous complaints of headache due to eye pains caused by foreign bodies such as wind-borne sand and dirt. Inflammation of the eyes was common and trachoma, contagious granular conjunctivitis, was observed. Two

individuals, moreover, had poor vision, especially No. 3421 (Pl. 54, Figs. 3, 4), who had a bad cataract in the left eye, and poor vision with the other eye.

EYES

Color	Number	Per cent	Iris	Number	Per cent
Black.....	0	.....	Homogeneous.....	42	91.30
Dark brown.....	44	95.65	Rayed.....	0	.....
Blue-brown.....	1	2.17	Zoned.....	4	8.70
Blue.....	0	.....	Total.....	46	100.00
Green-brown.....	1	2.17			
Green.....	0	.....	Sclera	Number	Per cent
Gray-brown.....	0	.....	Clear.....	36	78.26
Blue.....	0	.....	Yellow.....	0	.....
Gray.....	0	.....	Speckled.....	9	19.57
Light brown.....	0	.....	Bloodshot.....	1	2.17
Blue-gray.....	0	.....	Speckled and bloodshot.....	0	.....
Blue-green.....	0	.....	Speckled and yellow.....	0	.....
Total.....	46	99.99	Total.....	46	100.00

*Nose.*—Nasal profiles showed considerable variation, the majority being either convex or straight. About 60 per cent of the nasal tips were thin but one-third of the individuals showed a tendency toward more than average thickness. The nasal wings varied from compressed to medium in 72 per cent of the cases but there appeared to be a flaring element.

NOSE

Profile	Number	Per cent	Wings	Number	Per cent
Wavy.....	1	2.17	Compressed.....	5	10.87
Concave.....	5	10.87	Compressed-medium.....	13	28.26
Straight.....	18	39.13	Medium.....	16	34.78
Convex.....	20	43.48	Medium-flaring.....	8	17.39
Concavo-convex.....	2	4.35	Flaring.....	3	6.52
Total.....	46	100.00	Flaring plus.....	1	2.17
			Total.....	46	99.99

Tip thickness	Number	Per cent
Thin.....	26	59.09
Average.....	4	9.09
Plus.....	12	27.27
Double plus.....	2	4.55
Triple plus.....	0	.....
Total.....	44	100.00

*Mouth and Teeth.*—The lips showed normal eversion with the exception of three individuals, two of whom had markedly everted lips.

TEETH

Bite	No.	Per cent	Loss	No.	Per cent	Eruption	No.	Per cent
Under.....	0	.....	None.....	17	40.48	Complete.....	31	81.58
Edge-to-edge.....	1	2.70	1-4.....	15	35.71	Incomplete.....	7	18.42
Slight over.....	30	81.08	5-8.....	2	4.76	Total.....	38	100.00
Marked over.....	6	16.22	9-16.....	2	4.76			
Total.....	37	100.00	17+.....	5	11.90			
			All.....	1	2.38			
			Total.....	42	99.99			

Condition	No.	Per cent	Wear	No.	Per cent	Caries	No.	Per cent
Very bad....	2	13.33	None.....	13	52.00	None.....	17	51.52
Bad.....	2	13.33	Slight.....	1	4.00	Slight.....	0	.....
Fair.....	1	6.67	Plus.....	0	.....	Plus.....	11	33.33
Good.....	4	26.67	Double plus..	11	44.00	Double plus..	5	15.15
Excellent....	6	40.00	Triple plus... 0	.....	.....	Triple plus... 0	.....	.....
Total.....	15	100.00	Total.....	25	100.00	Total.....	33	100.00

The teeth presented the normal occlusion of Europeans, although six individuals (16.22 per cent) had marked over-bite. The small number of teeth lost by the members of the group indicated that the tooth condition was relatively good. With regard to wear, the attrition caused by grit in the local bread (*nan*), undoubtedly had had its effect on the teeth. This factor may also account for the high percentage (48.48) of individuals recorded with a carious condition. Overcrowding was noted in only one instance.

Frequency of marked lateral projection of the malars among these people was high. Seven individuals were observed to have some degree of lateral projection and four other men had very marked lateral projection.

*Musculature.*—Most of the people seemed to be well developed. Nos. 3432 (Pl. 58, Figs. 1, 2), 3437 (Pl. 61, Figs. 3, 4), and 3440 (Pl. 11, Figs. 1, 2; Pl. 57, Figs. 3, 4) had good chest expansion. The general health of the individuals recorded was good, with a small number in the poorer classifications. Fevers of various kinds were common, as the stagnant pools in the river bed are excellent breeding places for *Anopheles* and other mosquitoes, as well as several kinds of flies which bite with unusual ferocity. One advanced case of fever was seen by the writer, an old man racked by a hacking cough and with a temperature of 103°, his pulse too rapid to count, and in a weakened physical condition. The patient was being attended by an old woman, who prescribed the use of herbs both internally and externally.

Musculature	Number	Per cent	Health	Number	Per cent
Poor.....	1	2.17	Poor.....	1	2.17
Fair.....	7	15.22	Fair.....	7	15.22
Good.....	23	50.00	Good.....	35	76.09
Excellent.....	15	32.61	Excellent.....	3	6.52
Total.....	46	100.00	Total.....	46	100.00

At least 25 per cent of the men were mouth-breathers, suggesting an adenoidal condition. An examination of these faces shows a stupid expression, narrow nostrils and a habitually open mouth suggesting aprosexia, an abnormal inability to sustain attention.



Four men of this group had smallpox scars. Particular instances of extraordinary physical disability are listed below.

No.	Disability
3409	Reflexes slow.
3412	Pulse rate fast. Has creeping paralysis, probably due to syphilis. Left knee jerk only slight.
3434	Deaf and dumb since childhood. Smallpox.
3452	Sleepy condition and slow reflexes suggesting addiction to opium.

No instance of tattooing or of the use of henna on the hair, hands, or feet was observed either among the subjects measured or among the villagers.

#### STATISTICAL ANALYSES OF YEZD-I-KHAST VILLAGERS

The people of Yezd-i-Khast do not belong to any tribe, although they are situated between the territories of the Bakhtiaris and the Qashqais.

Examination of the measurements and indices reveals several interesting features. In the age of the Yezd-i-Khast group there was considerable range with the mean at thirty-eight years.

*Stature.*—The stature of the group (164.79) was slightly below the average for this part of the world and the range (152.0–178.0) suggested that the younger individuals tend to lower the true mean of the village. More than half the group were medium in stature, the rest being about equally divided between the tall and the short classifications (see p. 345).

When the series are grouped according to the system employed by Keith, we have the following results:

Standing height	SITTING HEIGHT (Trunk Length)								Totals			
	900-x		899-850		849-800		799-750		749-x		No.	%
1800-x.....	0	....	0	....	0	.....	0	.....	0	....	0	.....
1799-1700....	0	....	3	6.51	6	13.02	1	2.17	0	....	10	21.70
1699-1600....	0	....	0	....	11	23.87	15	32.55	0	....	26	56.42
x-1599....	0	....	0	....	0	.....	9	19.53	1	2.17	10	21.70
Totals.....	0	....	3	6.51	17	36.89	25	54.25	1	2.17	46	99.82

There were no individuals in the tallest divisions of the trunk length and standing height. At the other end of the scale, whereas 21.70 per cent were short in stature, only one man (2.17 per cent) had a very short trunk length. This individual (No. 3438) with a standing height of 1597 was extremely short in trunk length (657); relative sitting height index, 41.1. Twenty-five individuals (54.25 per cent) were short in trunk length and twenty-six (56.42 per cent) were medium in stature (160.0–169.9). The relative sitting height index for the group

(48.16) showed a relatively shorter trunk length than the other three groups from Iran.

In general the Yezd-i-Khast men were medium in stature due to a decrease in trunk length (79.66), the lowest of the four groups.

The subjects were not undressed but the majority presented a body of medium development and without marked abnormalities; no individual was obese or unusually thin. No distinctive differences were observed in the various parts of the body from the normal type of Europeans. The hands and feet were generally well proportioned and of medium size.

*Head Measurements.*—The head length (192.51) was the longest in the four groups and the head breadth (141.55) was intermediate, with the result that the cephalic index (73.50) is the most dolichocephalic of any of the groups studied in the Iran communities. The majority (80 per cent) were dolichocephalic (see p. 345).

GROUPS ACCORDING TO CEPHALIC INDEX

Heads	x-70.0		70.1-75.0		75.1-79.9		80.0-84.9		85.0-x		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Small . . .	1	2.17	3	6.51	4	8.68	0	.....	0	.....	8	17.36
Medium . .	6	13.02	17	36.89	11	23.87	1	2.17	0	.....	35	75.95
Large . . .	0	.....	2	4.34	0	.....	0	.....	1	2.17	3	6.51
Totals . . .	7	15.19	22	47.74	15	32.55	1	2.17	1	2.17	46	99.82

There were no large hyperdolichocephals, mesocephals, or brachycephals and no small brachycephals. In the hyperbrachycephalic division there was one individual. The small-headed class contained eight men (17.36 per cent), one being hyperdolichocephalic (x-70). In this limited series only two individuals had large heads, both in the dolichocephalic (70.1-75.0) class. Thirty-five men (75.95 per cent) were medium in head size and twenty-two (47.74 per cent) were dolichocephals. The incidence of six men (13.02 per cent) in the medium, hyperdolichocephalic class and the almost complete lack of roundheads (two) was an important feature. It should also be noted that there were seven hyperdolichocephals and one hyperbrachycephal.

No instance of artificial or pathological deformation was recorded.

Thus in general the head was medium to small in size and hyperdolichocephalic to mesocephalic in cephalic index, the most dolichocephalic of the four groups measured in Iran.

In the comparative table (p. 392) we see that the Yezd-i-Khast cephalic index (73.50) approaches most closely to the theoretical

Proto-Mediterranean mean, which in Iraq I found to be associated with the Sulubba (Sleyb).

Dr. and Mrs. Krischner<sup>1</sup> measured the head length and the head breadth of fifty-one males at Abadeh, which lies about thirty-five miles to the south on the main road from Isfahan to Shiraz.

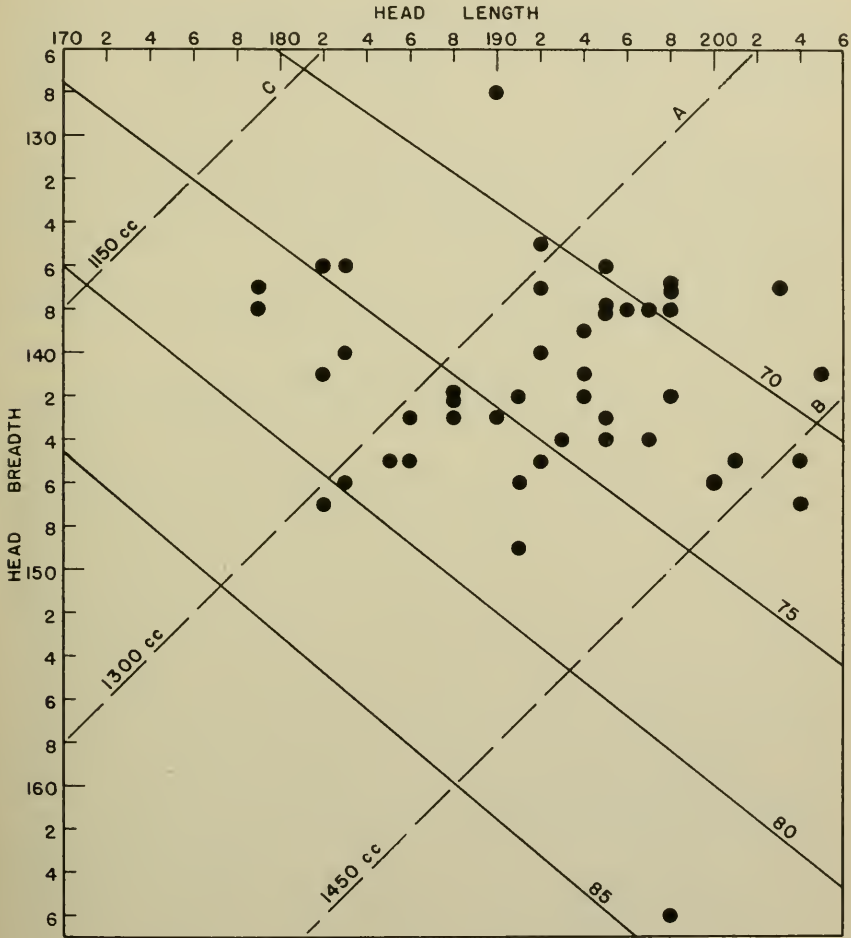


FIG. 15. Head length, breadth, and capacity of forty-six Yezd-i-Khast villagers.

The grouping of the resulting indices (p. 340) does not compare exactly with the Harvard system because of the slight difference in the arbitrary division of the categories. The mean cephalic index

<sup>1</sup> See Kappers, 1932, p. 12.

obtained was 72.67<sup>1</sup> as against 73.50 for the Yezd-i-Khast subjects. Among the Abadeh villagers we find a slightly greater degree of dolichocephaly, but this may be due to the shifting of the division lines and in general the similarity between these two groups with regard to head shape is striking.

	CEPHALIC INDICES OF ABADEH MALES			TOTAL
	DOLICHOCEPHALIC (x-76.9)	MESOCEPHALIC (77.0-82.9)	BRACHYCEPHALIC (83.0-x)	
Number . . . . .	45	5	1	51
Per cent . . . . .	88.23	9.80	1.96	99.99

The wide forehead is comparable with the average form in Europeans, there being a slight to moderate depression at the nasion. The supraorbital ridges vary from small in the Hamitic individual (No. 3447) to large as in No. 3412 (Pl. 61, Figs. 1, 2), although the latter form is the exception.

The maximum breadth of the head (141.55) and the minimum frontal diameter (112.78) can be tabulated as follows:

Head breadth	MINIMUM FRONTAL DIAMETER									
	x-99		100-109		110-119		120-x		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%
120-129 . . . . .	0	0	0	0	1	2.17	0	0	1	2.17
130-139 . . . . .	0	0	6	13.02	10	21.70	0	0	16	34.72
140-149 . . . . .	0	0	4	8.68	21	45.57	3	6.51	28	60.76
150-x . . . . .	0	0	0	0	1	2.17	0	0	1	2.17
Totals . . . . .	0	0	10	21.70	33	71.61	3	6.51	46	99.82

There are no very narrow frontal diameters and only one very narrow head. One man (No. 3410, Pl. 8, Figs. 1, 2, and Pl. 49, Figs. 1, 2) has a broad forehead and a very wide head. Although 71.61 per cent of this group have wide foreheads, only 60.76 per cent have broad heads. The largest single classification of the table contains twenty-one men (45.57 per cent) with both wide heads and wide foreheads. In contradistinction to 21.70 per cent with narrow foreheads, 34.72 per cent have narrow heads. Yezd-i-Khast men have wide heads, wide frontal diameters, and a slightly greater tendency to narrowness.

*Facial Measurement.*—The bigonial breadth (109.58), the widest in my Iranian series, and the minimum frontal diameter (112.78) are large, resulting in a square-shaped face. There also appears to be an unusual development of the masseter muscles (cf. No. 3419, Pl. 54, Figs. 1, 2). In general the occiput was not especially protruding.

The ears were found to be well formed, lying normally near to the head, although markedly abstanding in a few cases (cf. No.

<sup>1</sup> This mean was obtained by calculation of the figures plotted on the graph, Kappers, 1932, p. 12, Fig. 7.

3448, Pl. 51, Figs. 1, 2). Most individuals wore the Pahlavi hat, which has no effect on the shape of the ears. It is presumed, however, that, prior to the comparatively recent decree, felt hats and turbans were worn, and now, since the decree has been cancelled, European types of headgear must take their place. There is little variation in the angle of the ear, which tends to be nearly vertical except in a few cases such as No. 3439 (Pl. 63, Figs. 1, 2), where the angle is accentuated. The separation of the lobule is occasionally almost absent (No. 3428, Pl. 60, Figs. 1, 2).

A study of the relative facial width reveals the following:

Total facial length	BIZYGOMATIC BREADTH							
	x-124		125-134		135-x		Totals	
	No.	%	No.	%	No.	%	No.	%
x-114.....	0	.....	4	8.68	3	6.51	7	15.19
115-124.....	0	.....	14	30.38	10	21.70	24	52.08
125-x.....	0	.....	6	13.02	9	19.53	15	32.55
Totals.....	0	.....	24	52.08	22	47.74	46	99.82

The average bizygomatic breadth is 134.50 and the average total face length is 121.00.

The above table shows that there are no individuals with narrow bizygomatic breadths but 15.19 per cent have short faces. Fifteen men (32.55 per cent) have long faces, nine of whom also have wide faces. Twenty-four individuals (52.08 per cent) have medium total facial lengths while an equal number have medium maximum facial widths.

The Yezd-i-Khast men have faces which are medium in length with a tendency toward the maximum and medium in breadth, there being a marked swing toward the larger end of the scale, since twenty-two men (47.74 per cent) fall into the widest category.

According to the threefold Harvard classification, twenty-four (52.17 per cent) are leptoprosopic and only five (10.87) are in the euryprosopic group.

The vertical proportions of the face can best be shown as follows:

Total facial length	UPPER FACE LENGTH									
	x-63		64-69		70-75		76-x		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%
x-109.....	2	4.34	1	2.17	0	.....	0	.....	3	6.51
110-119.....	4	8.68	12	26.04	5	10.85	0	.....	21	45.57
120-129.....	0	.....	3	6.51	9	19.53	2	4.34	14	30.38
130-x.....	0	.....	0	.....	3	6.51	5	10.85	8	17.36
Totals.....	6	13.02	16	34.72	17	36.89	7	15.19	46	99.82

Again we note the shortness of the total face length in this group. There are six individuals (13.02 per cent) with short upper faces and half as many with short total face lengths. Eight individuals (17.36 per cent) are medium long in both upper and lower face lengths. The total face length is naturally affected by a decrease in the upper face length and this seems to have been the case among the Yezd-i-Khast men because although the total face height is low for the Iran series, the relative facial index (57.5) is lower than those of the other three groups (Lurs 62.1, Kinareh 58.6, Jews 58.6). Again, while 17.36 of the Yezd-i-Khast subjects have very long faces, only 15.19 have very long upper faces. Individuals at the extremes, long and short, of the two measurements, are responsible for the indication of relatively short upper faces evidenced in the index. There are five "ram-faced" men (10.85 per cent).

In general, the upper face length and the total face length are moderately short.

The nose is leptorrhine ( $x-67.4$ ) in thirty cases (65.22 per cent) and platyrrhine ( $83.5-x$ ) in two individuals (4.35 per cent), according to the Harvard classification on page 288. Within this group the average nasal length is 51.22 and the breadth 32.84. When the measurements are tabulated the results are as follows:

Nasal length	NASAL WIDTH									
	x-29		30-35		36-41		42-x		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%
x-49.....	1	2.17	11	23.87	3	6.51	0	...	15	32.55
50-59.....	5	10.85	15	32.55	7	15.19	0	...	27	58.59
60-x.....	1	2.17	1	2.17	2	4.34	0	...	4	8.68
Totals.....	7	15.19	27	58.59	12	26.04	0	...	46	99.82

This table shows that there are no men with very broad noses and only seven (15.19 per cent) in the very narrow class. Four men (8.68 per cent) have long noses (60-x). Twenty-seven individuals (58.59 per cent) have noses of medium length and a similar number are medium narrow in breadth.

The Yezd-i-Khast men have noses medium to short in length and medium to narrow in breadth.

#### PHOTOGRAPHIC ANALYSES

Inspection of the photographs reveals that these villagers, when examined both from front and in profile, appear characteristic of the eastern portion of Southwestern Asia. With few exceptions they are markedly different from the Arabs of Iraq and they bear no resem-

blance to the Kurds, Turkomans, Assyrians, or Yezidis of Kurdistan. There are present in Yezd-i-Khast elements of an early basic stock or stocks which have merged, and which have at the same time become infiltrated by so-called Mediterranean, Nordic, Hamitic, and Armenoid or Alpine strains.

In general, these villagers seem to divide into types far more readily than many of the other groups studied in Southwestern Asia. Photographic analyses reveal the following arbitrary classifications:

Groups	Individual numbers*
(1) Pure Mediterranean.....	3443, 3446
(2) Mediterranean and slight mixtures of Alpine, Armenoid, etc. } .....	{ 3411, 3412, 3413, 3421, 3424, 3428, 3434, 3436, 3449, 3452
(3) Atlanto-Mediterranean or Pseudo-Nordic type with hook-nosed Iranian element } .....	{ 3414, 3418, 3420, 3423, 3425, 3430, 3433, 3437, 3439, 3444, 3454
(4) Pseudo-Alpine type	
(a) Relatively pure.....	3419, 3455
or	
(b) Some other broad-faced type.....	3410, 3432, 3451, 3453
(5) Armenoid or Anatolian type.....	3409, 3417, 3422, 3440, 3448
(6) Hamitic type.....	3447
(7) Negroid type.....	3442

\*For plate reference see Index, pp. 652-653.

The Mediterranean type is somewhat gracile, with a rounded forehead, protuberant occiput, poor development of the brow ridges, straight oval face, straight nose, and pointed chin of submedium prominence. See Nos. 3443 (Pl. 1, Figs. 1, 2; Pl. 62, Figs. 1, 2) and 3446.

Another type is characterized by having a long face and a big, frequently convex nose. In general, it approximates very closely in appearance the Nordic European type except in pigmentation, and corresponds to some degree with Deniker's Atlanto-Mediterranean type (see p. 520).

No. 3447 (Pl. 9, Figs. 1, 2; Pl. 57, Figs. 1, 2) is a typical Hamite and some indications of this strain appear throughout the people of Yezd-i-Khast.

The remainder of the photographs reveal a large-faced type (Group 4) and a short-faced type (Group 2), with many intermediate forms.

No. 3442 showed definite traces of Negro blood and for this reason he was omitted from the series.

No. 3426, aged 82, was also omitted from the averages.

At the conclusion of our visit to Yezd-i-Khast we proceeded in a southerly direction toward Persepolis.

The road from Yezd-i-Khast continues down a steep hill between the cemetery and the high, buttress-like mound on which stands the old town. In the valley between the cemetery and the road are many caves with smoke-blackened ceilings testifying to their inhabitation, although today they are used only by shepherds, who take shelter from the heat of the noonday sun or the cold of a winter's night. A number of graffiti have been scratched on the walls, but no inscrip-

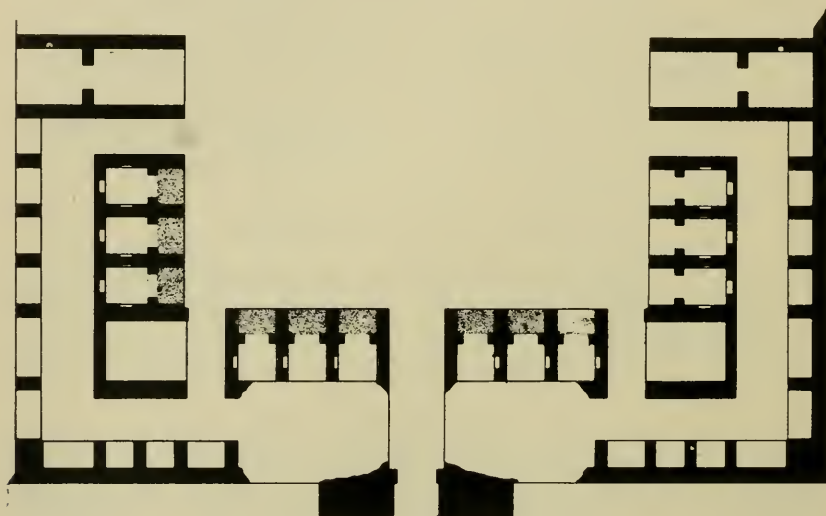


FIG. 16. Plan of Yezd-i-Khast caravanserai.

tions worthy of investigation were found. The rough surface of the rock does not lend itself to stone carving.

The main water supply for the town comes from wells situated in the bed of the river. Looking west along the valley one sees on the left steep cliffs rising about one hundred meters above the bed of the present sluggish stream. Large blocks of conglomerate detached from the cliffs by geological agents lie strewn at the base of the scree slopes. Although at Yezd-i-Khast little irrigation is practiced, the valley is cultivated with cereal crops, which appear to thrive in the rich alluvial soil near the river.

Turning southward below the end of the town the road continues across a wide valley to a magnificent stone bridge, leading to a large caravanserai (Pl. 48, Figs. 1, 2), which faces on the stream.



GROUPINGS OF YEZD-I-KHAST MALES

STATURE

	SHORT (x-160.5)	MEDIUM (160.6-169.4)	TALL (169.5-x)	TOTALS
Number.....	12	24	10	46
Per cent.....	26.09	52.17	21.74	100.00

CEPHALIC INDEX

	DOLICHOCEPHALIC (x-76.5)	MESOCEPHALIC (76.6-82.5)	BRACHYCEPHALIC (82.6-x)	TOTALS
Number.....	37	7	2	46
Per cent.....	80.43	15.22	4.35	100.00

TOTAL FACIAL INDEX

	EURYPROSOPIC (x-84.5)	MESOPROSOPIC (84.6-89.4)	LEPTOPROSOPIC (89.5-x)	TOTALS
Number.....	5	17	24	46
Per cent.....	10.87	36.96	52.17	100.00

NASAL INDEX

	LEPTORRHINE (x-67.4)	MESORRHINE (67.5-83.4)	PLATYRRHINE (83.5-x)	TOTALS
Number.....	30	14	2	46
Per cent.....	65.22	30.43	4.35	100.00

MEASUREMENTS AND INDICES OF YEZD-I-KHAST MALES

Measurements	No.	Range	Mean	S.D.	C.V.
Age.....	46	20-70	37.85±1.17	11.80±0.83	31.18±2.19
Stature.....	46	152-178	164.79±0.55	5.58±0.39	3.39±0.24
Sitting height.....	46	72-89	79.66±0.35	3.51±0.25	4.41±0.31
Head length.....	46	179-205	192.51±0.65	6.57±0.46	3.41±0.24
Head breadth.....	46	126-167	141.55±0.55	5.52±0.39	3.90±0.27
Minimum frontal diameter.....	46	105-128	112.78±0.47	4.72±0.33	4.19±0.29
Bizygomatic diameter.....	46	125-149	134.50±0.50	5.05±0.36	3.75±0.26
Bigonial diameter.....	46	98-125	109.58±0.58	5.88±0.41	5.37±0.38
Total facial length.....	46	105-139	121.00±0.76	7.65±0.54	6.32±0.44
Upper facial length.....	46	50-84	69.60±0.60	6.05±0.43	8.69±0.61
Nasal height.....	46	36-67	51.22±0.55	5.52±0.39	10.78±0.76
Nasal breadth.....	46	25-42	32.84±0.32	3.24±0.23	9.87±0.69
Ear length.....	46	44-71	58.70±0.53	5.28±0.37	8.99±0.63
Ear breadth.....	46	32-46	35.61±0.30	2.97±0.21	8.34±0.59
Indices					
Relative sitting height...	46	40-51	48.16±0.18	1.78±0.13	3.70±0.26
Cephalic.....	46	65-88	73.50±0.42	4.23±0.30	5.76±0.41
Fronto-parietal.....	46	69-89	79.99±0.32	3.18±0.22	3.98±0.28
Zygo-frontal.....	46	76-95	84.10±0.28	2.80±0.20	3.33±0.23
Zygo-gonial.....	46	75-89	81.28±0.33	3.30±0.23	4.06±0.29
Facial.....	46	80-104	90.15±0.49	4.90±0.34	5.44±0.38
Upper facial.....	46	40-66	51.83±0.47	4.71±0.33	9.09±0.64
Nasal.....	46	48-91	64.62±0.93	9.32±0.66	14.42±1.01
Ear.....	46	49-80	61.98±0.70	7.00±0.49	11.29±0.79

## YEZD-I-KHAST VILLAGERS—MEASUREMENTS

No.	Age	Stature	SH	L	B	B'	J	go-go	GH	G'H	NH	NB
3408	28	172.2	837	200	146	114	137	109	122	68	54	36
3409	37	161.7	797	195	138	107	130	112	119	71	50	31
3410	23	172.4	835	198	166	114	133	112	119	65	45	32
3411	27	165.5	828	194	139	115	134	112	117	70	51	30
3412	40	165.0	757	195	143	117	138	119	124	72	51	36
3413	45	163.0	765	188	143	115	134	105	116	65	47	35
3414	70	155.3	750	186	143	110	137	106	117	72	64	36
3415	30	160.6	784	190	143	116	141	119	131	70	54	36
3416	32	172.0	796	188	142	118	142	111	114	67	48	37
3417	23	164.0	840	188	142	117	134	108	122	68	49	33
3418	60	171.5	809	198	142	112	139	116	129	71	53	33
3419	30	166.8	804	194	142	112	132	112	108	63	41	34
3420	60	172.5	886	191	142	112	137	114	128	71	52	32
3421	30	162.4	810	194	141	118	136	108	113	63	47	32
3422	27	166.3	776	182	141	107	136	104	109	65	45	32
3423	40	176.5	853	205	141	120	143	107	122	68	53	37
3424	33	159.0	795	192	140	113	138	117	122	70	50	36
3425	60	156.0	754	183	140	108	129	114	117	68	54	34
3426*	82	157.7	772	191	131	112	140	108	115	71	56	37
3427	32	157.9	764	190	128	111	129	103	112	69	52	27
3428	40	160.4	772	195	144	115	133	115	129	73	53	28
3429	60	167.3	786	197	144	115	132	118	118	73	60	37
3430	40	173.8	815	193	144	108	134	107	132	79	58	32
3431	37	160.0	763	186	145	112	137	107	117	62	43	30
3432	35	171.6	812	192	145	119	136	107	115	69	49	40
3433	52	171.5	844	201	145	117	141	107	128	73	54	33
3434	32	165.2	810	204	145	116	140	116	130	76	52	34
3435	35	161.4	797	185	145	108	133	107	115	54	38	32
3436	25	158.3	755	183	146	126	136	107	119	64	48	31
3437	42	162.5	770	191	146	120	141	122	135	71	52	30
3438	32	159.7	657	182	147	115	136	104	118	62	45	31
3439	50	167.3	832	204	147	117	141	116	136	80	61	29
3440	34	176.3	864	191	149	118	148	124	126	74	50	39
3441	50	159.3	770	192	135	108	128	107	117	67	46	34
3442†	50	146.7	718	173	135	109	123	97	114	62	43	37
3443	45	164.4	775	195	136	110	130	105	118	67	54	31
3444	25	155.1	752	182	136	107	127	98	115	65	50	30
3445	33	152.1	763	183	136	107	128	101	113	64	50	28
3446	35	167.2	810	198	137	113	132	105	123	73	54	35
3447	33	168.0	836	198	137	112	128	103	133	80	58	32
3448	25	161.4	786	179	137	105	126	102	123	80	61	35
3449	30	158.4	775	192	137	112	129	105	123	76	55	30
3450	30	167.0	803	203	137	112	133	108	125	75	50	33
3451	25	166.2	828	195	138	114	139	113	131	72	52	36
3452	40	165.5	772	196	138	111	131	107	117	72	54	29
3453	27	168.5	767	197	138	108	135	107	119	64	44	29
3454	25	166.0	821	198	138	112	134	110	130	78	56	28
3455	30	167.0	770	179	138	112	132	104	107	61	47	28

\* Omitted because of age.

† 3442 almost full-blooded Negro and therefore omitted from all averages and tables.

## YEZD-I-KHAST VILLAGERS—INDICES

No.	EL	EB	RSH	B/L	B'/B	GH/J	G'H/J	NB/NH	EB/EL	go-go/J	B'/J
3408	63	38	48.6	73.0	78.1	89.1	49.6	66.7	60.3	79.6	83.2
3409	50	37	49.3	69.9	78.3	91.5	54.6	62.0	74.0	86.2	82.3
3410	56	33	48.4	83.4	68.7	89.5	48.9	71.1	58.9	84.2	85.7
3411	54	36	50.0	71.1	82.7	87.3	52.2	58.8	66.7	83.6	85.8
3412	53	38	45.8	73.3	81.8	89.9	52.2	70.6	71.7	86.2	84.8
3413	55	35	46.9	76.1	80.4	86.6	48.5	74.5	63.6	78.4	85.8
3414	71	39	48.3	76.9	76.9	85.4	52.6	56.3	54.9	77.4	80.3
3415	62	31	48.8	75.3	81.1	92.9	50.4	66.7	50.0	84.4	82.3
3416	53	37	46.2	75.0	83.1	80.3	47.2	77.1	69.8	78.2	83.1
3417	54	33	51.2	75.5	82.4	91.0	50.8	67.4	61.1	80.6	87.3
3418	62	40	47.1	71.7	78.9	92.8	51.1	62.3	64.5	83.5	80.6
3419	56	35	48.2	70.7	78.9	81.8	47.7	82.9	62.5	84.9	84.9
3420	67	41	51.3	74.4	78.9	93.4	51.8	61.5	61.2	83.2	81.8
3421	53	36	49.9	77.8	83.7	83.1	46.3	68.1	67.9	79.4	86.8
3422	57	33	46.6	72.0	75.9	80.2	47.8	71.1	57.9	76.5	78.7
3423	66	38	48.3	68.7	85.1	85.3	47.6	69.8	56.1	74.8	83.9
3424	58	31	50.0	72.9	80.7	88.4	50.7	72.0	74.5	84.8	81.9
3425	62	38	48.3	76.5	77.1	90.7	52.7	63.0	61.3	88.4	83.7
3426	59	37	48.9	68.6	85.5	82.1	50.7	66.1	62.7	77.1	80.0
3427	54	42	48.4	68.5	86.7	86.8	53.5	51.9	77.8	79.8	86.1
3428	58	39	48.1	74.4	79.9	97.0	54.9	52.8	67.2	86.5	86.5
3429	69	37	46.9	73.1	79.9	89.4	55.3	61.7	63.6	89.4	87.1
3430	60	32	46.9	74.6	75.0	98.5	59.0	55.2	53.3	79.9	80.6
3431	55	38	47.7	77.9	77.2	85.4	45.3	69.8	69.1	78.1	81.8
3432	48	37	47.3	75.1	82.1	84.6	50.7	81.6	77.1	78.7	87.5
3433	67	37	49.2	72.1	80.7	90.8	51.8	61.1	55.2	75.9	83.0
3434	57	36	49.0	71.1	80.0	92.9	54.3	65.4	63.2	82.9	82.9
3435	56	31	49.4	78.9	74.5	86.5	40.6	84.2	55.4	80.5	81.2
3436	57	36	47.6	79.8	86.3	87.5	47.1	64.6	63.2	78.7	92.7
3437	59	34	47.4	76.4	82.2	95.7	50.4	57.7	57.6	86.5	85.1
3438	58	36	41.1	86.2	78.2	86.8	45.6	58.9	62.1	76.5	84.6
3439	64	38	49.7	72.0	79.6	96.5	56.7	47.5	59.4	82.3	83.0
3440	64	40	49.0	78.0	79.2	85.9	50.0	78.0	62.5	83.8	79.7
3441	60	36	48.3	70.4	80.0	91.4	52.3	73.9	60.0	83.6	84.4
3442	54	33	48.9	78.0	80.7	92.7	50.4	86.1	61.1	78.9	88.6
3443	60	35	47.1	69.0	80.9	90.8	51.5	57.4	58.3	80.8	84.6
3444	45	34	48.5	74.2	77.9	90.6	51.2	60.0	75.6	77.2	84.3
3445	49	34	50.1	73.7	78.9	88.3	50.0	56.0	69.4	78.9	83.6
3446	56	34	48.4	69.2	82.5	93.2	55.3	64.8	60.7	79.6	85.6
3447	63	37	49.7	69.2	81.8	103.9	62.5	55.2	58.7	80.5	87.5
3448	61	31	48.7	75.9	76.6	101.6	63.5	57.4	50.8	81.0	83.3
3449	60	37	48.9	70.0	81.8	95.4	58.9	54.6	61.7	81.4	86.8
3450	57	33	48.1	67.4	81.8	94.0	56.4	66.0	57.9	81.2	84.2
3451	63	34	49.8	70.0	82.6	94.2	51.8	69.2	54.0	81.3	82.0
3452	64	35	46.6	70.4	80.4	89.3	55.0	53.7	54.7	81.7	84.7
3453	59	34	45.5	70.0	78.3	88.2	47.4	88.6	57.6	79.3	80.0
3454	62	35	49.4	68.7	81.2	97.0	58.2	50.0	56.5	82.1	83.6
3455	62	34	46.1	77.1	81.2	81.1	46.2	59.6	54.8	78.8	84.9

## MORPHOLOGICAL CHARACTERS OF YEZD-I-KHAST VILLAGERS

No.	HAIR			EYES			NOSE	
	Form	Texture	Color	Color	Sclera	Iris	Profile	Wings
3408	l w	fine	black	dk br	clear	hom	conv	medium
3409	v l w	fine	dk br	dk br	speck	hom	conv	cp-m
3410	v l w	c-med	dk br	dk br	clear	hom	str	cp-m
3411	l w	coarse	black	gr-br	speck	zon	str	cp-m
3412	l w	fine	black	dk br	clear	hom	str	medium
3413	l w	fine	black	dk br	clear	hom	conv	medium
3414	l w	medium	gray	bl-br	clear	zon	conv	m-fl
3415	l w	fine	dk br	dk br	clear	hom	conc	m-fl
3416	l w	fine	black	dk br	clear	hom	conv	flar
3417	l w	medium	dk br	dk br	clear	hom	conv	medium
3418	l w	fine	blk, gray	dk br	clear	hom	str	cp-m
3419	v l w	medium	black	dk br	clear	hom	conc	flar
3420	l w	medium	blk, gray	dk br	clear	hom	str	cp-m
3421	v l w	fine	dk br	dk br	speck	hom	conc	m-fl
3422	l w	fine	dk br	dk br	clear	hom	conv	comp
3423	l w	m-fine	blk, gray	dk br	speck	zon	str	comp
3424	l w	fine	dk br	dk br	clear	hom	conc	m-fl
3425	l w	coarse	gray, blk	dk br	clear	hom	conv	cp-m
3426	l w	fine	white	dk br	blood	—	conv	m-fl
3427	l w	medium	dk br	dk br	clear	hom	str	medium
3428	l w	fine	dk br	dk br	speck	hom	str	comp
3429	l w	fine	gray	dk br	blood	zon	conv	m-fl
3430	l w	m-fine	dk br	dk br	clear	hom	str	cp-m
3431	l w	coarse	black	dk br	clear	hom	conv	medium
3432	l w	m-fine	black	dk br	clear	hom	conv	flar
3433	v l w	m-fine	gray	dk br	clear	hom	conv	m-fl
3434	l w	m-fine	dk br	dk br	clear	hom	str	m-fl
3435	l w	coarse	black	dk br	clear	hom	str	medium
3436	l w	coarse	black	dk br	clear	hom	conv	medium
3437	l w	m-fine	black	dk br	clear	hom	conv	comp
3438	l w	c-med	black	dk br	speck	hom	conv	medium
3439	l w	medium	dk br	dk br	speck	hom	conv	cp-m
3440	v l w	fine	dk br	dk br	clear	hom	c-c	m-fl
3441	l w	fine	dk br	dk br	clear	hom	c-c	medium
3442	—	—	gray	dk br	speck	ray	conc	m-fl
3443	l w	coarse	black	dk br	clear	hom	str	cp-m
3444	l w	fine	black	dk br	clear	hom	conv	medium
3445	l w	fine	black	dk br	clear	hom	conv	medium
3446	l w	fine	dk br	dk br	clear	hom	conv	medium
3447	l w	coarse	black	dk br	clear	hom	wavy	medium
3448	v l w	coarse	dk br	dk br	speck	hom	str	cp-m
3449	l w	fine	dk br	dk br	clear	hom	str	comp
3450	l w	fine	dk br	dk br	clear	hom	conv	cp-m
3451	l w	fine	black	dk br	clear	hom	str	medium
3452	l w	m-fine	dk br	dk br	speck	hom	str	medium
3453	v l w	m-fine	dk br	dk br	clear	hom	conc	flar
3454	l w	coarse	black	dk br	clear	hom	str	cp-m
3455	v l w	medium	dk br	dk br	clear	hom	str	cp-m

This building, originally of the Safavid age, was restored early in the last century by a governor of Fars, and it is still well preserved (see Fig. 16, plan of caravanserai<sup>1</sup> made by Richard Martin). At the time of our visit the building was occupied by Ismail Javadi, Chief of Police of the village, who enjoyed comfortable quarters in some of the upper rooms. At the entrance to the caravanserai there is an inscription (Pl. 46, Figs. 1, 2; Pl. 47) which has been studied by Dr. Richard Ettinghausen, who has prepared a translation and commentary (Appendix F, pp. 568-572).

The road turns sharply left over the bridge, and from this point the eastern end of the ancient town appears like the prow of a great boat (Pl. 43, Fig. 1) towering above the valley. Past the bridge there is a long hill, relatively steep near the summit, where a dangerous sigmoid bend has taken its toll of automobile accidents.

The road continues for many miles over a gravel-strewn plain. A detailed description of the journey on to Shiraz is to be found in Appendix C (pp. 539-551).

#### KINAREH VILLAGERS

During our visit to Persepolis I was anxious to obtain a series of anthropometric statistics from the province of Fars.

The village of Kinareh,<sup>2</sup> about four miles southeast of Persepolis, can be reached by turning due east off the main Isfahan-Shiraz road and following a winding, uneven track to the outskirts of the village. Kinareh stands on a broad plain surrounded by hills, and is typical of numerous communities scattered sporadically throughout this region. Dr. Herzfeld believed that the population of Kinareh was representative of this section of Fars and that since a number of the workmen at Persepolis came from there, it should be easier to conduct the anthropometric studies in this village rather than elsewhere. On August 30 and 31, accompanied by Mr. Donald McCown and the late Mr. Karl Bergner, members of the Oriental Institute Expedition of the University of Chicago, we began our work. Because of the extremely limited time at our disposal, it was impossible to obtain statistical information regarding the population, the number of houses, the sanitary conditions, and similar data. We made, however, the following observations.

<sup>1</sup> This plan may be published in "A Survey of Persian Art" by Arthur Upham Pope, Oxford, 1938-40.

<sup>2</sup> Not to be confused with Kinara, also called Bunder-i-Gez, near Asterabad (cf. Curzon, 1892a, vol. 1, p. 185).

The village is built of mud and sun-dried bricks, the posts of the dwellings are made from local woods, and the ceilings are constructed of palm leaf ribs and mud. The main part of Kinareh is a maze of narrow, winding streets. In some cases the upper stories of the buildings have been projected completely across to the opposite side. The houses, one or two stories in height, are small and irregular. In the more elaborate dwellings there is a center courtyard with a staircase leading to a series of upper chambers which are furnished and form the reception rooms for guests. These buildings are fireproof and afford relatively good protection against heat and cold and against the ravages of wind and sand. There appeared to be no system of sewers as the disposal of waste is primitive. Water is carried by means of goat skins from the local *qanat*, and I believe there are wells near-by.

The people, deeply grateful for the money obtained by the workmen at the excavations, are agriculturists and gain only enough for their bare necessities, since cultivation is entirely dependent on irrigation. The peasant wears cotton trousers and a cotton shirt, often of striped material. In some cases a long coat reaches below the knees. A second coat of Western cut is occasionally used, but some of the men observed were in mere rags. The men, with heads often partly shaved, wore closely fitting Pahlavi hats.

Every house has a *kursi*, which Sykes (1921, vol. 2, p. 391) describes in the following manner: "A wooden frame is set in the middle of a room and live charcoal placed under it in an open brazier. A quilt is then spread over the frame, and the family sits, works, and sleeps in the same room under the quilt and is thus kept warm and comfortable, although cases of death from asphyxiation are not uncommon."

The simple diet consists of bread, curds, cheese, eggs, and various vegetables, while meat is regarded as a luxury and rarely eaten. The men smoke tobacco both in cigarettes and in hubble-bubbles (Pers. *Nargil*). Domestic animals include donkeys, cows, sheep and goats.

With regard to the social organization, including methods of dispensing justice, criminal punishments, revenue, taxation, and other details, the reader is referred to Sykes (1921, vol. 2, pp. 381-393). No information was obtained on the general health of the population.

*Age.*—The mean for seventy-four Kinareh men was 37.25. About 80 per cent of the group were under 45 years of age.

FREQUENCY DISTRIBUTION OF AGE

Age	No.	Per cent	Age	No.	Per cent
18-19	2	2.70	45-49	4	5.41
20-24	12	16.22	50-54	5	6.75
25-29	5	6.76	55-59	3	4.05
30-34	13	17.57	60-64	2	2.70
35-39	13	17.57	65-69	1	1.35
40-44	13	17.57	70-x	1	1.35

MORPHOLOGICAL CHARACTERS OF KINAREH VILLAGERS

*Skin.*—The color was predominantly brown. While it was slightly darker than that of the average Arab of Iraq, it resembled more closely perhaps the weather-beaten skin of the Beduin of the North Arabian and Syrian Deserts. Individually, the skin color ranged from light brown to medium-dark brown, although this was never dark enough to be classified as Negroid. Three subjects, Nos. 3368 (Pl. 12, Figs. 3, 4; Pl. 93, Figs. 3, 4), 3383 (Pl. 11, Figs. 3, 4; Pl. 70, Figs. 1, 2), and 3407 were very dark. The last two were brothers whose grandfathers came from Husainabad. They appeared to be a different type from the remainder of the series observed in this village.

*Hair.*—Ninety per cent of the men had low wavy hair with a general tendency toward straightness. In texture 40 per cent possessed fine hair, the remainder ranging to medium, there being a small element with coarser hair. The color of the hair varied from brown to black (60 per cent). Gray hair to any appreciable extent was seldom observed before the fortieth year and the fifty-year-old group showed hair that was nearly all black or dark brown. At fifty-five and above, grayness was normally advanced.

HAIR

Color	No.	Per cent	Form	No.	Per cent
Black	45	63.38	Straight	0	.....
Very dark brown	0	.....	Very low waves	20	27.03
Dark brown	14	19.72	Low waves	49	66.22
Brown	1	1.40	Deep waves	5	6.76
Reddish brown	0	.....	Curly-frizzly	0	.....
Light brown	0	.....	Woolly	0	.....
Red	0	.....			
Black and gray	10	14.09	Totals	74	100.01
Brown and gray	1	1.40			
Light brown and gray	0	.....	Texture	No.	Per cent
Gray	0	.....	Coarse	7	9.72
White	0	.....	Coarse-medium	4	5.56
Totals	71	99.99	Medium	26	36.11
			Medium-fine	5	6.94
			Fine	30	41.67
			Totals	72	100.00

Hair on the head was abundant and the only cases of partial baldness were either due to advanced age or to scalp diseases. Two individuals had applied henna to the hair, one because of a local festival. Hair samples were obtained from sixty-nine individuals. The majority of beards were black or dark brown with some streaks of gray in those of the older men. All but two individuals wore a mustache, fourteen with a slight beard, and seven with a heavy beard. Abnormal hairiness of the body was not recorded, although No. 3387 (Pl. 90, Figs. 1, 2) had a considerable quantity of hair on the chest.

*Eyes.*—The eyes were dark brown (84 per cent), although there were 15 per cent who had mixed eyes and one individual, No. 3387 (Pl. 90, Figs. 1, 2) had blue eyes. The discrepancy between pigmentation of eyes on the one hand, and of skin and hair on the other, was notable. A submerged blond element manifested itself in the former.

EYES					
Color	No.	Per cent	Iris	No.	Per cent
Black	0	.....	Homogeneous	55	79.71
Dark brown	62	83.79	Rayed	3	4.35
Blue-brown	1	1.35	Zoned	11	15.94
Blue-brown	0	.....	Totals	69	100.00
Green-brown	5	6.76	Sclera	No.	Per cent
Green-brown	2	2.70	Clear	54	78.26
Gray-brown	3	4.05	Yellow	0	.....
Blue	1	1.35	Speckled	14	20.29
Gray	0	.....	Bloodshot	0	.....
Light brown	0	.....	Speckled and bloodshot	1	1.45
Blue-gray	0	.....	Speckled and yellow	0	.....
Blue-green	0	.....	Totals	69	100.00
Totals	74	100.00			

The eyes, or more properly the eye-slits, were nearly horizontal in most cases. Although no statistical records of external epicanthic folds were made, a study of the photographs reveals that they were very numerous.

Seventy-eight per cent of the sclera were clear, and the rest speckled. In 80 per cent of the individuals observed the iris was homogeneous, there being a greater number of zoned than rayed irises among the others.

The general condition of the eyes was fairly good, although, as with all peoples in Southwestern Asia, there was a considerable number of cases of eye infection. There were three instances of resultant blindness in the right eye and four in the left eye noted. Although



we observed two individuals with cataracts, this affliction was rare. In addition, No. 3374 (Pl. 73, Figs. 3, 4) had a black spot on the outer margin of the left eye; No. 3401 had a gray streak across the crystalline lens of the left eye which rendered vision poor; Nos. 3360 (Pl. 86, Figs. 1, 2) and 3365 each had the left eye out of alignment.

*Nose.*—The noses were medium in size, and about half were convex but over one-third were straight. Of the alae 60 per cent were medium in breadth with the general tendency toward flaring nasal wings. The nasal tip was thin in 50 per cent of the cases, although a number of men had distinctly broad nasal tips. Eight individuals showed a downward curve. The depression of the nasal root was often well marked. In many cases the recurvation of the alae exposed in profile the medial wall of the nostril.

## NOSE

Profile	Number	Per cent	Tip thickness	Number	Per cent
Wavy	2	2.99	Thin	34	50.00
Concave	3	4.48	Average	15	22.06
Straight	23	34.33	Plus	17	25.00
Convex	35	52.24	Double plus	2	2.94
Concavo-convex	4	5.97	Triple plus	0	.....
Totals	67	100.01	Totals	68	100.00
Wings			Number		Per cent
Compressed			6		8.11
Compressed-medium			1		1.35
Medium			45		60.81
Medium-flaring			12		16.22
Flaring			7		9.46
Flaring plus			3		4.05
Totals			74		100.00

*Mouth.*—The lips were medium in size, although in some instances they were perceptibly to moderately thick, combined with a slight eversion which emphasized the lip seam. The headman of Kinareh stated with conviction that no Negro blood was present in his village "for it is a disgrace among our people." Some question came to mind, however, on inspection of No. 3348 (Pl. 12, Figs. 1, 2; Pl. 89, Figs. 1, 2).

*Teeth.*—The teeth of 56 per cent of the group were good or excellent while 19 per cent had teeth in bad condition. The degree of wear was recorded on only thirteen men, some of whom showed advanced attrition. The occlusion was the normal slight over-bite in three-fourths of the cases, the remainder having marked over-bites. There were several examples of overcrowding and dental irregularities due to small palates. Nine individuals had stained

teeth, probably as a result of smoking the hubble-bubble. Incomplete eruption was observed in eight individuals (10.8 per cent) and crowding of the teeth in seven (9.46 per cent). Ten cases (13.5 per cent) of notably carious dentitions were recorded. Nos. 3348 (Pl. 12, Figs. 1, 2; Pl. 89, Figs. 1, 2) and 3351 (Pl. 80, Figs. 1, 2) had widely spaced teeth.

TEETH									
Condition	No.	Per cent	Bite	No.	Per cent	Loss	No.	Per cent	
Very bad	7	10.00	Under	0		None	20	31.75	
Bad	6	8.57	Edge-to-edge	0		1-4	32	50.79	
Fair	17	24.29	Slight over	52	76.47	5-8	6	9.52	
Good	29	41.43	Marked over	16	23.53	9-16	5	7.94	
Excellent	11	15.71				17+	0		
			Totals	68	100.00	All	0		
Totals	70	100.00				Totals	63	100.00	

*Musculature.*—Ninety-three per cent had good or excellent musculature, only 7 per cent showing comparative underdevelopment. The general health of the subjects examined was good, although five individuals were recorded as being in fair or poor health. Eight men (10.8 per cent) had smallpox scars and six (8.1 per cent) suffered from favus, a contagious skin disease produced by a vegetable parasite, probably *Achorion schoenleinii*.

Musculature	No.	Per cent	Health	No.	Per cent
Poor	0		Poor	1	1.35
Fair	5	6.76	Fair	4	5.41
Good	57	77.03	Good	61	82.43
Excellent	12	16.22	Excellent	8	10.81
Totals	74	100.01	Totals	74	100.00

Tattooed marks were absent on all the individuals in this group with the exception of No. 3402, who had two spots tattooed on each side of the glabella "to relieve eye pains."

#### STATISTICAL ANALYSES OF KINAREH VILLAGERS

*Stature.*—Although this group exhibited a wide age range from sub-adults to old men, the stature was medium, more than half the individuals being in the intermediary classification. There was, however, considerable variation since approximately one-fourth of the individuals belonged in each of the short and tall categories according to the Harvard classification (p. 288).

The sitting height does not exhibit an unusual range and the index shows an almost equal division between trunk length and length of limb.

When the individuals are arranged according to Keith's divisions for stature and sitting height the following table appears:

Standing height	SITTING HEIGHT (Trunk Length)											
	900-x		899-850		849-800		799-750		749-x		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1800-x.....	1	1.35	0	.....	0	.....	0	.....	0	.....	1	1.35
1799-1700.....	0	.....	8	10.80	7	9.45	0	.....	0	.....	15	20.25
1699-1600.....	0	.....	6	8.10	29	39.15	8	10.80	1	1.35	44	59.40
x-1599.....	0	.....	0	.....	3	4.05	10	13.50	1	1.35	14	18.90
Totals.....	1	1.35	14	18.90	39	52.65	18	24.30	2	2.70	74	99.90

Of the seventy-four Kinareh men only one came to or above the 1800 mm. limit (5 feet 10.8 inches). This man (No. 3334, Pl. 75, Figs. 1, 2) had a stature of 1911 (6 feet 3.2 inches) due to a long trunk (920) exceeding the average for the group by 110.3 mm. as well as an increase in leg length resulting in a relative sitting height index of 48.1. There were two men who were short or medium in stature due to extreme shortness of trunk length. Their relative sitting height indices were 45.5 and 46.3 respectively. Twenty-nine individuals (39.2 per cent) were medium in stature and in trunk length. Thirty-nine men (52.7 per cent) were medium in trunk length while forty-four (59.4 per cent) were medium in stature.

These villagers can therefore be classified as medium in standing and sitting height with a general tendency toward shortness due to a slight reduction in trunk length.

There were no obese individuals and none were unusually thin. No special differences were observed in the various parts of the body from the normal or most common types in Europeans. Hands and feet were generally well formed and inclined to be large and rough due to agricultural pursuits, while the fingers were short and broad, and the toes were thickened because shoes were seldom worn.

*Head Measurements.*—These measurements require little comment beyond the fact that they exhibited considerable range of variation. No instance of either artificial or pathological deformation was recorded. Although the cephalic index (76.35) is in the mesocephalic division, the entire series falls into the mesocephalic and dolichocephalic classes almost equally (see p. 365). As indicated by the low standard of deviation, reference to the individuals reveals that this is not due to two dissimilar elements among the Kinareh males but to the fact that the indices are grouped about the arbitrary line between mesocephaly and dolichocephaly. In other words the

Kinareh subjects may be termed either high dolichocephals or low mesocephals.

When the head dimensions of length and breadth are plotted according to the methods employed by Keith (1935, p. 21 et seq.) the cranial capacities can be estimated. These are divided into three categories: small (1300 cc. or less), medium, and large (1450 cc. or more). Keith (p. 22) adds that 1450 cc. "is not really a large head; the cranial capacity of the average Englishman is 1480 cc."

The Kinareh group can thus be divided as follows:

GROUPS ACCORDING TO CEPHALIC INDEX										
Heads	x-70	70.1-75.0		75.1-79.9		80.0-84.9		85-x	Totals	
	No.	No.	%	No.	%	No.	%	No.	No.	%
Small.....	0	8	10.96	21	28.77	4	5.48	0	33	45.21
Medium.....	0	14	19.18	21	28.77	3	4.11	0	38	52.06
Large.....	0	0	.....	1	1.37	1	1.37	0	2	2.74
Totals....	0	22	30.14	43	58.91	8	10.96	0	73	100.01

There are no heads in the x-70 or 85.0-x categories and only two individuals (2.74 per cent) in the big-headed group. The eight round-headed individuals fall between 80.0-84.9, four in the small- and three in the medium-headed group. It can be observed that with only two exceptions all the Kinareh men can be placed in the small or medium head-size divisions, the latter predominating to a slight degree.

The grouping of the cephalic indices when separated by two units gives the following results:

CEPHALIC INDICES						
68-70	71-73	74-76	77-79	80-82	83-85	Total
1	14	21	27	8	2	73

Two brachycephals have been compared with the general Kinareh series. The following results appear:

(1) No. 3353 (Pl. 77, Figs. 1, 2).—Cephalic index 84.5. Stature 17.1 shorter, head breadth 15.3 greater, upper face 6.25 higher, total face 9.6 higher, nose 4.34 longer and 1.19 broader. Thus the most marked differences occur in the shortness of stature, the great increase in head breadth, upper face height, and nasal length.

(2) No. 3399 (Pl. 78, Figs. 1, 2).—Cephalic index 84.1. Stature 3.7 taller, head length 2.0 longer, head breadth 16.3 greater, minimum frontal diameter 5.14 narrower, bigonial breadth 8.2 greater, upper face 3.5 higher, total face 1.40 higher, nose 5.3 longer and 2.8 narrower. The most important differences are shown in the head

breadth, minimum frontal diameter, bigonial breadth, upper face height, and nasal length.

In each of these cases the head seems to be larger relatively and absolutely and the marked increase in head breadth, apparently due neither to artificial cranial deformation nor to premature closing of the sutures nor to any pathological condition, suggests a different racial stock, possibly some Proto-Alpine or other large-headed admixture.

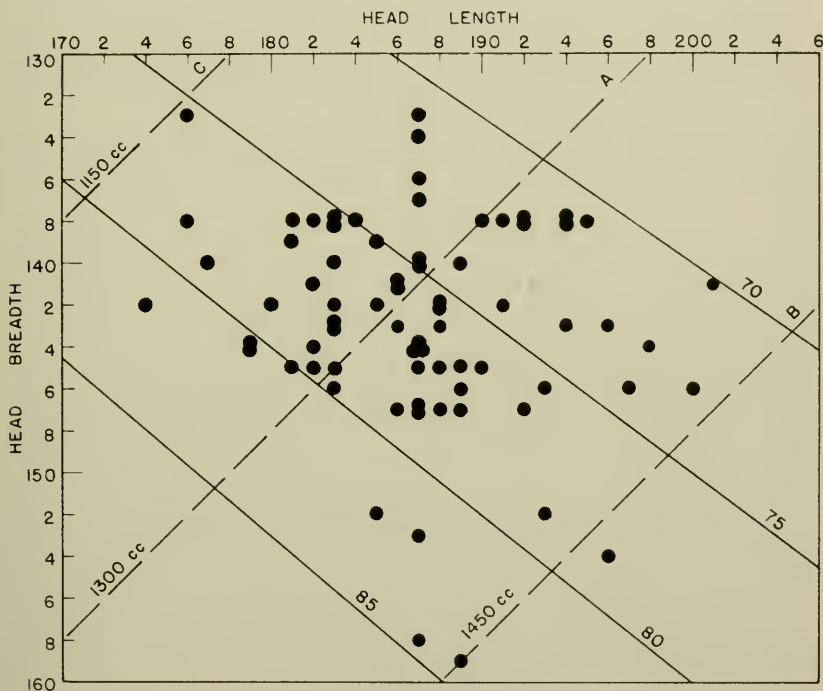


FIG. 17. Head length, breadth, and capacity of seventy-three Kinareh villagers.

The general tendency in the Kinareh group seemed to be toward a sloping forehead, with the almost entire absence of frontal bosses. The supraorbital crests were clearly defined and perhaps accentuated by the frequent skin fold over the glabella, probably caused by the intense glare of the sunlight. There were, however, no cases which could be included in the heavy class. In the majority of cases the eyebrows were heavy. No. 3386 had marked concurrency of the eyebrows, which formed an unbroken, wavy line.

The maximum breadth of the head (142.96) and the minimum frontal diameter (112.14) have racial significance and in order to show the grouping the following table has been prepared:

Head breadth	MINIMUM FRONTAL DIAMETER									
	x-99		100-109		110-119		120-x		Totals	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
120-129.....	0	0	.....	0	.....	0	.....	0	.....	.....
130-139.....	0	5	6.75	15	20.25	0	.....	20	27.00	
140-149.....	0	9	12.15	38	51.30	1	1.35	48	64.80	
150-x.....	0	1	1.35	4	5.40	1	1.35	6	8.10	
Totals.....	0	15	20.25	57	76.95	2	2.70	74	99.90	

There were no Kinareh males in either very narrow class and only two with wide frontal diameters, one of whom also had a very broad head. Since these two individuals possessed broad heads there must exist a high degree of correlation between width of forehead and greatest width of the head. Thirty-eight men (51.3 per cent) were moderately wide in both diameters. Since fifty-four men (72.9 per cent) fall in the greater head categories (140-x) and fifty-nine (79.65 per cent) in the broad divisions (110-x) of the frontal diameter it can be stated that the Kinareh men have heads which are wide in maximum breadth and in minimum frontal diameter.

The occipital region was in no case especially protruding. The ears were found to be fairly well formed, lying normally near the head or moderately abutting with the separation of the lobule sometimes deficient.

*Facial Measurements.*—These can best be examined by studying the absolute and relative length of the face and later the relation of the breadth to the length of the face.

After the individuals have been grouped according to the system employed by Keith we have the following table:

Total face length	BIZYGOMATIC BREADTH							
	x-124		125-134		135-x		Totals	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
x-114.....	0	.....	5	6.75	2	2.70	7	9.45
115-124.....	1	1.35	29	39.15	11	14.85	41	55.35
125-x.....	0	.....	13	17.55	13	17.55	26	35.10
Totals.....	1	1.35	47	63.45	26	35.10	74	99.90

This table shows that there are no individuals with narrow, short, or long faces, the majority being medium both in length and breadth with thirteen men in each of the long and medium, and long and wide, categories. As regards the bizygomatic breadth, forty-seven individuals are in the medium classification, the remainder with

but one exception being in the wide group. Thus the face tends to be medium to wide in breadth, with a stronger indication of the latter, and medium to long in length.

The total facial indices (see p. 365) reveal that forty-seven men (63.51 per cent) are leptoprosopic and only five individuals (6.76 per cent) euryprosopic.

According to Keith (1935, pp. 52-53) there occurs in Southwestern Asia a "ram-faced" type of countenance where the upper face carrying the nose is long, while the mandibular part of the face is short. In accordance with his four categories for each measurement the following table results:

Total face length	UPPER FACE LENGTH									
	x-63		64-69		70-75		76-x		Totals	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
x-109.....	0	.....	0	.....	0	.....	0	.....	0	.....
110-119.....	2	2.74	18	24.66	7	9.59	1	1.37	28	38.36
120-129.....	1	1.37	4	5.48	20	27.40	8	10.96	33	45.21
130-x.....	0	.....	0	.....	2	2.74	10	13.70	12	16.44
Totals.....	3	4.11	22	30.14	29	39.73	19	26.03	73*	100.01

\* No. 3351 (Pl. 80, Figs. 1, 2) omitted as upper facial height was recorded as 56.

In this group there were three very short upper faces but no very short total face length. There occurred twenty-eight in the moderately short (110-119) group, yet eight (10.96 per cent) had long upper faces, i.e. tended toward the "ram" type of visage. Within this series there were nineteen individuals with long upper faces. There were, however, three individuals with very short upper faces and moderately short total faces. A long total facial height (130+) occurred among twelve men.

In general, the faces tended to be long in both the upper and lower portions and in both there appeared to be a harmonious increase.

From the comparative table (p. 392) it may be seen that this group is relatively longer in upper facial height than the Yezd-i-Khast series and shorter than the Isfahan Jews, but the Lurs are longer in upper facial height by 6.60 and in total facial height by 4.0.

The outline of the face was generally almost elliptical or ovoid, with the lower portion occasionally rectangular. The masseter muscles were frequently well developed, associated with a bigonial breadth the average of which was 107.8.

Facial prognathism on the whole was somewhat more marked than in the average European, but was rare in a pronounced form.

The chin was of medium proportion and form. Due to the absence of heavy beards this feature can be studied carefully in the photographs. The malar regions show considerable development in No. 3383 (Pl. 11, Figs. 3, 4; Pl. 70, Figs. 1, 2) to a degree that suggests Mongoloid admixture, a supposition to which support is lent by narrow palpebral slits, vestigial external epicanthi and reduced lateral extension of the eyebrows.

Among the seventy-four males examined there was no one with any marked asymmetry of the face or with any anomalies of importance. The neck was usually of medium development, although with a tendency to shortness.

Among the Kinareh series the nose showed important trends. Sixty-eight per cent were leptorrhine and only 5 per cent fell into the platyrrhine classification (see p. 365). For comparison with Keith's divisions the following table has been calculated:

Nasal length	NASAL WIDTH									
	x-29		30-35		36-41		42-x		Totals	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
x-49.....	0	.....	18	24.30	4	5.40	2	2.70	24	32.40
50-59.....	7	9.45	31	41.85	9	12.15	1	1.35	48	64.80
60-x.....	0	.....	2	2.70	0	.....	0	.....	2	2.70
Totals.....	7	9.45	51	68.85	13	17.55	3	4.05	74	99.90

Among the seventy-four Kinareh men there are seven with very narrow noses (x-29), all of them falling in the medium (50-59) classification of length. There are three individuals with very wide noses (42-x), two of them being short (x-49). There are fifty-one with moderately narrow noses and thirteen moderately wide. With regard to the length of the nose there are only two with long noses (60-x) while twenty-four are in the short category (x-49). Thus the Kinareh men have medium to short, moderately narrow noses.

#### SUMMARY

As a result of anthropometric, statistical, and photographic analyses the following six elements can be distinguished in the population of Kinareh.

(1) A variation of a basic, coarse Mediterranean type with medium-sized face, slightly broad nose and rather prominent gonial angles, e.g. Nos. 3337 (Pl. 82, Figs. 1, 2), and 3338 (Pl. 84, Figs. 1, 2).

(2) Atlanto-Mediterranean+Nordic(?) type with a longer but heavier face, and slightly more leptorrhine nose. This may well be the element which introduces the lightness of eye color, e.g. No. 3342 (Pl. 76, Figs. 1, 2).



(3) Armenoid-Anatolian type with accentuated aquiline nose, e.g. Nos. 3363 (Pl. 9, Figs. 3, 4; Pl. 88, Figs. 3, 4), 3360 (Pl. 86, Figs. 1, 2).

(4) Submerged Alpine type, e.g. No. 3351 (Pl. 80, Figs. 1, 2).

(5) Mongoloid trace, e.g. Nos. 3383 (Pl. 11, Figs. 3, 4; Pl. 70, Figs. 1, 2), 3359 (Pl. 81, Figs. 3, 4), 3382 (Pl. 69, Figs. 1, 2), 3369 (Pl. 87, Figs. 1, 2).

(6) Slight Negroid element, e.g. Nos. 3348 (Pl. 12, Figs. 1, 2; Pl. 89, Figs. 1, 2), 3368 (Pl. 12, Figs. 3, 4; Pl. 93, Figs. 3, 4).

A few individuals appear to be slightly aberrant from the series and for this reason it is worth calling attention to them. Several (cf. No. 3354, Pl. 74, Figs. 3, 4) could pass for Arabs of Central Iraq, but the majority would be conspicuous in an Iraqi *suq*. No. 3383 (Pl. 11, Figs. 3, 4; Pl. 70, Figs. 1, 2) is Mongoloid and can be compared to Rathi-el-Abud, one of the workmen at the Kish excavations (Field, 1935, Pls. CXXX and CXXXI).

When the photographs were sorted on the basis of nasal profile variations, there was the usual range within the leptorrhine group from straight to aquiline and only slight racial differentiations could be found. Examination of the length and general shape of the face was of more value, particularly since there is a short-faced type and a long-faced element in the population, as well as the normal blending of the two.

The Kinareh villagers tend to be medium in stature, trunk length, head length, and bizygomatic breadth; wide in head breadth and minimum frontal diameter; long in total and upper face height; and with moderately short, narrow noses. In non-metrical features they have low wavy, medium to fine, black hair; dark brown eyes with homogeneous irises and clear sclera. The nose is convex or straight, with medium to flaring alae, and a tendency toward thickness of nasal tip. The teeth are good with a normal occlusion and few have been lost. These people are average in musculature and general health.

## KINAREH VILLAGERS—MEASUREMENTS

No.	Age	Stature	SH	L	B	B'	J	go-go	GH	G'H	NH	NB
3334	30	191.1	920	192	138	114	131	113	124	71	50	36
3335	35	169.2	893	183	142	110	137	123	130	80	56	37
3336	45	168.7	874	183	138	112	131	104	127	74	53	34
3337	35	162.3	763	186	143	109	128	107	116	67	49	31
3338	40	158.0	788	186	147	113	137	106	115	68	48	36
3339	30	161.4	827	...	144	107	131	110	115	63	46	32
3340	36	163.7	864	189	146	114	134	106	122	63	44	34
3341	40	167.7	841	194	143	107	132	106	123	72	53	35
3342	30	162.1	772	194	138	116	136	112	129	78	54	36
3343	40	164.2	822	194	138	109	130	100	129	76	61	32
3344	50	158.4	782	187	133	111	131	103	123	74	52	32
3345	35	154.9	793	183	138	108	127	103	128	76	48	33
3346	40	171.4	870	188	147	117	140	107	120	68	45	40
3347	50	160.2	830	187	140	112	132	109	117	71	51	36
3348	45	166.1	856	188	142	112	136	117	118	65	42	42
3349	40	164.2	847	188	142	107	127	105	117	70	50	29
3350	60	161.7	770	177	140	103	130	103	118	67	49	32
3351	35	159.0	765	187	153	118	145	107	122	56	42	42
3352	50	162.3	782	192	147	120	147	105	128	75	50	34
3353	30	148.4	768	187	158	112	134	107	132	78	56	34
3354	28	169.5	825	193	146	115	133	105	116	69	47	34
3355	25	166.5	818	187	137	112	128	105	117	69	47	32
3356	35	174.0	870	189	140	114	134	104	128	76	58	35
3357	22	157.6	718	179	144	110	128	103	121	70	46	32
3358	55	170.4	851	191	142	115	137	103	130	78	54	33
3359	35	166.6	873	196	154	122	148	116	124	67	50	36
3360	40	167.3	793	190	138	115	128	109	125	78	57	32
3361	35	173.0	852	193	152	116	139	121	135	81	59	32
3362	35	173.1	842	182	145	111	136	111	111	59	51	29
3363	40	178.3	878	187	144	119	136	108	134	75	55	33
3364	40	167.2	803	187	144	115	131	102	125	77	53	33
3365	67	169.6	829	186	141	110	131	105	132	76	56	30
3366	40	154.2	760	185	152	114	136	108	115	68	52	31
3367	45	166.8	787	183	143	114	136	108	117	68	54	37
3368	50	166.1	820	195	138	114	139	106	125	75	57	40
3369	38	166.0	819	179	144	119	141	112	124	71	52	33
3370	45	163.7	825	181	139	110	134	104	115	71	51	33
3371	40	158.0	783	192	138	114	130	115	124	71	52	28
3372	36	159.4	800	187	136	110	127	104	129	78	55	26
3373	22	164.3	816	190	145	116	133	105	114	68	49	33
3374	25	177.5	860	181	145	111	136	103	125	71	53	30
3375	20	162.6	818	187	144	110	131	104	122	67	52	29
3376	23	160.8	838	182	144	106	127	107	135	73	56	31
3377	22	167.0	800	189	147	110	131	108	123	70	50	35
3378	20	170.0	844	185	142	112	134	112	118	72	54	31
3379	20	161.2	746	183	140	100	128	97	113	62	48	30
3380	25	172.8	857	188	145	111	138	113	130	77	54	30
3381	38	174.5	834	198	144	113	137	108	133	76	57	31
3382	20	157.3	777	185	139	107	133	108	125	68	47	32
3383	21	165.8	823	187	147	114	133	111	121	70	46	31
3384	18	163.8	792	182	138	108	127	102	117	70	55	27
3385	35	157.0	820	174	142	109	127	103	112	68	49	31
3386	30	165.7	810	187	140	110	123	98	120	73	56	31

## KINAREH VILLAGERS—INDICES

No.	EL	EB	RSH	B/L	B'/B	GH/J	G'H/J	NB/NH	EB/EL	go-go/J	B'/J
3334	69	42	48.1	71.9	82.6	94.7	54.2	72.0	60.9	86.3	87.0
3335	65	38	52.8	77.6	77.5	97.0	59.7	66.1	58.5	91.8	82.1
3336	56	35	51.8	75.4	81.2	97.0	56.5	64.2	62.5	79.4	85.5
3337	57	33	47.0	76.9	76.2	90.6	52.3	63.3	57.9	83.6	85.2
3338	62	37	49.8	79.0	76.9	83.9	49.6	75.0	59.7	77.4	82.5
3339	61	36	51.2	...	74.3	87.8	48.1	69.6	59.0	84.0	81.7
3340	53	34	52.7	77.3	78.1	91.0	47.0	77.3	64.2	79.1	85.1
3341	62	36	50.1	73.7	74.8	93.2	54.6	66.0	58.1	80.3	81.1
3342	55	36	47.6	71.1	84.1	94.9	57.4	66.7	65.5	82.4	85.3
3343	63	38	50.1	71.1	79.0	99.2	58.5	52.5	60.3	76.9	83.9
3344	65	36	49.3	71.1	83.5	93.9	56.5	61.5	55.4	78.6	84.7
3345	57	36	51.1	75.4	78.3	100.8	59.8	68.8	63.2	81.1	85.0
3346	62	38	50.7	78.2	79.6	85.7	48.6	88.9	61.3	76.4	83.6
3347	60	35	51.8	74.9	80.0	88.6	53.8	70.6	58.3	82.6	84.9
3348	53	35	51.5	75.5	78.9	86.8	47.8	100.0	66.0	86.0	82.4
3349	65	37	51.5	75.5	75.4	92.1	55.1	58.0	56.9	82.7	84.3
3350	53	36	47.6	79.1	73.6	90.8	51.5	65.3	67.9	79.2	79.2
3351	63	41	48.0	81.8	77.1	84.1	38.6	100.0	65.1	73.8	81.4
3352	61	36	48.1	76.6	81.6	87.1	51.0	68.0	59.0	71.4	81.6
3353	64	38	51.7	84.5	70.9	96.4	56.9	60.7	59.4	78.1	81.8
3354	55	34	48.6	75.7	78.8	87.2	51.9	72.3	61.8	79.0	86.5
3355	58	31	49.1	73.3	81.8	91.4	53.9	68.1	53.5	82.0	87.5
3356	60	40	50.0	74.1	81.4	95.5	56.7	60.3	66.7	77.6	85.8
3357	48	35	45.5	80.5	76.4	94.5	54.7	69.6	72.9	80.5	85.9
3358	57	36	49.9	74.4	81.0	94.9	56.9	61.1	63.2	75.2	83.9
3359	68	39	52.4	78.6	79.2	83.8	45.3	72.0	57.4	78.4	82.4
3360	55	39	47.4	72.6	83.3	97.7	60.9	56.1	70.9	85.2	89.8
3361	65	42	49.0	78.8	76.3	97.1	58.3	54.2	64.6	87.1	83.5
3362	63	36	48.6	79.7	76.6	81.6	50.7	56.9	57.1	81.6	81.6
3363	61	39	49.2	77.0	82.6	100.7	55.1	60.0	63.9	79.4	87.5
3364	66	36	48.0	77.0	79.9	95.4	58.8	62.3	54.6	77.9	87.8
3365	65	36	48.8	75.8	78.0	100.7	58.0	53.6	55.4	80.2	83.9
3366	59	32	49.3	82.2	75.0	84.6	50.0	59.6	54.2	79.4	83.8
3367	56	39	47.1	78.1	79.7	86.0	50.0	68.5	69.6	79.4	83.8
3368	64	37	49.4	70.8	82.6	89.9	54.0	70.2	57.8	76.3	82.0
3369	60	35	49.3	80.5	82.6	87.9	50.4	63.5	58.3	79.4	84.4
3370	65	37	50.4	76.8	79.1	85.8	53.0	64.7	56.9	77.6	82.1
3371	60	37	49.5	71.9	82.6	95.4	54.6	53.9	61.7	88.5	87.7
3372	58	37	50.2	72.7	80.9	101.6	61.4	47.3	63.8	81.9	86.6
3373	56	37	49.6	76.3	80.0	85.7	51.1	67.4	66.1	79.0	87.2
3374	58	40	48.4	80.1	76.6	91.9	52.2	56.6	68.9	75.7	81.6
3375	51	37	50.3	77.0	76.4	93.1	51.2	55.8	72.6	79.4	83.9
3376	57	33	52.1	79.1	73.6	106.3	57.5	55.4	57.9	84.3	83.5
3377	62	37	47.9	77.8	74.8	93.9	53.4	70.0	59.7	82.4	84.0
3378	48	36	49.4	76.8	78.9	88.1	53.7	57.4	75.0	83.6	83.6
3379	61	39	46.3	76.5	71.4	88.3	48.4	62.5	63.9	75.8	78.1
3380	66	39	49.6	77.1	76.6	94.2	55.8	55.6	59.1	81.9	80.4
3381	62	36	47.8	72.7	78.5	97.1	55.5	54.4	58.1	78.8	82.5
3382	51	33	49.4	75.1	77.0	94.0	51.1	68.1	64.7	81.2	80.5
3383	56	33	49.6	78.6	77.6	91.0	53.4	67.4	58.9	83.5	85.7
3384	55	27	48.3	75.8	78.3	92.1	55.1	49.1	...	80.3	85.0
3385	60	38	48.8	81.6	77.9	88.2	53.5	63.3	63.3	81.1	85.8
3386	57	39	52.2	74.9	78.6	97.6	59.4	55.4	68.4	79.7	89.4

KINAREH VILLAGERS—MEASUREMENTS (*Concluded*)

No.	Age	Stature	SH	L	B	B'	J	go-go	GH	G'H	NH	NB
3387	40	162.4	818	187	134	111	127	108	121	70	52	33
3388	33	161.0	847	191	138	115	131	105	116	68	43	38
3389	..	168.5	826	183	143	110	131	108	122	73	56	30
3390	30	160.8	765	183	146	110	134	114	114	64	50	28
3391	55	161.5	806	187	147	114	130	103	116	67	48	35
3392	40	166.5	811	197	146	117	136	109	111	81	61	35
3393	30	170.2	822	196	143	118	136	114	119	64	44	33
3394	20	163.5	833	184	138	109	128	114	115	71	51	31
3395	30	160.3	835	189	145	111	130	104	111	67	48	30
3396	55	164.0	862	180	142	113	134	112	126	77	57	33
3397	30	172.3	880	183	145	111	136	113	129	73	56	36
3398	28	168.8	846	186	141	115	133	107	122	70	50	30
3399	30	169.2	833	189	159	107	133	116	121	75	57	30
3400	33	172.8	831	182	141	118	138	104	134	78	56	36
3401	50	155.3	775	188	143	109	127	103	137	76	54	32
3402	40	157.7	785	176	133	113	134	111	117	65	42	31
3403	18	161.0	805	181	138	112	134	110	119	68	48	30
3404	24	169.0	808	187	145	114	146	116	132	77	53	31
3405	30	178.5	847	200	146	114	135	111	123	71	46	36
3406	20	158.7	818	176	133	111	127	98	118	71	55	30
3407	60	171.4	824	201	141	115	140	121	124	73	54	42

## MEASUREMENTS AND INDICES OF KINAREH MALES

Measurements	No.	Range	Mean	S.D.	C.V.
Age.....	74	18-70	37.25±0.94	12.05±0.67	32.35±1.79
Stature.....	74	146-193	165.54±0.52	6.69±0.37	4.04±0.22
Sitting height.....	74	72-92	81.97±0.28	3.63±0.20	4.43±0.25
Head length.....	73	173-202	187.02±0.44	5.52±0.31	2.95±0.16
Head breadth.....	74	132-161	142.96±0.39	4.98±0.28	3.48±0.19
Minimum frontal diameter.....	74	97-124	112.14±0.31	3.92±0.22	3.50±0.19
Bizygomatic diameter.....	74	120-149	133.35±0.41	5.20±0.29	3.90±0.22
Bigonial diameter.....	74	94-125	107.78±0.41	5.20±0.29	4.82±0.27
Total facial height.....	74	110-139	122.40±0.51	6.50±0.36	5.31±0.29
Upper facial height.....	73	60-81	71.75±0.39	4.95±0.28	6.90±0.39
Nasal height.....	74	40-63	51.66±0.37	4.76±0.26	9.21±0.51
Nasal breadth.....	74	25-42	32.81±0.26	3.36±0.19	10.24±0.57
Ear length.....	73	48-71	59.54±0.38	4.76±0.27	7.99±0.45
Ear breadth.....	73	29-43	36.33±0.21	2.61±0.15	7.18±0.40
Indices					
Relative sitting height.....	74	46-53	49.74±0.14	1.76±0.10	3.54±0.20
Cephalic.....	73	63-85	76.35±0.25	3.15±0.18	4.13±0.23
Fronto-parietal.....	74	66-86	78.64±0.27	3.45±0.19	4.39±0.24
Zygo-frontal.....	74	68-83	84.54±0.22	2.76±0.15	3.26±0.18
Zygo-gonial.....	74	69-92	80.83±0.29	3.75±0.21	4.64±0.26
Facial.....	74	80-109	91.95±0.44	5.60±0.31	6.09±0.34
Upper facial.....	73	43-63	53.81±0.31	3.93±0.22	7.39±0.41
Nasal.....	74	44-99	64.54±0.78	10.00±0.55	15.49±0.86
Ear.....	73	49-76	61.90±0.41	5.20±0.29	8.40±0.47

KINAREH VILLAGERS—INDICES (*Concluded*)

No.	EL	EB	RSH	B/L	B'/B	GH/J	G'H/J	NB/NH	EB/EL	go-go/J	B'/J
3387	60	38	50.4	71.7	82.8	95.3	55.1	63.5	63.3	85.0	87.4
3388	58	39	52.6	72.3	83.3	88.6	51.9	88.4	67.2	80.2	87.8
3389	61	36	49.0	78.1	76.9	93.1	55.7	53.6	59.0	82.4	84.0
3390	58	37	47.5	79.8	75.3	85.1	47.8	56.0	63.8	85.1	82.1
3391	55	34	51.1	78.6	77.6	89.2	51.5	72.9	61.8	79.2	87.7
3392	70	36	49.9	74.1	80.1	81.6	59.6	57.4	61.7	80.2	86.0
3393	62	38	48.3	73.0	82.5	87.5	47.1	75.0	61.3	83.8	86.8
3394	58	35	50.9	75.0	79.0	89.8	55.5	60.8	60.3	89.1	85.2
3395	58	37	52.1	76.7	76.6	85.4	51.5	62.5	63.8	80.0	85.4
3396	62	34	52.6	78.9	79.6	94.0	57.5	57.9	54.8	83.6	84.3
3397	63	37	51.1	79.2	76.6	94.9	53.7	64.3	58.7	83.1	81.6
3398	62	33	50.1	75.8	81.6	91.7	52.6	60.0	53.2	80.5	86.5
3399	53	31	49.2	84.1	67.3	91.0	56.4	52.6	58.5	87.2	80.5
3400	62	36	48.1	77.5	83.7	97.1	56.5	64.3	58.1	75.4	85.5
3401	61	38	49.9	76.1	76.2	107.9	59.8	59.3	62.3	81.1	85.8
3402	56	40	49.7	75.6	85.0	87.3	48.5	73.8	71.4	82.8	84.3
3403	53	31	50.0	76.2	81.2	88.8	50.8	62.5	58.5	82.1	83.6
3404	59	40	47.8	77.5	78.6	90.4	52.7	58.5	67.8	79.5	78.1
3405	64	33	47.4	73.0	78.1	91.1	52.6	78.3	51.6	82.2	84.4
3406	53	34	51.5	78.4	80.4	92.9	55.9	54.6	69.8	77.2	87.4
3407	53	37	48.1	70.2	81.6	88.6	52.1	77.8	69.8	86.4	82.1

GROUPINGS ACCORDING TO HARVARD SYSTEM

STATURE

	SHORT (x-160.5)	MEDIUM (160.6-169.4)	TALL (169.5-x)	TOTALS
Number . . . . .	16	40	18	74
Per cent . . . . .	21.62	54.05	24.32	99.99

CEPHALIC INDEX

	DOLICHOCEPHALIC (x-76.5)	MESOCEPHALIC (76.6-82.5)	BRACHYCEPHALIC (82.6-x)	TOTALS
Number . . . . .	36	35	2	73
Per cent . . . . .	49.32	47.95	2.74	100.01

TOTAL FACIAL INDEX

	EURYPROSOPIC (x-84.5)	MESOPROSOPIC (84.6-89.4)	LEPTOPROSOPIC (89.5-x)	TOTALS
Number . . . . .	5	22	47	74
Per cent . . . . .	6.76	29.73	63.51	100.00

NASAL INDEX

	LEPTORRHINE (x-67.4)	MESORRHINE (67.5-83.4)	PLATYRRHINE (83.5-x)	TOTALS
Number . . . . .	50	20	4	74
Per cent . . . . .	67.57	27.03	5.41	100.01

## MORPHOLOGICAL CHARACTERS OF KINAREH VILLAGERS

No.	HAIR			EYES			NOSE	
	Form	Texture	Color	Color	Sclera	Iris	Profile	Wings
3334	l w	coarse	dk br	dk br	clear	hom	conv	medium
3335	l w	medium	dk br	dk br	....	....	conv	medium
3336	l w	m-fine	dk br	dk br	clear	hom	str	medium
3337	v l w	fine	blk, gray	dk br	clear	hom	str	medium
3338	v l w	medium	black	dk br	speck	zon	str	medium
3339	l w	fine	black	dk br	clear	hom	conv	medium
3340	l w	coarse	black	dk br	clear	hom	str	medium
3341	v l w	medium	dk br	dk br	clear	hom	c-c	m-fl
3342	l w	fine	black	gray-br	speck	zon	conv	flar*
3343	l w	fine	black	dk br	clear	hom	conv	medium
3344	v l w	fine	blk, gray	dk br	clear	hom	str	m-fl
3345	l w	fine	dk br	dk br	clear	hom	conv	medium
3346	l w	medium	black	dk br	clear	hom	conv	m-fl
3347	l w	fine	blk, gray	dk br	clear	hom	conv	flar†
3348	d w	medium	dk br	dk br	speck	....	str	flar
3349	l w	m-fine	blk, gray	dk br	speck	zon	str	medium
3350	l w	fine	blk, gray	dk br	clear	hom	str	medium
3351	l w	medium	black	dk br	clear	hom	conc	flar‡
3352	l w	coarse	black	dk br	clear	hom	conv	medium
3353	l w	coarse	dk br	dk br	speck	hom	str	medium
3354	l w	coarse	black	dk br	clear	hom	conc	medium
3355	l w	medium	black	dk br	clear	hom	str	medium
3356	l w	fine	black	dk br	clear	hom	conv	medium
3357	l w	fine	dk br	dk br	clear	hom	c-c	flar
3358	l w	fine*	gray, blk	dk br	clear	hom	str	medium
3359	l w	coarse	blk, gray	dk br	clear	hom	str	medium
3360	l w	medium	black	dk br	....	....	conv*	comp†
3361	l w	medium	dk br	dk br	clear	hom	str	medium
3362	l w	fine	black	dk br	clear	hom	conv	medium
3363	l w	fine	black	dk br	clear	hom	conv	medium
3364	l w	medium	black	dk br	clear	hom	conv	m-fl
3365	l w	c-med	white	dk br	clear	hom	str	medium
3366	l w	fine	black	dk br	clear	hom	conv	comp
3367	l w	fine	black	dk br	clear	hom	conv	flar
3368	l w	medium	gray	gr-br	speck	zon	conv*	flar
3369	l w	fine	black	dk br	clear	hom	conv	medium
3370	l w	m-fine	blk, gray	dk br	speck	hom	conv*	medium
3371	l w	....	black	dk br	clear	hom	str	medium
3372	l w	medium	black	dk br	clear	hom	str	cp-m
3373	l w	fine	black	dk br	clear	hom	str	medium
3374	l w	medium	black	dk br	clear	hom	str	comp†
3375	l w	fine	black	dk br	clear	hom	conv*	comp*
3376	l w	fine	black	dk br	clear	hom	conv*	comp*
3377	l w	fine	black	dk br	clear	hom	str	m-flar
3378	l w	fine	black	dk br	clear	hom	conv†	medium
3379	l w	fine	black	dk br	clear	hom	conv	medium
3380	l w	medium	dk br	gr-br	speck	zon	conv*	m-flar
3381	d w	fine	black	dk br	clear	hom	conv	medium
3382	d w	medium	black	dk br	clear	hom	str	medium
3383	l w	fine	black	dk br	clear	hom	wavy	medium
3384	l w	fine	black	dk br	clear	hom	str	medium
3385	d w	coarse	black	dk br	clear	hom	conv	medium
3386	l w	medium	dk br	gr-br	speck	zon	str	medium
3387	l w	medium	black	blue	clear	ray	conv*	medium
3388	l w	medium	dk br	dk br	clear	hom	c-c	flar
3389	l w	fine*	black	dk br	clear	hom	conv	medium
3390	l w	c-med	black	dk br	speck	zon	conv	medium

MORPHOLOGICAL CHARACTERS OF KINAREH VILLAGERS (*Concluded*)

No.	HAIR			EYES			NOSE	
	Form	Texture	Color	Color	Sclera	Iris	Profile	Wings
3391	l w	medium	blk, gray	gray-br	speck	zon	str	medium
3392	d w	medium	black	dk br	clear	hom	conv	medium
3393	l w	c-med	black	bl-br	speck	zon	str	m-fl
3394	l w	....	br	dk br	clear	hom	conv	medium
3395	l w	fine	dk br	dk br	clear	hom	conv*	comp*
3396	l w	fine	blk, gray	dk br	clear	hom	conv	m-fl
3397	l w	medium	black	gr-br	....	....	str	medium
3398	l w	m-fine	black	dk br	clear	hom	conv	medium
3399	v l w	medium	black	dk br	clear	hom	wavy	m-fl
3400	l w	m-fine	black	gr-br	speck	zon	conv	m-fl
3401	l w	medium	br, gray	gray-br	....	....	conv	medium
3402	l w	medium	black	gr-br	speck	ray	c-c	medium
3403	l w	fine	dk br	gr-br	speck	ray	str	m-fl
3404	l w	c-med	black	dk br	clear	hom	conv	m-fl
3405	l w	fine	black	dk br	sp-bl	zon	conc	flar
3406	l w	medium	black	dk br	clear	hom	conv	medium
3407	l w	medium	white	dk br	clear	hom	c-c	flar

\* = +; † = ++; ‡ = +++.

## LURS FROM PUSHT-I-KUH

As a result of firm administrative measures Luristan can now be visited by scientists who present proper credentials to the authorities. The entire country has been disarmed.

Because of the limited time at our disposal during part of August and September it was impossible to visit either Luristan or the Bakhtiari country, although permission had been granted not only by the Tehran authorities but also by the Governor of Isfahan. In Baghdad, however, the porters on the Custom House wharves were Lurs from Pusht-i-Kuh. Through the kindness of the Iraqi officials I was able to measure and photograph fifty-two men belonging to the Hassan Kuli Khan tribe. Tall in stature (168.63), these men are the most exceptional both in endurance and physical strength of any group studied. They carry enormous loads on their backs, using a head band, sometimes with a special type of back rest. In Iraq and Iran the Lurs are often employed as porters for moving heavy articles of merchandise. Although the Lur is most willing and good-natured, to the casual glance his expression is fierce, and his long, stringy locks tend to accentuate this impression.

In general, the size of the family unit seems small, but this is probably due to a high degree of infant mortality. Of the group measured, 25 per cent were married, but only 15 per cent had children. The relative youthfulness of the subjects, however, may be said to account for this to some extent.

## VITAL STATISTICS

- (1) Married: Nos. 3281, 3291 (2 wives), 3293 (twice), 3294, 3298, 3300, 3302, 3311, 3316, 3318, 3328, 3329, and 3331
- (2) Unmarried: 39 individuals
- (3) Children, all living:  
 No. 3291: 2 girls by second wife  
 No. 3293: 1 boy, 3 girls  
 Nos. 3294, 3328: 2 boys  
 Nos. 3298, 3311: 1 boy, 1 girl  
 No. 3302: 3 boys  
 No. 3318: 3 boys, 2 girls
- (4) Brothers and sisters, all living:  
 Nos. 3296, 3303, 3322: 0 sister, 1 brother  
 Nos. 3287, 3297, 3313, 3329: 1 sister, 1 brother  
 Nos. 3284, 3293, 3301, 3325, 3331: 0 sister, 2 brothers  
 Nos. 3295, 3300, 3332: 1 sister, 2 brothers  
 Nos. 3283, 3286, 3304, 3309, 3310: 2 sisters, 1 brother  
 No. 3320: 3 sisters, 0 brother  
 Nos. 3281, 3288, 3292: 2 sisters, 2 brothers  
 Nos. 3311, 3330: 1 sister, 3 brothers  
 No. 3324: 3 sisters, 1 brother  
 Nos. 3312, 3314: 2 sisters, 3 brothers  
 No. 3294: 0 sister, 6 brothers  
 Nos. 3305, 3306: 3 sisters, 3 brothers  
 No. 3307: 2 sisters, 4 brothers  
 No. 3308: 4 sisters, 2 brothers  
 No. 3321: 5 sisters, 1 brother  
 Nos. 3317, 3298: 3 sisters, 5 brothers  
 No. 3289: 6 sisters, 2 brothers  
 No. 3327: 2 sisters, 7 brothers

*Age.*—About 80 per cent of the series were under 34 years of age, while about one-fourth of the subjects were below 24 years. The mean age was 30.15.

## FREQUENCY DISTRIBUTION OF AGE

Age	Number	Per cent	Age	Number	Per cent
20-24.....	14	26.92	50-54.....	2	3.85
25-29.....	16	30.77	55-59.....	0	....
30-34.....	12	23.08	60-64.....	0	....
35-39.....	5	9.62	65-69.....	0	....
40-44.....	2	3.85	70-x.....	1	1.92
45-49.....	0	....			



## MORPHOLOGICAL CHARACTERS OF PUSHT-I-KUH LURS

*Skin Color.*—This was darker than that of the average southern European. There was, however, considerable range, from light brown (No. 3322: Pl. 109, Figs. 3, 4) to dark brown (No. 3287: Pl. 117, Figs. 1, 2). Nos. 3298 (Pl. 118, Figs. 3, 4) and 3317 (Pl. 109, Figs. 1, 2) each had a dark face with a light, untanned upper forehead, thereby showing the intense effect of the sun and weather in this area. This same feature was observed in numerous other individuals within the series. The constant exposure to the vagaries of the climate, which in Baghdad ranges from intense summer heat to the freezing point in winter, gives the skin a tough and weather-beaten appearance, which is increased by the Lurs' general lack of cleanliness, even though the river Tigris flows almost beneath their feet as they toil in the Baghdad Custom House.

*Hair.*—This was usually dark brown, although a marked reddish brown element was recorded. In form it had low waves with some minor variations. The texture was medium with a general tendency toward coarseness. Occasionally the head was shaved in a peculiar manner: No. 3313 (Pl. 6, Figs. 1, 2; Pl. 108, Figs. 3, 4) had a semi-circular shaved patch from the frontal hair line toward bregma; No. 3307 (Pl. 3, Figs. 1, 2; Pl. 106, Figs. 1-4) had a narrow, rectangular strip from the frontal hair line to just above lambda; and No. 3309 (Pl. 115, Figs. 1, 2) had a wide shaved strip from the frontal hair line terminating in a circular patch resembling a priestly tonsure.

## HAIR

Color	No.	Per cent	Form	No.	Per cent
Black	1	2.08	Straight	0	.....
Very dark brown	0	.....	Very low waves	3	6.38
Dark brown	39	81.25	Low waves	40	85.11
Brown	0	.....	Deep waves	3	6.38
Reddish brown	7	14.58	Curly-frizzly	0	.....
Light brown	0	.....	Woolly	1	2.13
Red	0	.....	Totals	47	100.00
Black and gray	0	.....	Texture	No.	Per cent
Brown and gray	1	2.08	Coarse	6	13.64
Light brown and gray	0	.....	Coarse-medium	0	.....
Gray	0	.....	Medium	36	81.82
White	0	.....	Medium-fine	1	2.27
Totals	48	99.99	Fine	1	2.27
			Totals	44	100.00

Baldness had developed in normal manner with increasing years. Gray hair, to any appreciable extent, was seldom noticed before the fortieth year and in late middle age grayness was subnormally

advanced. No. 3331 had applied henna to the hair "to prevent it from turning gray."

All but two individuals recorded had mustaches. Abnormal hairiness of the body was noted in the single case of No. 3311 (Pl. 3, Figs. 3, 4; Pl. 126, Figs. 3, 4). Hair samples were obtained from thirty-two individuals.

*Eyes.*—The eyes were brown in color, half were dark brown, one-third blue brown, the remainder green brown. These lighter colors suggest the possibility of a submerged blondism. Of those with dark brown hair there were five with green brown and thirteen with blue brown eyes. Only one man with reddish brown hair had dark brown eyes, the other six showing a light admixture.

More than half of the irises were homogeneous, while a third were rayed and 10 per cent of them were zoned. With the exception of 14 per cent who had speckled sclera, all but one man had clear sclera. The eye slits were approximately horizontal as in Europeans and there were no cases of marked obliquity of the distal canthi. A number of Lurs seemed to have a marked eyebrow concurrency.

EYES					
Color	No.	Per cent	Iris	No.	Per cent
Black	0	.....	Homogeneous	30	61.22
Dark brown	25	50.00	Rayed	14	28.57
Blue-brown	17	34.00	Zoned	5	10.20
Blue-brown	0	.....	Totals	49	99.99
Green-brown	8	16.00	Sclera	No.	Per cent
Green-brown	0	.....	Clear	42	84.00
Gray-brown	0	.....	Yellow	0	.....
Blue	0	.....	Speckled	7	14.00
Gray	0	.....	Bloodshot	0	.....
Light brown	0	.....	Speckled and bloodshot	1	2.00
Blue-gray	0	.....	Speckled and yellow	0	.....
Blue-green	0	.....	Totals	50	100.00
Totals	50	100.00			

*Nose.*—The profile was either convex or straight. In general, the nose was prominent and the degree of convexity varied from slight to accentuated as in Nos. 3281 (Pl. 120, Figs. 1, 2), 3294 (Pl. 7, Figs. 3, 4; Pl. 127, Figs. 3, 4), and 3322 (Pl. 109, Figs. 3, 4). The nasal wings showed considerable range of variation from compressed to flaring. Seventy-five per cent fell in the medium to medium-flaring groups. In profile the nasal orifice was hidden as in No. 3329 (Pl. 1, Figs. 3, 4; Pl. 125, Figs. 3, 4) or markedly lunate as in No. 3330 (Pl. 112, Figs. 3, 4). The nasal tip may be either thin or broad, with a

tendency, however, toward the latter. Inclination of the nasal septum showed no definite trend. The nasion depression was almost absent, as in No. 3303 (Pl. 128, Figs. 1, 2), or varied to a maximum as in Nos. 3283 (Pl. 116, Figs. 3, 4), 3311 (Pl. 3, Figs. 3, 4; Pl. 126, Figs. 3, 4), and 3322 (Pl. 109, Figs. 3, 4).

		NOSE			
Profile	No.	Per cent	Wings	No.	Per cent
Wavy	2	3.92	Compressed	4	7.69
Concave	0	.....	Compressed-		
Straight	25	49.02	medium	2	3.85
Convex	23	45.10	Medium	24	46.15
Concavo-convex	1	1.96	Medium-flaring	15	28.85
			Flaring	7	13.46
Totals	51	100.00	Flaring +	0	.....
			Totals	52	100.00

Mid-facial prognathism, which occurs among a number of these Lurs, can be seen clearly in Nos. 3285 (Pl. 121, Figs. 1, 2), 3291 (Pl. 6, Figs. 3, 4; Pl. 123, Figs. 1, 2), 3296 (Pl. 110, Figs. 3, 4), and 3330 (Pl. 112, Figs. 3, 4).

*Mouth and Teeth.*—The lips revealed little contrast to the average European and ranged from thin (No. 3309: Pl. 115, Figs. 1, 2) to medium or medium thick (No. 3284: Pl. 107, Figs. 1, 2). The upper fleshy fold might be straight (No. 3281: Pl. 120, Figs. 1, 2) or bowed (No. 3314: Pl. 119, Figs. 1, 2), while eversion varied from none (No. 3301: Pl. 110, Figs. 1, 2) to medium plus (Nos. 3316: Pl. 126, Figs. 1, 2; and 3320: Pl. 111, Figs. 1, 2).

TEETH		
Condition	No.	Per cent
Very bad	0	.....
Bad	5	12.82
Fair	8	20.51
Good	17	43.59
Excellent	9	23.08
Totals	39	100.00

The teeth were in good condition with but few exceptions. The occlusion was slight-over or marked-over, with three cases of edge-to-edge bite.

*Face.*—The chin was medium in form and in proportion. The shape tended to be ovoid (No. 3313: Pl. 6, Figs. 1, 2; Pl. 108, Figs. 3, 4) or square (No. 3283: Pl. 116, Figs. 3, 4), and the heavy-jawed type which I have observed so often among other groups in Iran and Iraq appears to be absent among the Lurs, although this observation must be made with reservation because of the limited number of

Lurs examined. In a few instances the chin tended to be small and receding (Nos. 3305: Pl. 115, Figs. 3, 4; 3306: Pl. 111, Figs. 3, 4; and 3325: Pl. 113, Figs. 3, 4).

The neck was usually of medium development and cylindrical in form.

The malar regions were about medium in size with a range of 125-149 and an average of 134.70.

Among the fifty-two Lurs examined there was no one with any marked facial asymmetry or with any important anomalies.

*Musculature.*—In musculature 90 per cent of these men were good, the other 10 per cent excellent. It must be noted that these Lurs are a selected group of strong individuals whose work as porters tends to increase their muscular development. For example, No. 3293 (Pls. 130, 131), aged 70, was recorded as excellent. A similar condition was observed among the Yezidi porters measured and observed in Tblisi (formerly Tiflis), the capital of Georgia and of the Transcaucasian Federation of Socialist Soviet Republics.

*Health.*—The Lurs appeared to be in good health. One man (No. 3319: Pl. 124, Figs. 3, 4) was afflicted with scalp disease (favus?), and another (No. 3287: Pl. 117, Figs. 1, 2) had recovered from smallpox. No. 3284 (Pl. 107, Figs. 1, 2) had numerous scars on his head as a result of bloodletting; No. 3287 (Pl. 117, Figs. 1, 2) had had a fractured left forearm; and No. 3299 (Pl. 105, Figs. 1, 2) had a large naevus on his neck.

Of the individuals observed, 30 per cent bore branding or cauterization marks. No. 3291 (Pl. 6, Figs. 3, 4; Pl. 123, Figs. 1, 2) showed a large circular scar on his right wrist which was "to give him strength." No. 3306 (Pl. 111, Figs. 3, 4) had a similar mark "to cure sickness."

*Tattooing.*—About 30 per cent of fifty-one individuals were recorded as being tattooed to some degree, but in only one case was the tattooing extensive. No. 3294 (Pl. 7, Figs. 3, 4; Pl. 127, Figs. 3, 4) had a stylized animal, probably a man on horseback, tattooed on the central portion of the right inside forearm.

Tattooing	No.	Per cent
None.....	35	68.63
Some.....	15	29.41
Extensive.....	1	1.96
Totals.....	51	100.00

STATISTICAL ANALYSES OF PUSHT-I-KUH LURS

*Stature.*—In stature more than half (53.76 per cent) of the Lurs fell into the medium (1699-1600) classification. According to the Harvard system, however, 44.23 per cent may be classed as tall, being 169.5 or greater. The Lurs were, as a matter of fact, taller than the other three Iran groups, which was due to a marked increase in trunk length as is shown by the following table:

Standing height	SITTING HEIGHT (Trunk Length)									
	900-x		899-850		849-800		799-750	749-x	Totals	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	No.	No.	Per cent
1800-x.....	1	1.92	0	.....	1	1.92	0	0	2	3.84
1799-1700.....	13	24.96	6	11.52	0	.....	0	0	19	36.48
1699-1600.....	6	11.52	19	36.48	3	5.76	0	0	28	53.76
x-1599.....	0	.....	2	3.84	1	1.92	0	0	3	5.76
Totals.....	20	38.40	27	51.84	5	9.60	0	0	52	99.84

Of the fifty-two Lurs only two rose to or above the 1800 mm. limit. No. 3288 (Pl. 121, Figs. 3, 4), whose stature was 1800, had a trunk length of 940, which was 4.89 above the average for the group. No. 3332, whose stature was 1818, had a trunk length of 841, which was 50 mm. below the average. In the former case the high stature was due to an increase in limb length as was even more markedly the case in the second instance where the relative sitting height index was 46.3. These two individuals may be regarded as exceptions.

At the other end of the scale there were three men, whose shortness of stature was due to short legs rather than a reduction in the sitting height, because they were all above 800 mm. in this measurement. It is remarkable that no individual occurred in the short (799-750) or in the very short (x-749) categories of trunk length.

Nineteen men (36.48 per cent) were moderately tall in stature with a long trunk length. The relative sitting height index is therefore higher than for the other Iran groups as a result of the increase in trunk length.

Since there was a definite selectivity for physical fitness and general ability to carry heavy loads there were no obese individuals and none were unusually thin. No special differences were observed in the various parts of the body from the normal or most common types in Europeans. The hands and feet were generally well formed and inclined to be small but roughened by hard manual labor. The fingers were medium in length and breadth but the toes were thickened as a result of the almost total absence of footwear.

*Head Measurements.*—No artificial or pathological deformation was recorded. The head length (189.99) and the head breadth (140.68) result in a dolichocephalic mean of 74.25. The head falls well within the general range for Iraq and Iran, but there is a definite narrowing of the cranial vault. When grouped the results are as follows:

## GROUPS ACCORDING TO CEPHALIC INDEX

Heads	x-70		70.1-75.0		75.1-79.9		80.0-84.9		85-x		Totals	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	No.	Per cent	
Small.....	3	5.76	13	24.96	4	7.68	0	.....	0	20	38.40	
Medium....	3	5.76	12	23.04	13	24.96	2	3.84	0	30	57.60	
Large.....	0	.....	1	1.92	1	1.92	0	.....	0	2	3.84	
Totals....	6	11.52	26	49.92	18	34.56	2	3.84	0	52	99.84	

There were no hyperbrachycephals and only two were in the brachycephalic group. Twenty-six Lurs (49.92 per cent) were in the dolichocephalic class, while six (11.52 per cent) were in the hyper-dolichocephalic division. This tendency toward dolichocephaly is

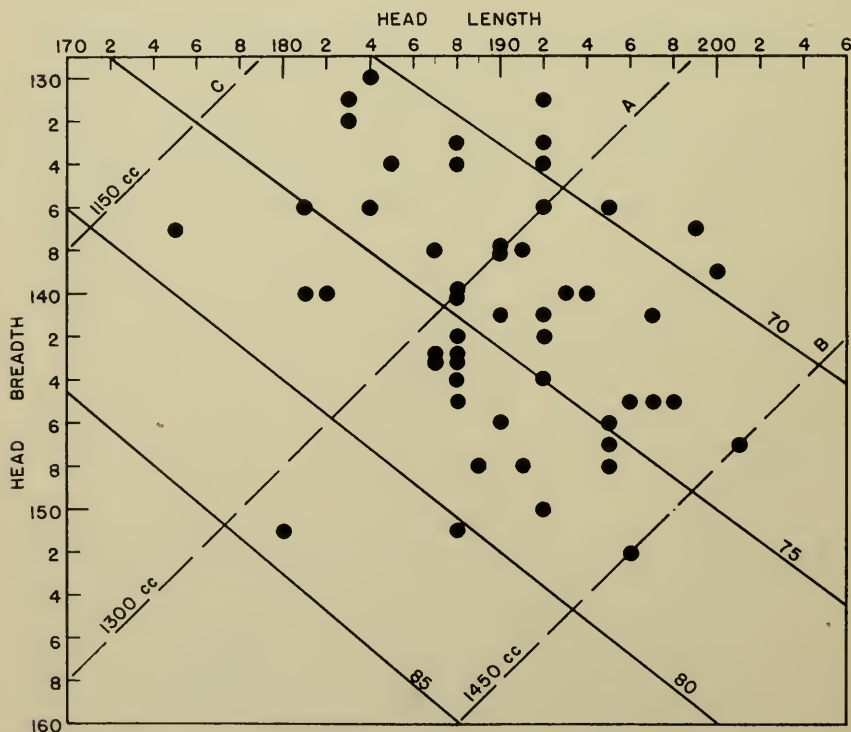


FIG. 18. Head length, breadth, and capacity of fifty-two Lurs.

shown even more clearly in the Harvard system of three divisions, by which 76.92 per cent of the group are shown as dolichocephalic (see p. 383).

With regard to head size there were only two individuals in the large class, while twenty (38.40 per cent) were small-headed. The majority (57.60 per cent) had medium-sized heads.

The forehead was comparable with the average form in Europeans, although in the special case of No. 3303 there was a remarkable continuity of the nose and forehead into an almost straight line. No. 3284 (Pl. 107, Figs. 1, 2) showed a sloping forehead, which seemed to be the general tendency in this group. The well-filled frontal region, as in No. 3323 (Pl. 112, Figs. 1, 2), was rare. The supraorbital ridges were medium in size but perhaps accentuated by the heavy eyebrows.

The occiput, except perhaps in No. 3322 (Pl. 109, Figs. 3, 4), was not especially protruding. The ears were found to be well formed, lying normally close to the head, although markedly abstanding in a few cases. The effect of wearing tight-fitting felt hats or cloth turbans may have some part in determining the position of the ears and the roll of the helix. There seemed to be considerable variation in the angle of the ear, which might be vertical or inclined at a sharp degree as in No. 3315 (Pl. 114, Figs. 3, 4). The separation of the lobule was occasionally deficient (No. 3290: Pl. 122, Figs. 3, 4).

The maximum breadth of the head (140.68) was the narrowest of the four Iran groups, while the minimum frontal diameter (114.50) was the widest of the series measured in Iran during 1934. The following table shows the grouping of the Lurs according to these two measurements:

Head breadth	MINIMUM FRONTAL DIAMETER								
	x-99	100-109		110-119		120-x		Totals	
	No.	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
120-129.....	0	0	.....	0	.....	0	.....	0	.....
130-139.....	0	4	7.68	15	28.80	0	.....	19	36.48
140-149.....	0	3	5.76	23	44.16	3	5.76	29	55.68
150-x.....	0	0	.....	4	7.68	0	.....	4	7.68
Totals.....	0	7	13.44	42	80.64	3	5.76	52	99.84

There were no individuals in the very narrow category for each measurement. Three Lurs (5.76 per cent) were very wide in the frontal area and wide in head breadth. Three men (5.76 per cent) had narrow frontal diameters associated with relatively broad heads. Whereas there were nineteen men (36.48 per cent) with narrow head breadths, only seven individuals (13.44 per cent) had narrow fore-

heads. Fifteen individuals (28.80 per cent) were wide in the frontal region and narrow in head breadth.

The absolute and relative length and breadth of the face have been tabulated as follows:

Total face length	BIZYGOMATIC BREADTH							
	x-124		125-134		135-x		Totals	
	No.	No.	Per cent	No.	Per cent	No.	Per cent	
x-114.....	0	2	3.84	3	5.76	5	9.60	
115-124.....	0	11	21.12	3	5.76	14	26.88	
125-x.....	0	15	28.80	18	34.56	33	63.36	
Totals.....	0	28	53.76	24	46.08	52	99.84	

There were no Lurs in the Baghdad group with narrow zygomatic arches. Twenty-eight men (53.76 per cent) were in the medium category, the remainder having wide bizygomatic breadths. With regard to the total length of the face thirty-three (63.36 per cent) were long, with only five men (9.60 per cent) in the short class. The largest group (34.56 per cent) were in the long- and broad-faced division. Although there was a greater dispersion in total face length, this measurement showed a more marked tendency toward length.

This is borne out by the total facial indices, which reveal a marked leptoprosopic trend. There were forty-three Lurs (82.69 per cent) in this class, with six men (11.54 per cent) in the mesoprosopic division and only three individuals (5.77 per cent) in the euryprosopic group (see p. 383).

In comparing the relation of the upper face length to the total face length we have the following table:

Total face length	UPPER FACE LENGTH										
	x-63		64-69		70-75		76-81		82-x		Totals
	No.	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
x-109.....	0	0	.....	0	.....	0	.....	0	.....	0	.....
110-119.....	0	2	3.84	2	3.84	2	3.84	0	.....	6	11.52
120-129.....	0	3	5.76	7	13.44	13	24.96	8	15.36	31	59.52
130-x.....	0	0	.....	0	.....	7	13.44	8	15.36	15	28.80
Totals.....	0	5	9.60	9	17.28	22	42.24	16	30.72	52	99.84

There were no individuals in the very short categories of either measurement. Since there were many very long upper facial heights, an additional column has been added to show this remarkable feature. Thirty-eight Lurs (72.96 per cent) had upper face lengths 76 or more, while sixteen men (30.72 per cent) were 82 or more. In total facial length there were thirty-one Lurs (59.52 per cent) in the long class (120-129). In the very long division there were fifteen



men (28.80 per cent). Thus this sample of Pusht-i-Kuh Lurs was long-faced both in upper face length (78.35) and in total face length (126.40), with a harmonious increase in both measurements as only 7.68 per cent had a preponderately heavy upper face or "ram-faced" type of visage.

Examination of the relative length and breadth of the nose gives the following table:

Nasal length	NASAL WIDTH									
	x-29		30-35		36-41		42-x		Totals	
	No.	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	
x-49.....	0	0	.....	1	1.96	0	.....	1	1.96	
50-59.....	0	9	17.64	8	15.68	1	1.96	18	35.28	
60-x.....	0	16	31.36	14	27.44	2	3.92	32	62.72	
Totals.....	0	25	49.00	23	45.08	3	5.88	51	99.96	

There were no Lurs in the narrowest nasal group and only one individual in the short nasal length division. Three men (5.88 per cent) were in the broad-nosed category. Twenty-five Lurs (49.00 per cent) had medium narrow noses. Thirty-two men (62.72 per cent) had very long noses. The largest number (16) were in the very long and narrow division. The table on page 383 shows that 88.24 per cent may be classed as leptorrhine. The Lurs then have very long and narrow noses with a tendency toward thickening of the alae. No. 3322 was omitted from the series.

From a study of the photographs of these Lurs, racial analysis can go even further.

There are at least two types of head form: a hyperdolichocephalic group (No. 3318: Pl. 129, Figs. 3, 4) at one end of the series, and a brachycephalic (No. 3315: Pl. 114, Figs. 3, 4) at the other. In general facial appearance individuals vary from the primitive (No. 3297: Pl. 117, Figs. 3, 4) to the more refined (No. 3313: Pl. 6, Figs. 1, 2; Pl. 108, Figs. 3, 4). Subjects such as Nos. 3323 (Pl. 112, Figs. 1, 2) and 3327 (Pl. 113, Figs. 1, 2) could pass as southern Europeans, but while there are naturally some border-line cases, the remainder of the series appears to me non-European.

The wide forehead associated with a very long and relatively narrow face and a prominent, narrow nose differentiates the Lurs from the groups measured and observed at Yezd-i-Khast, Kinareh, or from the Jews of Isfahan.

SUMMARY

Several definite elements can be recognized in this group of the Hassan Kuli Khan tribe of Lurs from Pusht-i-Kuh:

(1) A gracile Mediterranean type, mesocephalic, but with a high cranial vault, long upper face, and ovoid chin, e.g. No. 3313 (Pl. 6, Figs. 1, 2; Pl. 108, Figs. 3, 4).

(2) A coarse Mediterranean type, with elongated trunk length, dolichocephalic, long upper and total facial heights, bizygomatic breadth medium wide, and ovoid chin, e.g. No. 3291 (Pl. 6, Figs. 3, 4; Pl. 123, Figs. 1, 2).

(3) An intermediate Mediterranean type, mesocephalic with a broad head, especially in the frontal region, and a wide and short face, e.g. No. 3284 (Pl. 107, Figs. 1, 2).

(4) Irano-Mediterranean types, e.g. Nos. 3329 (Pl. 1, Figs. 3, 4; Pl. 125, Figs. 3, 4), 3312 (Pl. 108, Figs. 1, 2), 3326 (Pl. 119, Figs. 3, 4). These individuals are characteristic of one basic element in the population of western central Iran. To the trained observer they differ from the predominant strain among the Arabs of Central Iraq (Field, 1935).

(5) Iraquo-Mediterranean types, e.g. Nos. 3298 (Pl. 118, Figs. 3, 4), 3314 (Pl. 119, Figs. 1, 2), 3317 (Pl. 109, Figs. 1, 2), 3303 (Pl. 128, Figs. 1, 2), 3320 (Pl. 111, Figs. 1, 2).

(6) Special Mediterranean type with straight (No. 3287: Pl. 117, Figs. 1, 2) or aquiline (No. 3307: Pl. 3, Figs. 1, 2; Pl. 106, Figs. 1-4) noses and a high cranial vault.

(7) South European, e.g. No. 3323 (Pl. 112, Figs. 1, 2).

(8) Kurd of Iraqi Kurdistan type, e.g. No. 3319 (Pl. 124, Figs. 3, 4).

(9) Armenoid type, e.g. Nos. 3294 (Pl. 7, Figs. 3, 4; Pl. 127, Figs. 3, 4), 3311 (Pl. 3, Figs. 3, 4; Pl. 126, Figs. 3, 4).

In general appearance Nos. 3325 (Pl. 113, Figs. 3, 4) and 3315 (Pl. 114, Figs. 3, 4; Stature 158.4, G.O.L. 188, G.B. 151, C.I. 80.4) do not resemble the other Lurs in our series.

Since Pusht-i-Kuh is almost adjacent to the eastern border of Iraq, we might anticipate some degree of physical resemblance to its inhabitants, for example, the Arabs of the Kish area. There is undoubtedly little apparent affinity between the two regions, because of fifty-two Lurs, only three individuals, Nos. 3298 (Pl. 118, Figs. 3, 4), 3314 (Pl. 119, Figs. 1, 2), and 3317 (Pl. 109, Figs. 1, 2) could pass as Arabs, although Nos. 3303 (Pl. 128, Figs. 1, 2) and 3320 (Pl. 111, Figs. 1, 2) might be included. The others, while unquestionably from Southwestern Asia, would stand out from the crowd meandering through the Hilla *suq*. In my forthcoming report on the anthro-

pology of Iraq I shall describe the physical characters of the Al bu Muhammad "Marsh Arabs" living on the Chahala east of Amara and compare them with the Lurs, who live in the mountains to the east of the marshes. At first glance, however, the Lurs appear to be distinct from these marsh-dwellers of Iraq.

Despite the normal individual variation, there seems to be a certain degree of resemblance throughout the group. In view of the lack of statistics on the Lurs of Pusht-i-Kuh it would be of interest to obtain a large series of anthropometric data as well as a detailed description of their life and customs.

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Kappers and Parr (1934, p. 92) write that "according to Houssay and Jelissejew the Lori [Lurs] are mesocephalic and probably related to our Iranians or perhaps even to our Indo-Aryans. According to Houssay there is a large percentage of blue-eyed and fair-haired people amongst the Lori." The seventeen Bakhtiaris measured by Gautier, Danilov, and Krischner indicate that they belong to a hyperbrachycephalic group. In head form, therefore, the Lurs from Pusht-i-Kuh seem to be unrelated to the Bakhtiaris, who are their neighbors to the south.

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I have been able to find little published anthropometric data on the Lurs and believe that measurements, observations, and photographs of several hundred individuals, would prove valuable material for comparison with the Kurds of Iraq, Iran, Anatolia, and Karabagh in the Caucasus.

In the index under Lurs will be found numerous scattered references to these tribesmen. In addition Chapter IV contains some detailed tribal information on the Lurs.

## MEASUREMENTS

No.	Age	Stature	SH	L	B	B'	J	go-go	GH	G'H	NH	NB
3281	30	172.5	880	187	143	119	136	101	126	78	69	38
3282	30	168.7	885	192	136	111	133	102	128	83	64	34
3283	25	167.5	852	188	140	115	133	108	125	75	64	34
3284	20	165.0	858	182	140	122	141	109	118	68	57	41
3285	30	166.0	907	185	134	115	133	105	121	77	59	34
3286	26	168.5	940	196	152	118	145	113	130	77	58	35
3287	25	170.0	899	188	142	109	134	101	114	68	54	34
3288	30	180.0	940	201	147	114	141	113	133	78	59	37
3289	20	169.0	891	188	134	113	125	98	116	80	59	31
3290	30	157.0	860	189	148	111	135	105	111	78	67	33
3291	30	174.0	965	198	145	113	138	105	136	87	68	36
3292	30	168.6	875	187	138	113	136	103	122	71	60	33
3293	70	172.3	917	187	143	114	138	103	141	92	68	38
3294	37	174.3	955	188	143	115	138	110	132	84	72	37
3295	35	166.5	900	192	133	118	142	113	126	73	58	40
3296	21	171.0	935	188	133	107	128	101	124	83	72	33
3297	25	174.0	890	192	134	117	139	109	127	81	64	36
3298	28	166.5	892	195	148	120	143	110	137	82	63	31
3299	20	156.2	855	175	137	113	134	103	118	70	57	41
3300	30	171.0	915	191	148	118	140	108	123	82	63	37
3301	24	171.0	900	192	142	108	128	97	128	82	61	33
3302	50	168.3	875	199	137	113	134	102	128	84	63	41
3303	37	164.2	888	190	138	113	135	103	126	78	66	48
3304	30	170.0	855	181	140	113	134	101	134	88	72	34
3305	25	167.4	887	197	145	113	134	101	135	93	68	33
3306	24	163.0	895	190	138	109	130	105	130	81	59	34
3307	20	169.5	889	184	130	117	125	103	125	75	62	30
3308	25	175.6	925	192	150	113	135	110	125	78	61	31
3309	25	168.0	940	193	140	114	134	106	128	87	65	32
3310	20	163.0	892	183	132	111	131	103	113	73	59	32
3311	35	173.3	905	188	140	113	133	104	126	78	62	36
3312	20	161.2	905	188	145	114	134	105	121	76	59	35
3313	20	164.0	870	188	144	113	133	100	126	78	62	36
3314	28	175.0	897	195	136	108	127	106	128	85	67	34
3315	25	158.4	825	188	151	117	136	107	130	78	67	38
3316	35	169.6	910	195	146	127	148	117	130	77	59	37
3317	20	167.3	875	200	139	118	137	104	133	77	63	36
3318	50	166.0	849	192	131	110	128	107	123	83	68	37
3319	30	163.0	832	181	136	113	132	107	120	68	50	31
3320	23	169.0	875	197	141	110	128	104	128	71	56	43
3321	30	175.2	885	183	131	109	127	101	128	77	57	37
3322	21	171.4	900	190	146	114	131	103	121	75	37*	36
3323	24	176.0	929	192	141	113	130	103	121	69	58	36
3324	25	167.5	860	192	144	115	132	107	131	79	62	36
3325	25	162.5	858	184	136	113	130	105	120	78	63	42
3326	28	168.5	885	194	140	118	136	103	128	74	59	32
3327	25	175.0	925	191	138	109	139	102	129	81	63	32
3328	40	173.5	935	196	145	113	143	111	132	91	74	37
3329	30	172.5	930	188	143	110	140	122	127	78	56	37
3330	25	163.0	865	190	141	116	131	109	122	79	66	34
3331	40	166.3	847	195	147	114	137	103	128	65	48	37
3332	28	181.8	841	180	151	117	142	112	132	82	68	32
3333	21	173.7	918	196	150	119	145	119	130	78	63	37

\*Nasal height of 3322 incorrect and nasal height and indices of this individual omitted from averages.

## INDICES

No.	EL	EB	RSH	B/L	B'/B	GH/J	G'H/J	NB/NH	EB/EL	go-go/J	B'/J
3281	54	32	51.0	76.5	83.2	92.6	57.4	55.1	59.2	74.3	87.5
3282	60	31	52.5	70.8	81.6	96.2	62.4	53.1	51.7	76.7	83.5
3283	51	33	50.9	74.4	82.2	94.0	56.4	53.1	64.7	81.2	86.5
3284	63	37	52.0	76.9	87.2	83.7	48.2	71.9	58.7	77.4	86.5
3285	57	34	54.6	72.4	85.9	91.0	57.9	57.6	59.6	78.9	86.5
3286	62	35	55.8	77.6	77.6	89.7	53.1	60.4	56.4	77.9	81.4
3287	50	32	52.8	75.5	76.8	85.1	50.7	63.0	64.0	75.4	81.4
3288	52	33	52.2	73.1	77.6	94.4	55.3	62.7	63.5	80.2	80.9
3289	51	36	52.7	71.3	84.4	92.8	64.0	52.6	70.6	78.4	90.4
3290	53	26	54.8	78.4	75.0	82.2	57.8	49.2	49.1	77.8	82.2
3291	58	35	55.5	73.2	77.9	98.5	63.0	52.9	60.4	76.1	81.9
3292	59	32	52.3	73.9	81.9	89.7	52.1	55.0	54.2	75.7	83.1
3293	65	39	53.2	76.5	79.7	102.2	66.6	55.9	60.0	74.6	82.6
3294	56	33	54.8	76.1	80.4	95.6	60.8	51.9	58.9	79.7	83.4
3295	62	32	54.1	69.3	88.8	88.7	51.4	68.9	51.6	79.6	83.1
3296	58	28	54.7	70.8	80.5	96.9	64.9	45.8	48.3	78.9	83.6
3297	56	36	51.2	69.8	87.4	91.4	58.3	56.3	64.3	78.4	84.2
3298	53	33	53.6	75.9	81.1	95.8	57.3	49.2	62.2	76.9	83.9
3299	50	34	54.7	78.3	82.5	88.1	52.2	71.9	68.0	76.9	84.4
3300	66	36	53.5	77.5	79.7	87.9	58.6	58.7	54.6	77.1	84.4
3301	62	36	52.6	74.0	76.1	100.0	64.1	54.1	58.1	75.8	84.4
3302	58	31	52.3	68.9	82.5	95.5	62.6	65.1	53.4	76.1	84.4
3303	52	28	54.0	72.6	81.9	93.4	57.7	72.7	53.8	76.4	83.7
3304	62	38	50.3	77.4	80.7	100.0	65.6	47.2	61.8	75.4	84.4
3305	63	30	53.0	73.6	77.9	100.7	69.4	48.5	47.6	75.4	84.4
3306	50	26	54.9	72.6	79.0	100.0	61.5	52.6	52.0	80.9	83.9
3307	58	30	52.4	70.6	90.0	100.0	60.0	48.4	51.7	82.4	93.6
3308	57	30	52.7	78.1	75.4	92.6	57.7	50.8	52.6	81.5	83.7
3309	64	37	56.0	72.6	81.5	95.5	64.9	49.3	57.8	79.2	85.1
3310	57	30	54.7	72.1	84.1	86.3	55.7	54.3	52.6	78.6	84.8
3311	60	29	52.2	74.5	80.7	94.8	58.6	58.1	48.3	78.2	85.0
3312	59	28	56.1	77.2	78.6	83.4	56.7	59.4	47.4	78.4	85.1
3313	55	35	53.0	76.6	78.5	94.7	58.6	58.1	63.6	75.2	85.0
3314	57	33	51.3	69.7	79.4	100.8	66.9	50.7	57.9	83.5	85.1
3315	54	33	52.1	80.4	77.5	95.6	57.3	56.7	61.1	78.7	86.1
3316	61	36	53.7	74.9	87.0	87.9	52.0	62.7	59.0	79.1	85.9
3317	59	32	52.3	69.5	84.9	97.1	56.1	57.1	54.2	75.9	86.1
3318	66	34	51.1	68.2	84.0	96.1	64.8	54.4	51.5	83.6	85.9
3319	53	28	51.0	75.1	83.1	90.9	51.5	62.0	52.8	81.1	85.6
3320	58	33	51.8	71.6	78.0	100.0	55.5	76.8	56.9	81.3	85.9
3321	50	32	50.5	71.6	83.2	100.8	60.6	64.9	64.0	79.5	85.8
3322	57	34	52.5	76.9	78.1	92.4	57.2	...	59.6	78.6	87.1
3323	54	30	52.7	73.4	80.2	93.1	53.1	62.1	55.6	79.3	86.9
3324	53	30	51.4	75.0	79.9	99.2	59.8	58.1	56.6	81.1	87.1
3325	58	33	52.8	73.9	83.1	92.3	60.0	66.7	56.9	80.8	86.9
3326	50	30	52.5	72.1	84.4	94.1	54.4	54.2	60.0	75.8	86.8
3327	56	31	52.9	72.3	79.0	92.9	58.3	50.8	55.4	73.4	78.4
3328	66	33	53.9	74.0	77.9	92.3	63.6	50.0	50.0	77.6	79.0
3329	61	34	54.0	76.1	76.9	90.7	55.6	66.1	55.7	87.1	78.6
3330	53	32	53.1	74.2	82.4	93.1	60.3	51.5	60.4	83.2	88.6
3331	57	39	50.9	75.4	77.5	93.5	47.4	77.0	68.4	75.2	83.2
3332	61	34	46.3	83.9	77.5	93.0	57.8	47.1	55.7	78.9	82.5
3333*	53	38	52.8	76.5	79.3	89.7	53.8	58.7	71.7	82.1	82.1

\*No. 3333 was not a native of Pusht-i-Kuh and therefore was omitted from all tables and averages.

## MORPHOLOGICAL CHARACTERS OF LURS FROM PUSHT-I-KUH

No.	HAIR			EYES			Nose	
	Form	Texture	Color	Color	Sclera	Iris	Prof.	Wings
3281	l w	medium	dk br	dk br	speck	ray	conv	flar
3282	...	medium	dk br	bl-br	clear	hom	conv	medium
3283	l w	medium	dk br	dk br	clear	hom	conv	m-fl
3284	l w	medium	dk br	dk br	clear	hom	c-c	flar
3285	l w	medium	dk br	dk br	clear	hom	conv	medium
3286	d w	medium	dk br	dk br	clear	hom	conv	m-fl
3287	l w	medium	dk br	dk br	clear	hom	str	medium
3288	l w	medium	red br	gr-br	clear	ray	conv	medium
3289	l w	medium	dk br	dk br	clear	zon	conv	medium
3290	l w	medium	dk br	gr-br	clear	hom	wavy	medium
3291	d w	coarse	red br	bl-br	clear	ray	str	medium
3292	...	.....	.....	bl-br	clear	hom	str	medium
3293	l w	medium	br, gray	bl-br	sp-bl	zon	conv	medium
3294	l w	medium	dk br	bl-br	speck	hom	conv	medium
3295	v l w	m-fine	dk br	dk br	speck	zon	str	flar
3296	l w	medium	dk br	.....	clear	hom	str	m-fl
3297	l w	medium	dk br	bl-br	clear	hom	str	medium
3298	l w	coarse	red br	bl-br	clear	ray	str	medium
3299	v l w	medium	red br	bl-br	clear	hom	str	m-fl
3300	l w	.....	dk br	gr-br	speck	ray	conv	flar
3301	d w	medium	red br	gr-br	speck	zon	conv	medium
3302	l w	medium	dk br	bl-br	speck	ray	conv	m-fl
3303	l w	medium	dk br	dk br	clear	hom	str	flar
3304	l w	coarse	dk br	dk br	clear	hom	str	m-fl
3305	l w	.....	dk br	.....	clear	ray	str	comp
3306	v l w	medium	dk br	dk br	clear	hom	conv	medium
3307	l w	medium	.....	dk br	clear	hom	conv	m-fl
3308	l w	medium	dk br	bl-br	clear	hom	str	cp-m
3309	l w	medium	dk br	dk br	clear	ray	conv	medium
3310	l w	coarse	dk br	dk br	clear	hom	str	medium
3311	l w	medium	dk br	dk br	clear	hom	conv	medium
3312	l w	medium	dk br	gr-br	clear	ray	conv	medium
3313	l w	medium	dk br	bl-br	....	...	conv	medium
3314	l w	medium	.....	dk br	clear	hom	str	flar
3315	l w	medium	dk br	dk br	clear	hom	str	m-fl
3316	l w	medium	dk br	dk br	clear	hom	conv	m-fl
3317	...	medium	dk br	bl-br	clear	ray	wavy	m-fl
3318	l w	.....	dk br	bl-br	clear	hom	conv	cp-m
3319	...	.....	dk br	bl-br	clear	ray	conv	comp
3320	l w	medium	dk br	bl-br	clear	hom	str	m-fl
3321	l w	medium	dk br	bl-br	clear	hom	str	medium
3322	l w	coarse	dk br	dk br	clear	hom	conv	m-fl
3323	l w	medium	red br	gr-br	speck	ray	str	comp
3324	l w	medium	dk br	dk br	clear	hom	str	m-fl
3325	l w	medium	dk br	bl-br	....	...	conv	flar
3326	l w	medium	red br	dk br	clear	zon	str	medium
3327	l w	coarse	dk br	gr-br	clear	ray	str	m-fl
3328	l w	.....	dk br	gr-br	clear	zon	conv	medium
3329	...	.....	dk br	dk br	clear	hom	str	medium
3330	l w	medium	.....	dk br	clear	ray	str	medium
3331	l w	medium	black	dk br	clear	hom	str	m-fl
3332	l w	fine	dk br	dk br	clear	hom	str	comp
3333	l w	c-med	dk br	dk br	clear	hom	c-c	m-fl

MEASUREMENTS AND INDICES OF LURS FROM PUSHT-I-KUH

Measurements	No.	Range	Mean	S.D.	C.V.
Age . . . . .	52	20-70	30.15±0.86	9.15±0.61	30.35±2.01
Stature . . . . .	52	155-184	168.63±0.51	5.49±0.36	3.26±0.22
Sitting height . . . . .	52	81-98	89.11±0.33	3.51±0.23	3.94±0.26
Head length . . . . .	52	173-202	189.99±0.52	5.55±0.37	2.92±0.19
Head breadth . . . . .	52	129-152	140.68±0.54	5.76±0.38	4.09±0.27
Minimum frontal diam. . . . .	52	105-128	114.50±0.35	3.76±0.25	3.28±0.22
Bizygomatic diameter . . . . .	52	125-149	134.70±0.49	5.25±0.35	3.90±0.26
Bigonial diameter . . . . .	52	94-125	105.42±0.46	4.88±0.32	4.63±0.31
Total facial height . . . . .	52	110-144	126.40±0.58	6.25±0.41	4.94±0.33
Upper facial height . . . . .	52	65-94	78.35±0.58	6.15±0.41	7.85±0.52
Nasal height . . . . .	51	48-75	62.22±0.54	5.76±0.38	9.26±0.62
Nasal breadth . . . . .	51	28-48	35.75±0.33	3.54±0.24	9.99±0.67
Ear length . . . . .	52	48-67	57.18±0.43	4.64±0.31	8.11±0.54
Ear breadth . . . . .	52	26-40	32.61±0.29	3.12±0.21	9.57±0.63
Indices					
Relative sitting height . . . . .	52	46-57	52.84±0.18	1.90±0.13	3.60±0.24
Cephalic . . . . .	52	68-85	74.25±0.30	3.21±0.21	4.32±0.29
Fronto-parietal . . . . .	52	75-92	81.19±0.32	3.42±0.23	4.21±0.28
Zygo-frontal . . . . .	52	76-95	84.58±0.27	2.92±0.19	3.45±0.23
Zygo-gonial . . . . .	52	72-89	78.64±0.28	2.97±0.20	3.78±0.25
Facial . . . . .	52	80-104	93.85±0.50	5.35±0.35	5.70±0.38
Upper facial . . . . .	52	46-69	58.43±0.47	5.07±0.34	8.68±0.57
Nasal . . . . .	51	44-79	57.42±0.76	8.00±0.53	13.93±0.93
Ear . . . . .	52	45-72	56.82±0.51	5.44±0.36	9.57±0.63

STATURE

	SHORT (x-160.5)	MEDIUM (160.6-169.4)	TALL (169.5-x)	TOTALS
Number . . . . .	3	26	23	52
Per cent . . . . .	5.77	50.00	44.23	100.00

CEPHALIC INDEX

	DOLICHOCEPHALIC (x-76.5)	MESOCEPHALIC (76.6-82.5)	BRACHYCEPHALIC (82.6-x)	TOTALS
Number . . . . .	40	11	1	52
Per cent . . . . .	76.92	21.15	1.92	99.99

TOTAL FACIAL INDEX

	EURYPROSOPIC (x-84.5)	MESOPROSOPIC (84.6-89.4)	LEPTOPROSOPIC (89.5-x)	TOTALS
Number . . . . .	3	6	43	52
Per cent . . . . .	5.77	11.54	82.69	100.00

NASAL INDEX

	LEPTORRHINE (x-67.4)	MESORRHINE (67.5-83.4)	PLATYRRHINE (83.5-x)	TOTALS
Number . . . . .	45	6	0	51
Per cent . . . . .	88.24	11.76	.....	100.00

## RAYY WORKMEN AND MISCELLANEOUS INDIVIDUALS

Through the courtesy of the director, Dr. Erich F. Schmidt, we were able to measure and observe twenty-two workmen at the Rayy excavations on August 11, 1934. Dr. Walter P. Kennedy acted as recorder. Since Rayy workmen came from various parts of the country it was impossible to obtain any valid averages. We are, therefore, forced to report on individuals or small miscellaneous groups.

*No. 3456:* Amirabad in Kazvin Province.—Stature medium short; head tended to be long, narrow, and dolichocephalic; face broad and long; nose short and broad; tattooed design on right wrist “because of pain.”

*No. 3457:* Damghan.—Stature short; head very short and broad with brachycephalic index; face short and narrow; nose short and very narrow; tattooing none.

*No. 3458* (Pl. 138, Figs. 3, 4): Damghan.—Stature medium short; head very short and very broad with hyperbrachycephalic index (94.6); face average in length but broad and triangular; nose long and narrow; teeth stained; tattooing none. This individual appeared different in type from those of the western part of the Iranian Plateau.

*No. 3459* (Pl. 135, Figs. 3, 4): Damghan.—Stature tall; head short and broad with brachycephalic index; face narrow and very short; nose medium long and very narrow; teeth irregular with second lower right incisor forced out of line; tattooing none.

*No. 3460* (Pl. 140, Figs. 1, 2): Damghan.—Stature tall; sitting height very tall; head medium in length, narrow in width with mesocephalic index; upper part of face broad with narrow bigonial breadth; face very long, particularly upper facial height; nose very long and medium in breadth; smallpox scars; tattooing none.

*No. 3461* (Pl. 137, Figs. 1, 2): Damghan.—Stature very tall; head length and breadth average with mesocephalic index; face broad and average in length with long upper facial length; nose relatively long and flaring nostrils; teeth regular; left eye with internal squint; tattooing none.

*No. 3462* (Pl. 136, Figs. 1, 2): Damghan.—Stature slightly above average; head long and relatively broad with mesocephalic index; upper and lower part of face narrow with wide zygomatic arches; face short; nose medium long with flaring nostrils; teeth irregular; hair becoming gray and falling out; henna on hair “to prevent falling hair” and on nails “for beauty”; tattooing none.



No. 3463 (Pl. 136, Figs. 3, 4): Daulatabad near Sultanabad.—Stature short; head long and narrow with dolichocephalic index; face narrow and very short; nose short and narrow; teeth extremely regular in front; tattooing none.

No. 3464 (Pl. 140, Figs. 3, 4): Ab-i-Ganjan district, Isfahan Province.—Stature tall; head medium long and broad with mesocephalic index; face broad with wide zygomata and very long; nose medium long with narrow nostrils; teeth fairly regular; tattooing none.

No. 3465 (Pl. 134, Figs. 1, 2): Husainabad near Sultanabad in Iraq-i-Ajam.—Stature medium short; head very long and narrow with high dolichocephalic index; face broad and short; nose very short and very broad; teeth regular but stained; tattooing none.

No. 3466 (Pl. 138, Figs. 1, 2): Husainabad near Sultanabad in Iraq-i-Ajam.—Stature medium tall; head medium in length and breadth with mesocephalic index; face broad and average in length; nose medium in length and breadth; teeth regular; tattooing none.

No. 3467 (Pl. 139, Figs. 3, 4): Husainabad near Sultanabad in Iraq-i-Ajam.—Stature medium short; head medium in length and breadth with mesocephalic index; face broad, particularly in bigonial breadth, and very short; nose short and medium in breadth; teeth regular; large albino patches of hair; tattooing none.

No. 3468 (Pl. 137, Figs. 3, 4): Qum.—Stature average with low trunk length; head long and narrow with hyperdolichocephalic index; face broad, particularly in minimum frontal diameter and short in lower portion; nose medium in length and very broad suggesting Negroid blood as did the everted lips; teeth regular; smallpox scars; tattooing none.

No. 3469: Ninjar near Sultanabad in Iraq-i-Ajam.—Stature short, probably due to his age (18); head long and narrow with dolichocephalic index; face narrow and medium in length; nose medium in length and slightly broader than the average; teeth irregular and slightly stained; large patch of alopecia areata near vertex. Two lines of boil scars up to 5 cm. in diameter on abdomen and thorax.

No. 3470: Ninjar near Sultanabad in Iraq-i-Ajam.—Stature very tall, especially in legs; head long and very narrow with dolichocephalic index; face narrow and medium in length; nose medium in length and slightly broader than average; teeth large and regular; corneal ulcer in right eye; tattooing none.

*No. 3471:* Ninjar near Sultanabad in Iraq-i-Ajam.—Stature tall with long trunk; head long and medium broad with mesocephalic index; face broad and slightly longer than average; nose short and narrow; teeth stained; tattooing none.

*No. 3472* (Pl. 139, Figs. 1, 2): Shiraz.—Stature short; head long and narrow with dolichocephalic index; face narrow and short with relatively long upper facial length; nose very short and narrow; teeth slightly irregular; tattooing none.

*No. 3473* (Pl. 134, Figs. 3, 4): Husainabad near Sultanabad in Iraq-i-Ajam.—Stature average; head very long and medium broad with dolichocephalic index; face broad and short; nose medium in length and very narrow; teeth regular; smallpox scars; tattooing none.

#### RAYY WORKMEN

Among these eighteen individuals there were eight from the region of Sultanabad in Iraq-i-Ajam and six from near Damghan, northeast of Tehran. In order to obtain some comparative figures means were calculated for the following subjects:

- (1) Sultanabad series: Nos. 3463, 3465-3467, 3469-3471, 3473.
- (2) Damghan series: Nos. 3457-3462.

A comparison between these two groups shows considerable divergence of means. The Damghan series consisted of six workmen employed by Dr. Erich F. Schmidt at the excavations near that city and brought by him to supervise the Rayy excavations.

*Age.*—Both groups comprised young adults, there being but an insignificant difference between them.

*Stature.*—The Sultanabad men were 2.5 mm. taller than those from Damghan. The former approximated Haddon's figure for Beduin stature (166.0), the latter were slightly higher than his figure for Mediterranean stature (161.5).

*Lower Limb Length.*—There was a considerable difference between the two groups in this measurement, showing that the greater height of the Sultanabad men was due to a greater leg length alone, although compared with the other Iran series their leg length was comparatively short and their trunk length greater.

*Sitting Height (Trunk Length).*—The trunk length was approximately the same in both samples.

*Head Length.*—The Damghan workmen had very short heads (180.00) and the Sultanabad subjects were medium in head length (187.63).

*Head Breadth.*—While the Damghan people had broad heads (147.00), the Sultanabad series had extremely narrow heads (138.75).

*Minimum Frontal Diameter.*—The Sultanabad males had medium broad foreheads while among the Damghan men the figure 115.66 appeared unduly large until the photographs were examined, particularly No. 3458 (Pl. 138, Figs. 3, 4), who had a minimum frontal diameter of 121.

*Bizygomatic Breadth.*—The Sultanabad group mean was 4 mm. narrower than that of the Damghan men, whose facial breadth of 136.0 fell close to the general average of 134.0 for this area.

*Bigonial Breadth.*—The Sultanabad subjects were broad in mandibular breadth while the Damghan subjects (106.66) were slightly narrower than our other Iran groups with the exception of the Lurs.

*Face Height.*—In both groups the face was short, with the Sultanabad sample in the extremely short category.

*Upper Face Height.*—The Sultanabad series had shorter upper faces than the Damghan men.

*Nose Height.*—The nose was short in both groups.

*Nose Breadth.*—The nose was narrow (32.33) among the Damghan men and 2.5 mm. broader in the Sultanabad series.

*Ear Length and Breadth.*—The ear was relatively short and broad in both groups and in absolute measurements there was no significant difference between the Sultanabad and Damghan males.

*Relative Sitting Height Index.*—This index was lower for the Sultanabad group, because of relatively shorter trunks, than among the Damghan workmen, although the Sultanabad people had relatively longer trunks than the Kinareh, Yezd-i-Khast villagers, or the Jews.

*Cephalic Index.*—There was a decided difference in head form between the two groups. The Sultanabad series was dolichocephalic (73.98), near the basic Mediterranean mean, while the Damghan men (81.90) were at the upper limit of mesocephaly. The results are amplified in the following table:

People	x-76.5	76.6-82.5	82.6-x	Totals
Damghan.....	1	3	2	6
Sultanabad.....	7	1	0	8

*Fronto-parietal Index.*—In the Sultanabad group this index was higher because of the difference in head breadth, that of the Damghan men being remarkably wide and that of the Sultanabad group unusually narrow.

*Zygo-frontal Index.*—While the Damghan males were wider in both the bizygomatic breadth and the minimum frontal diameter than the Sultanabad group, the index of these measurements was approximately the same for both groups, but greater than our other four Iran series because of a relatively broader forehead.

*Zygo-gonial Index.*—The zygo-gonial index for the Sultanabad sample was much higher than that of the Damghan workmen and the other Iran groups due to an increase ranging from 2 to 6 mm. in bigonial breadth among the Sultanabad men over the averages of these other samples.

*Facial Index.*—Although there was considerable difference in the absolute measurements because the Damghan people had longer faces, they also had a more than corresponding breadth of face which resulted in a lower index than that of the Sultanabad workmen.

*Upper Facial Index.*—This index was slightly higher among the Damghan males than among the people of the Sultanabad area, due to the relatively as well as absolutely longer upper faces of the Damghan group.

*Nasal Index.*—This showed a remarkable difference, although both series fell in the leptorrhine category. The Sultanabad group was 8.71 higher than the Damghan males, who showed the unusual leptorrhiny of the Lurs.

*Ear Index.*—There was no significant difference between the two series.

#### SUMMARY

The average Damghan man, based on six individuals, approximated our other Iran series in medium short stature, but had shorter legs, possessed a short, broad head, wide forehead, medium broad face, narrow lower face, short total face height despite a medium long upper face, short, narrow nose, and short, medium-broad ears.

The average individual from the Sultanabad area, based on eight widely scattered individuals, was medium tall with a relatively long trunk, had a medium long and very narrow head, medium forehead, narrow face, short total face height, short, broad nose, and short, medium-broad ears.

The Sultanabad series differed from the Damghan group in the following: taller stature, longer, narrower head, narrower forehead, squarer and shorter face, and shorter and broader nose.

There were, thus, significant differences between the two major groups measured at Rayy. The Iraq-i-Ajami seems to belong to a group, which is dolichocephalic, leptoprosopic, and leptorrhine.

The results of my measurements of the Damghan series from eastern central Iran suggested some Turkoman admixture. An explanation was not hard to find, however, for Damghan lies between the desert (Dasht-i-Kavir) and the foothills of the Elburz Mountains, on the direct line from Soviet Turkestan toward Tehran, and probably many incursions from the northeast swept through this region.

MEASUREMENTS AND INDICES OF WORKMEN EMPLOYED AT RAYY EXCAVATIONS

	DAMGHAN	SULTANABAD
Number of individuals.....	6	8
Measurements		
Age.....	27.00	26.00
Stature.....	164.17	166.67
Sitting height.....	84.48	84.23
Lower limb length.....	79.69	82.44
Head length.....	180.00	187.63
Head breadth.....	147.00	138.75
Minimum frontal diameter.....	115.66	112.63
Bizygomatic breadth.....	136.00	132.00
Bigonial breadth.....	106.66	111.25
Total face height.....	122.33	120.75
Upper face height.....	74.17	71.00
Nose height.....	56.33	53.00
Nose breadth.....	32.33	34.88
Ear length.....	56.66	56.75
Ear breadth.....	35.83	35.50
Indices		
Relative sitting height.....	51.33	50.50
Cephalic.....	81.90	73.98
Fronto-parietal.....	78.78	80.86
Zygo-frontal.....	85.08	85.39
Zygo-gonial.....	81.43	84.26
Total facial.....	90.00	91.63
Upper facial.....	54.52	53.85
Nasal.....	57.27	65.98
Ear.....	63.75	63.24

MORPHOLOGICAL CHARACTERS OF RAYY WORKMEN

No.	HAIR			EYES			NOSE	
	Form	Texture	Color	Color	Sclera	Iris	Profile	Wings
3456	...	.....	.....	gr-br	clear	zon	conv	medium
3457	l w	c-med	dk br	dk br	clear	hom	conv	cp-m
3458	l w	coarse	black	dk br	clear	hom	conv	medium
3459	l w	m-fine	black	gr-br	speck	ray	conv	medium
3460	l w	c-med	blk, gray	dk br	clear	hom	conv	medium
3461	l w	medium	dk br	dk br	clear	hom	conv	medium
3462	l w	m-fine	dk br	dk br	clear	hom	conv	m-fl
3463	l w	m-fine	dk br	dk br	clear	hom	conc	medium
3464	l w	coarse	black	dk br	clear	hom	c-c	comp
3465	l w	fine	dk br	dk br	clear	hom	conc	m-fl
3466	d w	medium	.....	dk br	clear	hom	str	m-fl
3467	l w	.....	black	dk br	clear	hom	c-c	m-fl
3468	...	.....	dk br	lt gr-br	speck	ray	c-c	flar
3469	l w	medium	black	gr-br	speck	zon	str	medium
3470	l w	medium	dk br	gr-br	speck	ray	str	medium
3471	...	.....	.....	dk br	clear	hom	str	medium
3472	...	.....	.....	dk br	clear	hom	c-c	medium
3473	l w	c-med	black	dk br	clear	hom	c-c	medium

## RAYY WORKMEN—MEASUREMENTS

No.	Age	Stature	SH	L	B	B'	J	go-go	GH	G'H	NH	NB
3456*	47	158.0	803	188	137	118	137	110	128	70	51	34
Damghan Series												
3457	25	152.4	751	177	147	112	128	109	118	68	51	28
3458	30	158.4	797	167	158	121	141	114	122	76	58	31
3459	22	161.6	820	176	144	111	133	105	114	68	52	26
3460	35	172.3	912	182	138	117	136	108	136	81	62	35
3461	25	174.5	897	187	147	122	139	117	126	80	58	37
3462	25	165.8	892	191	148	111	139	111	118	72	57	37
Sultanabad Series												
3463	20	163.1	823	192	143	113	130	110	116	74	52	34
3464*	42	170.0	833	188	147	118	144	115	131	78	57	32
3465	18	165.0	860	191	136	113	131	108	118	64	49	39
3466	30	167.3	876	184	139	116	138	113	124	73	56	37
3467	35	166.1	850	183	141	117	135	116	117	67	53	36
3468*	28	165.7	793	189	134	122	136	116	119	74	54	42
3469	18	160.5	772	186	137	105	123	103	121	70	52	35
3470	25	173.0	825	185	133	109	126	108	126	75	55	36
3471	44	171.7	872	188	141	115	141	121	127	77	53	33
3472*	35	162.5	822	188	134	108	126	107	115	70	50	33
3473	18	166.6	860	192	140	113	132	111	117	68	54	29

\* Omitted from series.

## MISCELLANEOUS INDIVIDUALS FROM IRAN

Below are given notes and special observations on seven individuals who could not be included in any of the tribal groups.

*No. 3573:* Kurd of Komasi tribe from Berdaspir.—Tattooing none. Teeth stained. Recorded in Sulaimaniya Prison, July 5, 1934.

*No. 3574:* Kurd from east of Sulaimaniya.—Tattooing none. Flat occiput. Recorded in Kirkuk Prison, July 3, 1934. Observer: Winifred Smeaton, now Mrs. Homer Thomas.

*No. 3575:* Kurd from Kermanshah area.—Tattooing, stylized ibex on right arm. Teeth regular. Recorded in Kirkuk Prison, July 3, 1934.

*No. 3576:* Moslem from Isfahan.—Tattooing none. Recorded in Isfahan, August 20, 1934.

*No. 3577:* Assyrian of Mahivana tribe near Urmia.—Cauterization scars on both wrists. Head deformed by cradle. Recorded at Rayy, August 2, 1934.

*No. 3578:* Assyrian of Javar tribe near Urmia.—Tattooing none. Brother of No. 3579. Triangular-shaped face. Teeth regular. Recorded at Rayy, August 2, 1934.

*No. 3579:* Assyrian of Javar tribe near Urmia.—Tattooing, anchor on outside of right forearm; done in Hamadan. Brother of No. 3578. Teeth regular. Recorded at Rayy, August 2, 1934.

## RAYY WORKMEN—INDICES

No.	EL	EB	RSH	B/L	B'/B	GH/J	G'H/J	NB/NH	EB/EL	go-go/J	B'/J
3456*	59	40	50.8	72.9	86.1	93.4	51.1	85.4	86.1	66.7	67.8
Damghan Series											
3457	54	33	49.2	83.1	76.2	92.2	53.1	85.2	87.5	54.9	61.1
3458	57	35	50.3	94.6	76.6	86.5	53.9	80.9	85.8	53.5	61.4
3459	48	37	50.7	81.8	77.1	85.7	51.1	79.0	83.5	50.0	77.1
3460	63	37	52.9	75.8	84.8	100.0	59.6	79.4	86.0	56.5	58.7
3461	55	36	51.4	78.6	83.0	90.7	57.6	84.2	87.8	63.8	65.5
3462	63	37	53.7	77.5	75.0	84.9	51.8	79.9	79.9	64.9	58.7
Sultanabad Series											
3463	55	36	50.4	74.5	76.4	89.2	56.9	84.6	86.9	65.4	65.5
3464*	64	46	48.8	78.2	80.3	91.0	54.2	79.9	81.9	56.1	71.9
3465	62	40	52.1	71.2	83.1	90.1	48.9	82.4	86.3	79.6	64.5
3466	60	33	52.3	75.5	83.5	89.9	52.9	81.9	84.1	66.1	55.0
3467	54	38	51.1	77.1	83.0	86.7	49.6	85.9	86.7	67.9	70.4
3468*	62	36	47.8	70.9	91.0	87.5	54.4	85.3	89.7	77.8	58.1
3469	59	34	48.1	73.7	76.6	98.4	56.9	83.7	85.4	67.3	57.6
3470	53	34	47.6	71.9	82.0	100.0	59.5	85.7	86.5	65.5	64.2
3471	47	37	50.8	75.0	81.6	90.1	54.6	85.8	81.6	62.3	78.7
3472*	56	36	50.6	71.3	80.6	91.3	55.6	84.9	85.7	66.0	64.3
3473	64	32	51.6	72.9	80.7	88.6	51.5	84.1	85.6	53.7	50.0

\*Omitted from series.

The three Kurds from northwestern Iran were short (161.7–162.1) in stature, with absolutely and relatively long trunks. The head was short in length, one man being very short (178) and very broad (152–160), resulting in brachycephalic indices. The upper part of the face and the bizygomatic breadth tended to be large, while the lower part of the face was narrow. The facial heights were much higher for this area but the nasal length was large and the alae tended to be slightly flaring. As would be expected, these Irani Kurds fell well within the normal range of the Kurds of the Sulaimaniya district since the Kurds of Iran and Iraq belonged to the same racial stock. It will be necessary to obtain a series of Irani Kurds, particularly the Jaf, for comparison with those individuals measured in 1934 at Zakho, Aqra, Rowandiz, and Sulaimaniya. Since Kurds are reported from southeastern Iran, a series must also be obtained for statistical comparisons.

The three Assyrians from the Urmia district appeared to be shorter in stature than the Kurds. The length of the head was decidedly shorter, the breadth also being less, resulting in a high brachycephalic index. The face was narrower and shorter with an apparent tendency toward a reduction in the lower facial height. The nose was long and considerably narrower than that of the Kurds.

In Iraq, measurements and observations were obtained by the writer on 106 male Assyrians and by Winifred Smeaton Thomas on

137 females. The three individuals from Iran appeared to conform to the Assyrian means obtained in Iraq.

The lone Moslem, who introduced himself into the Jewish series, was medium tall, brachycephalic, due to his short head, and had a triangular face resulting from his very narrow bigonial breadth.

MEASUREMENTS AND INDICES OF MISCELLANEOUS INDIVIDUALS FROM IRAN

No.	Age	Stature	SH	L	B	B'	J	go-go	GH	G'H	NH	NB
3573	35	162.1	881	188	157	...	141	113	134	74	54	33
3574	24	161.7	847	183	160	108	141	106	131	72	52	37
3575	35	161.7	837	178	152	111	136	107	122	76	62	37
3576	35	165.0	782	182	146	112	134	100	120	77	54	32
3577	65	152.0	784	174	151	112	134	116	118	74	56	32
3578	18	160.5	833	172	148	108	125	102	126	77	61	30
3579	20	161.6	837	182	154	113	136	103	133	84	66	26

No.	EL	EB	RSH	B/L	B'/B	GH/J	G'H/J	NB/NH	EB/EL	go-go/J	B'/J
3573	..	..	54.3	83.5	77.1	95.0	52.5	61.1	...	80.1	85.8
3574	53	34	52.4	87.4	67.1	85.8	51.1	71.2	64.2	75.2	76.6
3575	52	32	51.8	85.4	73.0	89.7	55.9	59.7	61.5	78.7	81.6
3576	64	38	...	80.2	76.7	89.6	53.0	59.3	59.4	74.6	83.6
3577	63	37	51.6	86.8	74.2	88.1	55.2	57.1	58.7	86.6	83.6
3578	49	32	51.9	86.1	73.0	100.8	61.6	49.2	65.3	81.6	86.4
3579	56	34	51.8	84.6	73.4	97.8	61.8	39.4	42.9	75.7	83.1

COMPARISON OF FOUR IRAN GROUPS

In the previous sections each of the four Iran groups of subjects measured by me has been treated as a separate entity. There now remains the problem of direct comparisons between these four groups to show their physical resemblances and their dissimilarities.

COMPARATIVE TABLE OF MEANS

Measurements	Lurs	Yezd-i-Khast	Kinareh	Jews
Age	30.15	37.85	37.25	39.30
Stature	168.63	164.79	165.54	164.94
Sitting height	89.11	79.66	81.97	80.84
Lower limb length	79.52	85.13	83.57	84.10
Head length	189.99	192.51	187.02	186.06
Head breadth	140.68	141.55	142.96	144.28
Minimum frontal diameter	114.50	112.78	112.14	111.90
Bizygomatic breadth	134.70	134.50	133.35	134.20
Bigonial breadth	105.42	109.58	107.78	107.86
Total facial height	126.40	121.00	122.40	123.45
Upper facial height	78.35	69.60	71.75	72.40
Nasal height	62.22	51.22	51.66	53.82
Nasal breadth	35.75	32.84	32.81	34.19
Ear length	57.18	58.70	59.54	58.98
Ear breadth	32.61	35.61	36.33	35.79
Indices				
Relative sitting height	52.84	48.16	49.74	49.20
Cephalic	74.25	73.50	76.44	77.43
Fronto-parietal	81.19	79.99	78.64	77.77
Zygo-frontal	84.58	84.10	84.54	84.02
Zygo-gonial	78.64	81.28	80.83	80.77
Total facial	93.85	90.15	91.95	92.30
Upper facial	58.43	51.83	53.81	54.11
Nasal	57.42	64.62	64.54	63.86
Ear	56.82	61.98	61.90	61.14



*Age.*—The Isfahan Jews had the highest mean age, the Lurs being from seven to ten years younger than the other three groups. For this reason some compensation must be allowed for growth changes in comparing the groups, despite the fact that the mean ages were all well within the adult class.

*Stature.*—The Lurs were considerably taller than the people of Kinareh, the Jews, or the men in Yezd-i-Khast, and had a racially significant difference in this feature from the other three groups. The classification into short, medium, and tall categories shows that about half of all the individuals fell into the medium group with approximately one-fourth in the short and tall divisions, except for the Lurs, who had very few short men and an almost equal distribution in both the medium and tall classes.

Disregarding the Lurs, we find that the other series approximated 165.0, which placed them in the medium stature category for the peoples of Asia, according to Rudolf Martin.

PEOPLE	MEAN	STATURE						TOTALS
		SHORT ( $x-160.5$ )		MEDIUM ( $160.6-169.4$ )		TALL ( $169.5-x$ )		
		No.	Per cent	No.	Per cent	No.	Per cent	
Yezd-i-Khast.....	164.79	12	26.09	24	52.17	10	21.74	46
Jews.....	164.94	19	22.09	49	56.98	18	20.93	86
Kinareh.....	165.54	16	21.62	40	54.05	18	24.32	74
Lurs.....	168.63	3	5.77	26	50.00	23	44.23	52

*Sitting Height (Trunk Length).*—The Lurs possessed the longest trunks with the people of Yezd-i-Khast at the other extreme, nearly 10 cm. shorter. The remaining two groups were but slightly longer in trunk length than the individuals from Yezd-i-Khast. Thus in trunk length as well as in stature, the Lurs alone differed significantly from the other Iran series.

*Lower Limb Length.*—The Lurs, however, possessed the shortest legs, with the other three groups between 4.05 and 5.61 cm. longer in limb length. These figures on the lengths of the trunk and legs show that the Lurs were the tallest, despite having the shortest legs.

The largest proportion of any group in a single category approximated one-third. This proportion among the Jews and Kinareh villagers possessed medium stature and medium trunk length, among the Yezd-i-Khast villagers had medium stature and short trunks, among the Lurs had medium stature and long trunk length, although the Lurs also had about 25 per cent in the class of tall stature and very long trunk length.

When the figures for all four groups are arranged according to Keith's classifications the following results appear:

## SITTING HEIGHT (Trunk Length)

		VERY LONG	LONG	MEDIUM	SHORT	VERY SHORT	TOTALS
		(900-x) Per cent	(899-850) Per cent	(849-800) Per cent	(799-750) Per cent	(749-x) Per cent	Per cent
Standing height							
Very tall (1800-x)...	L...	1.92	.....	1.92	.....	.....	3.84
	Y...	.....	.....	.....	.....	.....	.....
	K...	1.35	.....	.....	.....	.....	1.35
	J...	2.33	.....	.....	.....	.....	2.33
Tall (1799-1700)....	L...	24.96	11.52	.....	.....	.....	36.48
	Y...	.....	6.51	13.02	2.17	.....	21.70
	K...	.....	10.80	9.45	.....	.....	20.25
	J...	.....	8.14	6.98	1.16	.....	16.28
Medium (1699-1600)	L...	11.52	36.48	5.76	.....	.....	53.76
	Y...	.....	.....	23.87	32.55	.....	56.42
	K...	.....	8.10	39.15	10.80	1.35	59.40
	J...	.....	3.49	38.36	18.60	.....	60.45
Short (x-1599).....	L...	.....	3.84	1.92	.....	.....	5.76
	Y...	.....	.....	.....	19.53	2.17	21.70
	K...	.....	.....	4.05	13.50	1.35	18.90
	J...	.....	.....	3.49	13.95	3.49	20.93
Totals.....	L...	38.40	51.84	9.60	.....	.....	Men 52
	Y...	.....	6.51	36.89	54.25	2.17	46
	K...	1.35	18.90	52.65	24.30	2.70	74
	J...	2.33	11.63	48.83	33.71	3.49	86

*Relative Sitting Height Index.*—As has already been inferred from the absolute measurement, the Lurs had the highest relative sitting height index, indicating a disproportionately long trunk. In the other three series there was little variation, all of them being between 48.16 and 49.74 per cent.

*Head Length.*—The head was relatively long in all four groups. The Yezd-i-Khast series (192.51) had the longest heads, while the shortest, those of the Isfahan Jews, averaged 6 mm. less. The Kinareh people were slightly longer in head length than the Jews, and the Lurs were still longer.

*Head Breadth.*—The head was relatively narrow, with that of the Lurs at the low end of the scale. The Jews had the broadest heads, the other two groups being in an intermediate position and the Yezd-i-Khast men only slightly greater in head breadth than the Lurs.

*Cephalic Index.*—The table below classifies head form according to the Harvard system.

## CEPHALIC INDEX

PEOPLE	MEAN	DOLICHO- CEPHALIC		MESO- CEPHALIC		BRACHY- CEPHALIC		TOTALS
		(x-76.5)		(76.6-82.5)		(82.6-x)		
		No.	Per cent	No.	Per cent	No.	Per cent	No.
Yezd-i-Khast.....	73.50	37	80.43	7	15.22	2	4.35	46
Lurs.....	74.25	40	76.92	11	21.15	1	1.92	52
Kinareh.....	76.44	36	49.32	35	47.95	2	2.74	73
Jews.....	77.43	32	37.21	49	56.98	5	5.81	86

The Yezd-i-Khast men were the most dolichocephalic, while the Jews fell into the mesocephalic category. In the combined four groups only ten individuals (3.9 per cent) were brachycephalic. More than three-fourths of the Lurs and Yezd-i-Khast villagers were dolichocephalic, the Kinareh villagers fell equally in the dolichocephalic and mesocephalic classes, while the Jews were predominantly mesocephalic. These four series comprised long-headed peoples, part of whom have swung into the mesocephalic division. It must be noted that the Yezd-i-Khast mean (73.50) falls close to the probable Proto-Mediterranean mean.

Referring to Sir Arthur Keith's system of tabulating head size and cephalic indices, we have the following table:

		GROUPS ACCORDING TO CEPHALIC INDEX					Totals
Heads		x-70.0 Per cent	70.1-75.0 Per cent	75.1-79.9 Per cent	80.0-84.9 Per cent	85.0-x Per cent	Per cent
Small.....	L....	5.76	24.96	7.68	.....	.....	38.40
	Y....	2.17	6.51	8.68	.....	.....	17.36
	K....	.....	10.96	28.77	5.48	.....	45.21
Medium....	J....	.....	5.81	24.42	8.14	1.16	39.53
	L....	5.76	23.04	24.96	3.84	.....	57.60
	Y....	13.02	36.89	23.87	2.17	.....	75.95
Large.....	K....	.....	19.18	28.77	4.11	.....	52.06
	J....	2.33	10.46	33.72	10.46	1.16	58.13
	L....	.....	1.92	1.92	.....	.....	3.84
Totals....	Y....	.....	4.34	.....	.....	2.17	6.51
	K....	.....	.....	1.37	1.37	.....	2.74
	J....	.....	1.16	1.16	.....	.....	2.32
							Men
Totals....	L....	11.52	49.92	34.56	3.84	.....	52
	Y....	15.19	47.74	32.55	2.17	2.17	46
	K....	.....	30.14	58.91	10.96	.....	73
	J....	2.33	17.43	59.30	18.60	2.32	86

With regard to head size more than half of the individuals in each group were medium, with three-quarters of the Yezd-i-Khast villagers in this category. With the exception of a very few individuals the remainder possessed small heads. Thus our samples from Iran had medium-sized heads with a marked trend toward smallness, although there were a few large-headed individuals.

When we examine the grouping of the cephalic indices it is apparent that we are dealing with a mesocephalic population showing a strong tendency toward dolichocephaly, with a small percentage of hyperdolichocephalic individuals, there being none among the Kinareh villagers. The brachycephalic element, definitely present among the Jews and Kinareh men, is of significance among an otherwise meso-dolichocephalic population. The few hyperdolichocephalic individuals among the Lurs, Jews, and at Yezd-i-Khast are important, since in small series the exceptional cases assume added value.

In the discussion of the above table the divisions range from hyperdolichocephalic to hyperbrachycephalic according to the Keith system (1935, pp. 20-21).

*Minimum Frontal Diameter.*—In general this measurement tended to be wide. The Lurs had the broadest foreheads, while the Jews had the narrowest, although even in this group the mean of 111.90 tends to be high compared to the peoples to the west.

When minimum frontal diameter and the maximum head breadth are grouped the following table appears:

		MINIMUM FRONTAL DIAMETER				
		VERY NARROW (x-99)	NARROW (100-109)	WIDE (110-119)	VERY WIDE (120-x)	TOTALS
Head breadth		Per cent	Per cent	Per cent	Per cent	Per cent
Very narrow (120-129) . . . . .	L . . . . .	.....	.....	.....	.....	.....
	Y . . . . .	.....	.....	2.17	.....	2.17
	K . . . . .	.....	.....	.....	.....	.....
	J . . . . .	.....	.....	.....	.....	.....
Narrow (130-139) . . . . .	L . . . . .	.....	7.68	28.80	.....	36.48
	Y . . . . .	.....	13.02	21.70	.....	34.72
	K . . . . .	.....	6.75	20.25	.....	27.00
	J . . . . .	.....	5.88	11.77	.....	17.65
Wide (140-149) . . . . .	L . . . . .	.....	5.76	44.16	5.76	55.68
	Y . . . . .	.....	8.68	45.57	6.51	60.76
	K . . . . .	.....	12.15	51.30	1.35	64.80
	J . . . . .	.....	20.00	51.76	1.17	72.93
Very wide (150-x) . . . . .	L . . . . .	.....	.....	7.68	.....	7.68
	Y . . . . .	.....	.....	2.17	.....	2.17
	K . . . . .	.....	1.35	5.40	1.35	8.10
	J . . . . .	.....	.....	7.06	2.35	9.41
Totals . . . . .						Men
	L . . . . .	.....	13.44	80.64	5.76	52
	Y . . . . .	.....	21.70	71.61	6.51	46
	K . . . . .	.....	20.25	76.95	2.70	74
J . . . . .	.....	25.88	70.59	3.52	85	

In all four groups there were no individuals with very narrow (x-99) frontal diameters nor any with very wide foreheads and narrow or very narrow heads. Some men in each group had wide heads associated with very wide foreheads, and only two Jews and one Yezd-i-Khast villager had very wide heads and very wide foreheads. According to Keith's classificatory system the minimum frontal diameter was wide with a tendency toward narrowness. Only one man, from Yezd-i-Khast, had a very narrow head. The majority were wide to narrow rather than wide to very wide, although a small element of individuals with wide foreheads also had very wide heads.

In general, all four groups had wide to narrow heads and minimum frontal diameters.

*Bizygomatic Breadth.*—The means of this measurement show remarkably little variation, the total range being from 133.35–134.70. On the basis of these figures the face was medium in width with no tendency toward flaring zygomata. These divisions, however, apply more closely to skeletal material than to measurements on living peoples, when the classifications might better be designated as x–129, 130–139, and 140–x.

The relation of the bizygomatic breadth to the total facial height will be discussed under the total facial index.

BIZYGOMATIC BREADTH

		NARROW	MEDIUM	WIDE	TOTALS
		(x-124)	(125-134)	(135-x)	
Total facial height		Per cent	Per cent	Per cent	Per cent
Short (x-114).....	{ L.....		3.84	5.76	9.60
	{ Y.....		8.68	6.51	15.19
	{ K.....		6.75	2.70	9.45
	{ J.....		6.02	1.20	7.22
Medium (115-124)....	{ L.....		21.12	5.76	26.88
	{ Y.....		30.38	21.70	52.08
	{ K.....	1.35	39.15	14.85	55.35
	{ J.....	1.20	32.53	20.48	54.21
Long (125-x).....	{ L.....		28.80	34.56	63.36
	{ Y.....		13.02	19.53	32.55
	{ K.....		17.55	17.55	35.10
	{ J.....		16.87	21.69	38.56
Totals.....	{ L.....		53.76	46.08	52
	{ Y.....		52.08	47.74	46
	{ K.....	1.35	63.45	35.10	74
	{ J.....	1.20	55.42	43.37	83
					Men

*Bigonial Breadth.*—The Lurs had the narrowest mandibles, with the men of Yezd-i-Khast at the other extreme. All four groups showed considerable narrowing of the mandible in relation to the minimum frontal diameter, a feature which tended to give a triangular appearance to the face, particularly in the case of the Lurs. Examination of the photographs, however, revealed that there were many square-faced individuals, in addition to those with extra developed masseter muscles.

*Total Facial Height.*—The Lurs had exceptionally long faces, being 5.40 mm. longer than those of the Yezd-i-Khast men. The Kinareh group had slightly longer faces than the latter, while the Jews were next in the ascending scale. The Lurs, however, were 2.95 mm. longer in total facial height than the Jews.

*Upper Facial Height.*—The Lurs had the longest upper faces and the other three groups were considerably shorter, but in the same general proportion as in the total facial heights. By expressing

this measurement as a percentage of the total facial height, the Lurs had an index of 61.99, somewhat higher than that of the Jews (58.65), the people of Kinareh (58.62), and the Yezd-i-Khast men (57.52). When the upper face and total face heights are arranged according to the Keith system the following table results:

		UPPER FACIAL HEIGHT				TOTALS
		SHORT (x-63) Per cent	MEDIUM SHORT (64-69) Per cent	MEDIUM LONG (70-75) Per cent	LONG (76-x) Per cent	Per cent
Total facial height						
Short (x-109).....	L.....					.....
	Y....	4.34	2.17	.....	.....	6.51
	K.....					.....
	J.....		1.19	.....	.....	1.19
Medium short (110-119)...	L.....		3.84	3.84	3.84	11.52
	Y....	8.68	26.04	10.85	.....	45.57
	K....	2.74	24.66	9.59	1.37	38.36
	J....	1.19	13.09	9.52	1.19	24.99
Medium long (120-129)...	L.....		5.76	13.44	40.32	59.52
	Y....		6.51	19.53	4.34	30.38
	K....	1.37	5.48	27.40	10.96	45.21
	J....	1.19	8.33	32.14	14.29	55.95
Long (130-x).....	L.....				28.80	28.80
	Y....			6.51	10.85	17.36
	K....			2.74	13.70	16.44
	J....			2.38	15.48	17.86
						Men
Totals.....	L.....		9.60	17.28	72.96	52
	Y....	13.02	34.72	36.89	15.19	46
	K....	4.11	30.14	39.73	26.03	73
	J....	2.38	22.61	44.04	30.96	84

With the exception of a few Yezd-i-Khast villagers and one Isfahan Jew there were no short total face heights. Although the Jews and Lurs had from 56 to 60 per cent with medium long faces, of the remainder 24.99 per cent of the Jews had medium short faces, whereas 28.80 per cent of the Lurs' faces were long. The Kinareh villagers also had predominantly medium long faces but with a greater percentage of medium short faces than either the Lurs or the Jews. The Yezd-i-Khast villagers alone had their greatest number of people with faces in the medium short class.

The upper face height showed remarkable variation from the 13.02 per cent of short faces recorded in Yezd-i-Khast to the 72.96 per cent of long faces among the Lurs, none of whom fell into the short category. In all four groups there appeared definite long-faced and medium short-faced elements.

In general, the total and upper face lengths varied from medium short to long, the majority being in the intermediate category, medium long.

With regard to Keith's "ram-faced" type, i.e. those who were short-faced (less than 120 mm.) yet had long upper faces (70 mm. or over), there were: 4 Lurs (7.68 per cent); 5 men from Yezd-i-Khast (10.85 per cent); 8 men from Kinareh (10.96 per cent); and 9 Jews (10.7 per cent).

*Total Facial Index.*—The majority of the individuals (67.5 per cent) were leptoprosopic with only seventeen out of 255 men (6.7 per cent) in the euryprosopic category. The Lurs had the highest index (93.85), the Yezd-i-Khast men the lowest (90.15).

## TOTAL FACIAL INDEX

PEOPLE	MEAN	EURYPROSOPIC		MESOPROSOPIC		LEPTOPROSOPIC		TOTALS No.
		No.	Per cent	No.	Per cent	No.	Per cent	
Yezd-i-Khast.....	90.15	5	10.87	17	36.96	24	52.17	46
Kinareh.....	91.95	5	6.76	22	29.73	47	63.51	74
Jews.....	92.30	4	4.82	21	25.30	58	69.88	83
Lurs.....	93.85	3	5.77	6	11.54	43	82.69	52

When we refer back (p. 288) to the Keith classification of bizygomatic breadth and total facial length we deduce that in general the four Iran groups had medium to wide and medium to long faces. With almost negligible exceptions there were no narrow-faced individuals, although some men in each group, totaling about 10 per cent, with narrow ( $x-124$ ) faces fell into the medium or wide categories. The greatest number of individuals occurred in the medium (125-134) and medium broad (135- $x$ ) classes.

*Upper Facial Index.*—The upper facial index for the Lurs was considerably higher (58.43) than that of any of the other groups, which ranged from 51.83 in the Yezd-i-Khast series to 54.11 among the Jews. In other words the Lurs had, relatively, a much longer upper face than the other three groups. This was borne out by a strong difference in  $x$  p.e.'s when this index for the Lurs was calculated with relation to the other three groups: Kinareh, 8.11; Yezd-i-Khast, 10.00; Jews, 7.85.

*Fronto-parietal Index.*—This was highest in the Lurs (81.19) and lowest in the Jews (77.77). In the case of the former the increase of the index was due to the fact that the Lurs had not only the widest average minimum frontal diameter (114.50) but also the narrowest average head breadth (140.68).

*Zygo-frontal Index.*—The four series of Iranis had a maximum range of variation of only 0.56 mm.

*Zygo-gonial Index.*—The highest average for the zygo-gonial index was among the people of Yezd-i-Khast (81.28), the lowest

in the Lurs (78.64). The other two groups showed little variation from the former. This means that the Yezd-i-Khast villagers with relatively the shortest upper faces had relatively the widest jaws; the Lurs possessed the reverse combination.

*Nasal Height.*—The Lurs had extremely long noses (62.22), in absolute measurement 11 mm. more than the Yezd-i-Khast subjects, who had the shortest noses of the four groups.

*Nasal Breadth.*—The Lurs had the widest nasal alae (35.75), while those of the Jews were about 1.6 mm. less. The other two groups had approximately the same dimension, which was about 3 mm. less than that of the Lurs.

When the nasal lengths and nasal widths are arranged to show the twelve Keith classifications the following table appears:

		NASAL WIDTH				TOTALS
		VERY NARROW (x-29) Per cent	MEDIUM NARROW (30-35) Per cent	MEDIUM WIDE (36-41) Per cent	WIDE (42-x) Per cent	
Nasal length	Short (x-49).....	L.....	.....	1.96	....	1.96
		Y... 2.17	23.87	6.51	....	32.55
		K... ..	24.30	5.40	2.70	32.40
		J... ..	12.94	4.71	....	17.65
Medium (50-59)...	Medium (50-59)...	L.....	17.64	15.68	1.96	35.28
		Y... 10.85	32.55	15.19	....	58.59
		K... 9.45	41.85	12.15	1.35	64.80
		J... 2.35	48.23	21.18	3.52	75.28
Long (60-x).....	Long (60-x).....	L.....	31.36	27.44	3.92	62.72
		Y... 2.17	2.17	4.34	....	8.68
		K... ..	2.70	....	....	2.70
		J... ..	2.35	4.71	....	7.06
Totals.....	Totals.....	L.....	49.00	45.08	5.88	51
		Y... 15.19	58.59	26.04	....	46
		K... 9.45	68.85	17.55	4.05	74
		J... 2.35	63.52	30.60	3.52	85

The majority of the noses were medium-narrow to medium-wide in absolute measurements. Although there were a few individuals in both extreme categories, the Lurs comprised no individuals with very narrow noses, and the Yezd-i-Khast villagers included no men with definitely wide noses.

In nasal length two-thirds of the Lurs had long noses, the other third medium noses. Next in scale were the Jews, three-quarters of whom possessed noses medium in length, while their next greatest percentage fell into the short class. The Yezd-i-Khast and Kinareh villagers had noses medium in length, but with approximately one-third of each group in the short (x-49) division. From the table



of x p.e.'s it can be seen that the Lurs alone were significantly different racially from the other three groups. With the exception of the Lurs, whose noses were either medium-narrow or medium-wide and long, the Iran groups tended primarily to have noses medium-narrow to medium-wide in breadth and medium to short in length.

*Nasal Index.*—In all the groups there was a remarkable percentage of leptorrhiny, the highest being among the Lurs, who had the lowest mean (57.42). The other three groups showed relatively similar means varying from 63.86 to 64.62. In the platyrrhine division there were neither Lurs nor Jews, but four men (5.41 per cent) from Kinareh and two (4.35 per cent) in the Yezd-i-Khast series.

PEOPLE	MEAN	NASAL INDEX						
		LEPTORRHINE (x-67.4)		MESORRHINE (67.5-83.4)		PLATYRRHINE (83.5-x)		TOTALS No.
		No.	Per cent	No.	Per cent	No.	Per cent	
Lurs .....	57.42	45	88.24	6	11.76	0	....	51
Jews .....	63.86	62	72.94	23	27.06	0	....	85
Kinareh .....	64.54	50	67.57	20	27.03	4	5.41	74
Yezd-i-Khast .....	64.62	30	65.22	14	30.43	2	4.35	46

*Ear Length.*—The Kinareh men had the longest ears and the Lurs the shortest of the four groups, although the total range of variation was less than 2.4 mm. The difference in the mean ages of the Lurs and the other series must be taken into account in this feature and in the ear breadth, since there is a definite correlation between age and absolute size of the ear.

*Ear Breadth.*—The Kinareh men also had the broadest ears and the Lurs the narrowest. There was a range of variation of 3.72 mm. (see p. 392).

*Ear Index.*—The Lurs had the lowest index (56.82), a figure which was distinctly lower than that of the other three groups, whose individuals ranged from 61.14 to 61.98, thereby showing a remarkable homogeneity. It must also be noted that the mean ages for the same three groups was from 37.25 to 39.30, whereas among the Lurs the mean age was 30.15, a factor which would to some extent account for the absolute measurements, although in this case the lowering of the index was due primarily to an absolute and relative reduction in ear breadth.

Up to the present time few physical anthropologists have recorded the ear dimensions but in the future it may contribute an iota to the problem of racial analysis and classification.

## MORPHOLOGICAL CHARACTERS OF FOUR IRAN GROUPS

In addition to the metric data there were also the descriptive characters which have been tabulated for each of the four groups so that comparisons can be made. The actual figures can be checked by examination of each section and in this table only the percentages have been tabulated.

*Hair.*—In general the hair had low waves with a tendency toward straightness among the Kinareh and Yezd-i-Khast men and some degree of deep waves among the Jews. The curly element present in both the Lurs and Jews suggested a possible infiltration of Negroid blood.

There was considerable divergence in the texture. That of the Lurs was medium with a tendency toward coarseness, whereas the Yezd-i-Khast and Kinareh men and the Jews had medium to fine but there was also present a coarse element.

In color the hair of all four groups was predominantly dark brown or black. A rufous element was markedly present among the Lurs, possibly due to the use of henna (*Lawsonia alba* Lam.). This rufous tendency also existed among the Jews but to a lesser extent.

Form	HAIR			
	Lurs	Yezd-i-Khast	Kinareh	Jews
Straight.....	.....	.....	.....	.....
Very low waves.....	6.38	19.57	27.03	2.67
Low waves.....	85.11	80.43	66.22	84.00
Deep waves.....	6.38	.....	6.76	10.67
Curly-frizzly.....	.....	.....	.....	2.67
Woolly.....	2.13	.....	.....	.....
Texture				
Coarse.....	13.64	20.00	9.72	15.07
Coarse-medium.....	.....	4.44	5.56	1.37
Medium.....	81.82	15.56	36.11	56.16
Medium-fine.....	2.27	17.78	6.94	6.85
Fine.....	2.27	42.22	41.67	20.55
Color				
Black.....	2.08	37.78	63.38	44.44
Very dark brown.....	.....	.....	.....	1.23
Dark brown.....	81.25	46.67	19.72	22.22
Brown.....	.....	.....	1.40	.....
Red brown.....	14.58	.....	.....	2.47
Light brown.....	.....	.....	.....	.....
Red.....	.....	.....	.....	.....
Black and gray.....	.....	8.89	14.08	16.05
Brown and gray.....	2.08	.....	1.40	7.41
Light brown and gray.....	.....	.....	.....	.....
Gray.....	.....	6.67	.....	4.94
White.....	.....	.....	.....	1.23

It would appear from these data that the Kinareh villagers had the greatest percentage of black hair of the four groups. Since it

was often extremely difficult, due to light conditions, to distinguish between the dark brown and black categories it may very well be that there was very little difference in the two dark shades (black and dark brown) of hair color between the four Iran groups.

*Eyes.*—In color the eyes were predominately dark brown in all groups with the exception of the Lurs, half of whom had mixed eyes (green-brown or blue-brown), an element which was present to a very slight degree in Yezd-i-Khast and somewhat more frequent among the Jews and the Kinareh villagers. The almost total absence of pure blue or pure gray eyes should be noted.

The majority of the irises were homogeneous but among the Lurs there was a high percentage (38.77) of rayed and zoned eyes, corresponding probably to the element of mixed eyes. Among the Yezd-i-Khast men no rayed irises were reported. A small group of zoned eyes was noted in all four series.

The sclera were essentially clear, although some were speckled or bloodshot, probably because of wind and dust or disease. The Lurs had the highest percentage (84.00) of clear sclera.

Color	EYES			
	Lurs	Yezd-i-Khast	Kinareh	Jews
Black				
Dark brown	50.00	95.65	83.79	73.56
Blue-brown	34.00	2.17	1.35	4.60
Blue-brown				1.15
Green-brown	16.00	2.17	6.76	9.20
Green-brown			2.70	5.75
Gray-brown			4.05	3.45
Blue			1.35	
Gray				
Light brown				
Blue-gray				1.15
Blue-green				1.15
Iris				
Homogeneous	61.22	91.30	79.71	75.00
Rayed	28.57		4.35	7.50
Zoned	10.20	8.70	15.94	17.50
Sclera				
Clear	84.00	78.26	78.26	71.26
Yellow				
Speckled	14.00	19.57	20.29	26.44
Bloodshot		2.17		2.30
Speckled and bloodshot	2.00		1.45	
Speckled and yellow				
Yellow and bloodshot				

It would seem then with respect to the eyes that of the Iran groups the Yezd-i-Khast villagers were conspicuous for their large amount of dark brown color and homogeneous irises; and the Lurs at the other end of the scale presented the lowest frequency of dark brown color and the least homogeneous irises.

*Nose.*—The noses appeared to be convex or straight, although throughout all four groups there was considerable divergence. It is interesting to note that the highest percentage of convexity occurred not among the Jews but in the village of Kinareh. The Lurs seemed to have the least variable nasal profiles, the majority being straight. The percentage (14.94) of concave noses among the Jews was unexpected.

The nasal tip was thin with at least 50 per cent in the minus classification. Among the Lurs the size of the nasal tip was not recorded.

The alae were medium in size with a tendency to flaring in all groups except the Yezd-i-Khast men, who showed a marked trend toward compression of the nasal wings. Among the Lurs, however, there was considerable flare.

Profile	NOSE			
	Lurs	Yezd-i-Khast	Kinareh	Jews
Wavy . . . . .	3.92	2.17	2.99	1.15
Concave . . . . .		10.87	4.48	14.94
Straight . . . . .	49.02	39.13	34.33	32.18
Convex . . . . .	45.10	43.48	52.24	47.13
Concavo-convex . . . . .	1.96	4.35	5.97	4.60
Tip thickness				
Minus . . . . .		59.09	50.00	51.22
Average . . . . .		9.09	22.06	26.83
Plus . . . . .		27.27	25.00	17.07
Double plus . . . . .		4.55	2.94	4.88
Wings				
Compressed . . . . .	7.69	10.87	8.11	8.05
Compressed-medium . . . . .	3.85	28.26	1.35	4.60
Medium . . . . .	46.15	34.78	60.81	56.32
Medium-flaring . . . . .	28.85	17.39	16.22	26.44
Flaring . . . . .	13.46	6.52	9.46	2.30
Flaring plus . . . . .		2.17	4.05	2.30

*Teeth.*—The teeth showed normal occlusion with a tendency to marked over-bite, especially among the Lurs and the Kinareh villagers. The Isfahan Jews had lost the greatest number of teeth, 46.81 per cent with nine or more missing, although the Yezd-i-Khast villagers had the highest percentage (11.90) of individuals recorded as having lost seventeen or more teeth.

With regard to condition of teeth, the Jews, the Yezd-i-Khast, and the Kinareh villagers had the poorest, although the middle group also had the highest percentage (40.00) of excellent teeth. The Yezd-i-Khast villagers and the Jews had the highest percentage of normal slight over-bite, but the former had by far the best record of excellent teeth. On the other hand the dental condition of the Lurs was poor considering the youthfulness of the group.

TEETH

Bite	Lurs	Yezd-i-Khast	Kinareh	Jews
Under				2.44
Edge-to-edge	6.12	2.70		1.22
Slight over	69.39	81.08	76.47	81.71
Marked over	24.49	16.22	23.53	14.63
Loss				
None		40.48	31.75	12.77
1-4		35.71	50.79	36.17
5-8		4.76	9.52	4.26
9-16		4.76	7.94	38.30
17+		11.90		8.51
All		2.38		
Condition				
Very bad		13.33	10.00	12.68
Bad	12.82	13.33	8.57	15.49
Fair	20.51	6.67	24.29	19.72
Good	43.59	26.67	41.43	42.25
Excellent	23.08	40.00	15.71	9.86

The teeth of the Iran groups were fairly good with the exception of the Jews, who had the poorest teeth in general condition, attrition, and number lost. Among the Lurs the number of teeth lost was not recorded.

*Musculature.*—While no statistical records were taken on the musculature of the Lurs, there is no question in the mind of the observer that over 90 per cent would have fallen in the excellent category. It must be added that the Lurs were a selected group of porters, so that it would be inadvisable to compare them to the other three unselected series. The Jews had the fewest individuals in the excellent classification. Of the three groups examined the Kinareh men appeared to have the best degree of musculature, and that of the Yezd-i-Khast villagers was decidedly inferior when compared to the other two.

MUSCULATURE

	Lurs	Yezd-i-Khast	Kinareh	Jews
Poor		2.17		
Fair		15.22	6.76	12.64
Good		50.00	77.03	75.86
Excellent		32.61	16.22	11.49

SIGNIFICANT DIFFERENCES IN FOUR IRAN GROUPS

We have already discussed the population samples with respect to the crude differences shown between the various characters. In this section, however, attention is to be paid to the question of the statistical significance of the individual differences as well as to the combination of these differences in the light of the errors contingent to random sampling and size of series. In this manner we shall be able to determine which groups, if any, are statistically significantly differentiated one from the others.

The following tables (p. 409) contain a tabulation of the individual differences between the characters of the groups compared and in addition give the number of times these differences are in excess of their probable errors ( $x$  p.e.'s). Only those differences between characters which are at least three times in excess of their probable errors have been considered here as statistically significant differences and unattributable to errors of random sampling, because such differences could have appeared as a result of chance alone in but four cases out of a hundred.

Furthermore, a summary of these  $x$  p.e. values is given on page 410 where they are compared with the theoretical frequencies of  $x$  p.e. values expected in random samples of the same size. The basis of these theoretical frequencies rests on the assumption that differences between two groups solely as a result of the sampling process may be less than one times the probable error of the difference in 50 per cent of cases, may be from one to two times the probable error of the difference in 32.27 per cent of cases, two to three times in 13.43 per cent of cases, three to four times in 3.60 per cent of cases, etc. Thus for the thirteen measurements the theoretical frequency for  $x$  p.e. values between zero and one is 6.50, between one and two is 4.20, between two and three is 1.75, etc. For the nine indices the theoretical frequency for  $x$  p.e. values between zero and one is 4.50, between one and two is 2.90, between two and three 1.21, etc.

A very cursory examination of this dispersion table is sufficient to reveal the fact that all our Iran groups are significantly differentiated one from the other both metrically and indicially, and must be considered as anthropometrically distinct populations. There is no single instance where any two groups are sufficiently alike to represent random samples drawn from the same population. It is also evident that the Lurs when compared with the other three Iran groups seem to show the widest divergence from the random sample or expected frequency in both measurements and indices. Thus the Lurs are anthropometrically the most differentiated of all the Iran groups. On the other hand, the Jews when compared with the Kinareh series show the closest fit to the theoretical, expected frequencies. Accordingly, the Isfahan Jews and the Kinareh villagers must be considered as the most closely related groups physically of any of these Iran representatives.

If we consider the individual characteristics by which the groups differ from each other we find that the Lurs differ significantly from the Kinareh men in twenty out of twenty-three (86.96 per cent)

measurements and indices. The Lurs are considerably younger in mean age, are taller in stature and much taller in sitting height, have relatively longer sitting heights compared to their total body lengths, possess a longer mean head length but a narrower head breadth with a consequently lower cephalic index, and a broader frontal diameter. In bizygomatic breadth the Lurs are not significantly differentiated from the Kinareh series but their proportion of frontal breadth to bizygomatic breadth is significantly higher. The Lurs are considerably narrower in the breadth of the lower jaw at the gonial angles in absolute dimension as well as in proportion to the face breadth. Both total and upper face heights are considerably greater in the Lurs than in the Kinareh series, although relative to the bizygomatic breadth only the upper face height is significantly longer. The Lurs have an excessively longer nasal height as well as a greater nasal breadth; in relative proportions of these dimensions the Lurs are significantly longer- and narrower-nosed. And finally, both ear dimensions are smaller in the Lurs; in relative proportion of these diameters the Lurs have distinctly shorter and much narrower ears than the Kinareh men.

In comparison to the Yezd-i-Khast villagers, the Lurs, who differ significantly in sixteen out of twenty-three (69.57 per cent) measurements and indices, are again considerably younger, taller in stature and very much taller in sitting height. They have a shorter head length, but are not significantly narrower in head breadth. The Lurs also show smaller lower jaw breadths and ear widths than the Kinareh men, and in addition are significantly greater in total face height, upper face height, nose height and nose breadth. With respect to the relative proportions of the above dimensions the Lurs have a greater sitting height in proportion to the stature than is found in the Yezd-i-Khast series, a lower zygo-gonial index, a longer and narrower face both with respect to the total facial and upper facial sections, a relatively more leptorrhine nose, and a relatively narrower ear.

The Lurs also differ significantly in twenty out of twenty-three (86.96 per cent) measurements and indices from the Jews. The Lurs are considerably younger and show greater absolute measurements as follows: stature, sitting height, head length, minimum frontal diameter, total face height, upper face height, nose height, and nose breadth. They show smaller absolute diameters in head breadth, bigonial diameter, ear length, and ear breadth. Indicially, the Lurs in contrast to the Jews have greater sitting heights relative

to their statures, have a greater degree of dolichocephaly, greater frontal breadth in proportion to the head breadth, narrower bigonial diameters relative to the facial breadth, relatively longer upper face dimensions, greater degree of leptorrhiny, and relatively narrower ears.

If we summarize the characters in which the Lurs differ significantly in the same direction from all three groups—Kinareh, Jews, and Yezd-i-Khast—we find the following thirteen out of twenty-three (56.25 per cent) measurements and indices: a lower mean age, a greater stature, a much greater sitting height, a narrower bigonial diameter, a greater total face height, a greater upper face height, a much greater nose length, a greater nasal breadth, a narrower ear breadth, a higher relative sitting height, a relatively narrower bigonial breadth, a relatively longer upper face height, a more leptorrhine nasal index, and a lower ear index. There can thus be no question of the distinctiveness of the Lurs as contrasted with the other Iran groups presented here.

In seven out of twenty-three (30.43 per cent) measurements and indices, the Yezd-i-Khast men differ significantly from those of Kinareh, especially in a shorter sitting height dimension as well as a lower relative sitting height mean. They show an excess over the Kinareh men in the head length dimension, which is primarily responsible for the significantly more dolichocephalic cranial vault. Although these two groups do not differ from each other significantly in either the head breadth or minimum frontal diameter, nevertheless, the Yezd-i-Khast villagers display a fronto-parietal index which is definitely higher than that of the Kinareh series. The Yezd-i-Khast men are distinctly shorter in the upper face height dimension, which is reflected in the significantly lower upper facial index. There are no other characters in which these two groups show statistically significant differences, although there are strong suggestions that they are divergent in respect to the bigonial diameter and the total facial index.

It has already been pointed out that the Jews and the Kinareh villagers are more closely related anthropometrically than any other two groups in our Iran series. The Jews differ significantly from the Kinareh men in the following five out of twenty-three (21.74 per cent) measurements and indices: a broader head diameter, a somewhat longer and wider nose, a relatively shorter sitting height in proportion to the stature, and a more brachycephalic cranium. In spite of this paucity of significant differences the Iran Jews and



DIFFERENCES AND AMOUNT IN EXCESS OF PROBABLE ERRORS

Measurements	LURS vs. KINAREH		LURS vs. YEZD-I-KHAST		LURS vs. IRAN JEWS	
	Diff.	x p.e.	Diff.	x p.e.	Diff.	x p.e.
Age	- 7.10*	5.59	- 7.70	5.31	-9.15	6.63
Stature	+ 3.09	4.23	+ 3.84	5.12	+3.69	5.35
Sitting height	+ 7.14	16.23	+ 9.45	19.67	+8.27	19.69
Head length	+ 2.97	4.37	- 2.52	3.04	+3.93	6.05
Head breadth	- 2.28	3.09	- 0.87	1.13	-3.60	5.63
Minimum frontal diameter	+ 2.36	5.02	+ 1.72	2.97	+2.60	5.78
Bizygomatic breadth	+ 1.35	2.11	+ 0.20	0.29	+0.50	0.81
Bigonial breadth	- 2.36	3.81	- 4.16	5.62	-2.44	4.14
Total facial height	+ 4.00	5.19	+ 5.40	5.63	+2.95	3.88
Upper facial height	+ 6.60	9.43	+ 8.75	10.42	+5.95	8.62
Nasal height	+10.56	16.00	+11.00	14.28	+8.40	13.33
Nasal breadth	+ 2.94	7.00	+ 2.91	6.33	+1.56	3.71
Ear length	- 2.36	4.14	- 1.52	2.24	-1.80	3.10
Ear breadth	- 3.72	10.63	- 3.00	7.32	-3.18	8.15
Indices						
Relative sitting height	+ 3.10	14.09	+ 4.68	18.72	+3.64	18.20
Cephalic	- 2.10	5.38	+ 0.75	1.44	-3.18	7.95
Fronto-parietal	+ 2.55	6.22	+ 1.20	2.67	+3.42	8.77
Zygo-frontal	+ 0.04	0.11	+ 0.48	1.23	+0.56	1.56
Zygo-gonial	- 2.19	5.48	- 2.64	6.00	-2.13	5.76
Total facial	+ 1.90	2.88	+ 3.70	5.29	+1.55	2.46
Upper facial	+ 4.62	8.11	+ 6.60	10.00	+4.32	7.85
Nasal	- 7.12	6.53	- 7.20	6.00	-6.44	6.85
Ear	- 5.08	7.70	- 5.16	5.93	-4.32	6.00

\* Significant differences italicized.

DIFFERENCES AND AMOUNT IN EXCESS OF PROBABLE ERRORS

Measurements	YEZD-I-KHAST vs. KINAREH		IRAN JEWS vs. KINAREH		IRAN JEWS vs. YEZD-I-KHAST	
	Diff.	x p.e.	Diff.	x p.e.	Diff.	x p.e.
Age	+0.60	0.40	+2.05	1.43	+1.45	0.91
Stature	-0.75	1.00	-0.60	0.87	+0.15	0.21
Sitting height	-2.31*	5.13	-1.13	2.90	+1.18	2.68
Head length	+5.49	7.04	-0.96	1.66	-6.45	8.60
Head breadth	-1.14	1.73	+1.59	3.18	+2.73	4.20
Minimum frontal diameter	+0.64	1.12	-0.24	0.57	-0.88	1.60
Bizygomatic breadth	+1.15	1.49	+0.85	1.52	-0.30	0.43
Bigonial breadth	+1.80	2.54	+0.08	0.14	-1.72	2.49
Total facial height	-1.40	1.52	+1.05	1.48	+2.45	2.69
Upper facial height	-2.15	3.03	+0.65	1.23	+2.80	4.00
Nasal height	-0.44	0.67	+2.16	4.32	+2.60	4.06
Nasal breadth	+0.03	0.07	+1.38	3.73	+1.35	3.29
Ear length	-0.84	1.29	-0.56	1.02	+0.28	0.42
Ear breadth	-0.72	2.00	-0.54	1.64	+0.18	0.45
Indices						
Relative sitting height	-1.58	7.18	-0.54	3.18	+1.04	5.20
Cephalic	-2.85	5.82	+1.08	3.00	+3.93	7.86
Fronto-parietal	+1.35	3.29	-0.87	2.49	-2.22	5.69
Zygo-frontal	-0.44	1.22	-0.52	1.58	-0.08	0.22
Zygo-gonial	+0.45	1.02	-0.06	0.16	-0.51	1.24
Total facial	-1.80	2.73	+0.35	0.60	+2.15	3.47
Upper facial	-1.98	3.47	+0.30	0.71	+2.28	4.15
Nasal	+0.08	0.07	-0.68	0.71	-0.76	0.70
Ear	+0.08	0.10	-0.76	1.15	-0.84	0.97

\* Significant differences italicized.

the Kinareh villagers must be considered as anthropometrically distinct populations.

In ten out of twenty-three (43.48 per cent) measurements and indices, the Jews differ significantly from the Yezd-i-Khast men, much more so than they do from the Kinareh villagers. Compared to the Yezd-i-Khast men the Jews have much shorter heads, significantly broader heads, and possess a greater sitting height dimension in proportion to the total body length. They are also longer in upper face height and in nose length, and they have a greater nasal breadth. Both upper facial and total facial indices are significantly higher in the Jews, and the relation of minimum frontal breadth to head breadth is considerably lower than in the Yezd-i-Khast villagers.

DISPERSION OF VALUES OF  $x$  p.e. IN THIRTEEN MEASUREMENTS

$x$ p.e.	0-1	1-2	2-3	3-4	4-5	5-6	6+	Totals
Theoretical.....	6.50	4.20	1.75	0.47	0.08	0.009	0.000+	13
Kinareh-Yezd-i-Khast.....	2	6	2	1	0	1	1	13
Kinareh-Iran Jews.....	3	6	1	2	1	0	0	13
Kinareh-Lurs.....	0	0	1	2	3	2	5	13
Yezd-i-Khast-Jews.....	4	1	3	1	3	0	1	13
Yezd-i-Khast-Lurs.....	1	1	2	1	0	3	5	13
Iran Jews-Lurs.....	1	0	0	3	1	3	5	13

DISPERSION OF VALUES OF  $x$  p.e. IN NINE INDICES

$x$ p.e.	0-1	1-2	2-3	3-4	4-5	5-6	6+	Totals
Theoretical.....	4.50	2.90	1.21	0.32	0.06	0.006	0.000+	9
Kinareh-Yezd-i-Khast.....	2	2	1	2	0	1	1	9
Kinareh-Iran Jews.....	4	2	1	2	0	0	0	9
Kinareh-Lurs.....	1	0	1	0	0	2	5	9
Yezd-i-Khast-Jews.....	3	1	0	1	1	2	1	9
Yezd-i-Khast-Lurs.....	0	2	1	0	0	2	4	9
Iran Jews-Lurs.....	0	1	1	0	0	1	6	9

RACIAL ANALYSIS OF THE POPULATION OF IRAN

Up to this point we have examined the statistical and morphological characters of each of the four Iran groups and their relationships to each other. There now remains the problem of analyzing the constituent racial elements in the population based on the 299 individuals measured in Iran during 1934. The basic elements can be found either by mechanical sorting on the Hollerith machines or by selection from photographs. While the former method has the greater validity despite the smallness of the groups, the latter indicates the statistical procedure to be followed.

During the Harvard academic year 1936-37, Dr. Hooton and I studied and sorted the racial type photographs obtained in Iran, Iraq, and Georgia, U.S.S.R. Special concentration was devoted to the Iran series and as a result a number of Mediterranean and non-Mediterranean types were isolated in groups. Photographic sortings

are not entirely satisfactory since individual variation plays too prominent a part, but as a final result the following physical characteristics appeared to be of racial significance: head form, facial index, nasal index, and particularly the nasal profile. After working up my material at Field Museum, therefore, I returned to Harvard to continue mechanical sortings under the supervision of Dr. Hooton.

MECHANICAL SORTINGS OF IRAN GROUPS

Throughout the mechanical sortings of the Iran groups, including the men of Kinareh, Yezd-i-Khast, and Rayy, and of the Jews of Isfahan and the Lurs of Pusht-i-Kuh, the cephalic indices were divided into x-79 and 80-x, the total facial indices into x-89 and 90-x, and the nasal indices into x-67 and 68-x. Throughout the following discussion the terms dolichocephalic and brachycephalic, leptoprosopic and euryprosopic, leptorrhine or platyrrhine, as well as long-headed, narrow-faced, narrow-nosed, etc., have been used for convenience in a broad sense referring only to these arbitrary divisions. These terms must not be confused with their closely defined uses elsewhere in this chapter (specifically p. 288, *passim*). The nasal profiles were grouped under concave, straight, and convex plus concavo-convex. Any individual who lacked one or more of the above indices or nasal profile classifications was omitted from the entire series. The number of individuals who fall into each of the above categories, together with its percentage of the entire series of 262 subjects, appears in the following table:

CORRELATION BETWEEN HEAD, FACIAL, AND NASAL FORMS

C.I.	T.F.I.	N.I.	Profile	No.	Per cent
x-79	x-89	x-67	Concave.....	2	0.76
x-79	x-89	x-67	Straight.....	8	3.05
x-79	x-89	x-67	Convex, concavo-convex.....	17	6.49
x-79	x-89	68-x	Concave.....	9	3.44
x-79	x-89	68-x	Straight.....	10	3.82
x-79	x-89	68-x	Convex, concavo-convex.....	19	7.25
x-79	90-x	x-67	Concave.....	3	1.15
x-79	90-x	x-67	Straight.....	56	21.37
x-79	90-x	x-67	Convex, concavo-convex.....	72	27.48
x-79	90-x	68-x	Concave.....	7	2.67
x-79	90-x	68-x	Straight.....	12	4.58
x-79	90-x	68-x	Convex, concavo-convex.....	10	3.82
80-x	x-89	x-67	Concave.....	2	0.76
80-x	x-89	x-67	Straight.....	2	0.76
80-x	x-89	x-67	Convex, concavo-convex.....	16	6.11
80-x	x-89	68-x	Concave.....	1	0.38
80-x	90-x	x-67	Straight.....	7	2.67
80-x	90-x	x-67	Convex, concavo-convex.....	6	2.29
80-x	90-x	68-x	Straight.....	1	0.38
80-x	90-x	68-x	Convex, concavo-convex.....	2	0.76
Totals.....				262	99.99

GROUP A*					
Measurements	No.	Range	Mean	S.D.	C.V.
Age . . . . .	71	20-74	36.85±1.03	12.90±0.73	35.01±1.48
Stature . . . . .	72	152-181	166.29±0.45	5.64±0.32	3.39±0.19
Sitting height . . . . .	72	72-98	83.80±0.42	5.28±0.30	6.30±0.35
Head length . . . . .	72	176-205	188.67±0.46	5.73±0.32	3.04±0.17
Head breadth . . . . .	72	129-152	141.04±0.36	4.56±0.26	3.23±0.18
Minimum frontal diam. . . . .	72	105-124	113.22±0.32	4.00±0.22	3.53±0.20
Bizygomatic breadth . . . . .	72	125-149	133.80±0.41	5.20±0.29	3.89±0.22
Bigonial breadth . . . . .	72	94-125	107.54±0.47	5.88±0.33	5.47±0.31
Total facial height . . . . .	72	115-144	126.85±0.50	6.30±0.35	4.97±0.28
Upper facial height . . . . .	72	65-94	76.05±0.43	5.45±0.31	7.17±0.40
Nasal height . . . . .	72	44-75	57.10±0.46	5.80±0.33	10.16±0.57
Nasal breadth . . . . .	72	28-42	33.38±0.24	3.00±0.17	8.99±0.51
Ear length . . . . .	72	44-67	58.62±0.39	4.88±0.27	8.32±0.47
Ear breadth . . . . .	72	26-46	35.43±0.27	3.39±0.19	9.57±0.54
Indices					
Relative sitting height . . . . .	72	46-57	50.42±0.18	2.22±0.12	4.40±0.25
Cephalic . . . . .	72	65-79	74.82±0.23	2.85±0.16	3.81±0.21
Fronto-parietal . . . . .	72	72-92	80.14±0.24	3.00±0.17	3.74±0.21
Zygo-frontal . . . . .	72	76-95	84.78±0.22	2.76±0.16	3.26±0.18
Zygo-gonial . . . . .	72	72-92	80.62±0.31	3.87±0.22	4.80±0.27
Total facial . . . . .	72	90-109	95.25±0.32	4.00±0.22	4.20±0.24
Upper facial . . . . .	72	43-66	53.93±0.33	4.11±0.23	7.62±0.43
Nasal . . . . .	72	48-67	58.46±0.37	4.68±0.26	8.01±0.45
Ear . . . . .	72	45-76	60.74±0.49	6.20±0.35	10.21±0.57

\* Cephalic index, x-79; total facial index, 90-x; nasal index, x-67; nasal profile, convex and concavo convex.

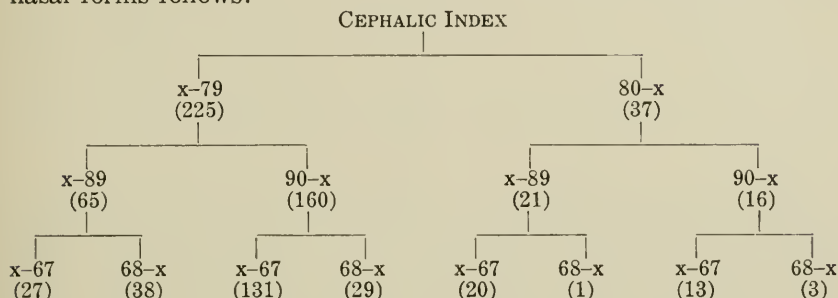
GROUP B*					
Measurements	No.	Range	Mean	S.D.	C.V.
Age . . . . .	55	15-69	35.80±1.09	12.00±0.77	33.52±2.16
Stature . . . . .	56	155-178	167.46±0.49	5.49±0.35	3.28±0.21
Sitting height . . . . .	56	75-98	84.04±0.46	5.16±0.33	6.14±0.39
Head length . . . . .	56	176-205	189.48±0.50	5.58±0.36	2.94±0.19
Head breadth . . . . .	56	129-152	140.44±0.41	4.50±0.29	3.20±0.20
Minimum frontal diam. . . . .	56	101-120	111.50±0.33	3.64±0.23	3.26±0.21
Bizygomatic breadth . . . . .	56	120-144	132.60±0.44	4.90±0.31	3.70±0.24
Bigonial breadth . . . . .	56	98-125	107.42±0.54	6.04±0.38	5.62±0.36
Total facial height . . . . .	56	115-144	126.55±0.52	5.75±0.37	4.54±0.29
Upper facial height . . . . .	56	65-94	75.85±0.49	5.45±0.35	7.19±0.46
Nasal height . . . . .	56	44-75	57.06±0.52	5.76±0.37	10.09±0.64
Nasal breadth . . . . .	56	25-39	32.69±0.26	2.85±0.18	8.72±0.56
Ear length . . . . .	55	44-71	53.50±0.44	4.80±0.31	8.21±0.53
Ear breadth . . . . .	55	26-43	34.74±0.32	3.51±0.23	10.10±0.65
Indices					
Relative sitting height . . . . .	56	46-57	50.22±0.20	2.26±0.14	4.50±0.29
Cephalic . . . . .	56	68-79	73.98±0.26	2.85±0.18	3.85±0.25
Fronto-parietal . . . . .	56	72-89	79.69±0.28	3.15±0.20	3.95±0.25
Zygo-frontal . . . . .	56	76-95	84.42±0.28	3.08±0.20	3.65±0.23
Zygo-gonial . . . . .	56	72-89	81.04±0.34	3.72±0.24	4.59±0.29
Total facial . . . . .	56	90-109	95.85±0.36	4.05±0.26	4.23±0.27
Upper facial . . . . .	56	46-66	54.38±0.37	4.14±0.26	7.61±0.48
Nasal . . . . .	56	44-67	57.66±0.56	6.24±0.40	10.82±0.69
Ear . . . . .	55	45-80	59.46±0.53	5.84±0.38	9.82±0.63

\* Cephalic index, x-79; total facial index, 90-x; nasal index, x-67; nasal profile, straight.

From the table (p. 411) we see that the two largest groups fall in the same categories of indices (C.I. x-79, T.F.I. 90-x, N.I. x-67), but whereas seventy-two men of these two groups (27.48 per cent)

had convex or concavo-convex nasal profiles, fifty-six (21.37 per cent) had straight noses.

Another diagram of the correlation between head, facial, and nasal forms follows:



Obviously the most representative element of the Iran series were the 131 men with relatively narrow heads, narrow faces, and narrow noses. Of these, as mentioned above, seventy-two had convex and concavo-convex noses and fifty-six had straight nasal profiles. Means, standard deviations, and coefficients of variation for these two groups, A and B, are given in the tables on page 412.

COMPARISON BETWEEN GROUP B\* AND GROUP A †

Measurements	GROUP B vs. GROUP A	
	Diff.	x p.e.
Age . . . . .	-1.05	0.70
Stature . . . . .	+1.17	1.77
Sitting height . . . . .	+0.24	0.39
Head length . . . . .	+0.81	1.19
Head breadth . . . . .	-0.60	1.09
Minimum frontal diameter . . . . .	-1.72‡	3.74
Bizygomatic breadth . . . . .	-1.20	2.00
Bigonial breadth . . . . .	-0.12	0.11
Total facial height . . . . .	-0.30	0.42
Upper facial height . . . . .	-0.20	0.31
Nasal height . . . . .	-0.04	0.06
Nasal breadth . . . . .	-0.69	1.92
Ear length . . . . .	-0.12	0.21
Ear breadth . . . . .	-0.69	1.68
Indices		
Relative sitting height . . . . .	-0.20	0.77
Cephalic . . . . .	-0.84	2.40
Fronto-parietal . . . . .	-0.45	1.22
Zygo-frontal . . . . .	-0.36	1.00
Zygo-gonial . . . . .	+0.42	0.89
Total facial . . . . .	+0.60	1.25
Upper facial . . . . .	+0.45	0.90
Nasal . . . . .	-0.80	1.19
Ear . . . . .	-1.28	1.78

\*Group B: Cephalic index, x-79; total facial index, 90-x; nasal index, x-67; nasal profile, straight.

†Group A: Cephalic index, x-79; total facial index, 90-x; nasal index, x-67; nasal profile, convex and concavo-convex.

‡Significant difference italicized.

During the discussion which follows, the slight and significant differences are recorded in separate paragraphs. The word significant will be employed only when it applies to statistically significant differences, where the  $x$  p.e. was 3 or more.

When we examine the straight-nosed group (B) contrasted with or in relation to those men with convex and concavo-convex nasal profiles (A), we find that the former are younger, taller, with longer but narrower heads, and have shorter and narrower faces, noses, and ears.

The only significant difference appears to be in the minimum frontal diameter, although the relatively high  $x$  p.e.'s for stature, bizygomatic breadth, nasal and ear breadths suggest important differences. Among the indices the cephalic index of 73.98 (Group B), although only slightly lower than that of Group A (74.82), shows a probably significant difference ( $x$  p.e. 2.40).

It must be noted that in this sorting those individuals with mixed eyes have been included. Such individuals were later omitted to eliminate this element of blondism.

In general it can be said that these two dolichocephalic, leptoprosopic, and leptorrhine groups resemble each other closely except in nasal form.

Why in the most representative group from Iran should there be one element with straight noses and one with large convex noses? Was it possible that one of these nasal forms was a characteristic also related strongly to other elements in the population? To determine such a possibility, the entire series of 262 Iranis was sorted and resorted into various combinations of head form, facial form, and nasal form, according to the three classes of nasal profile.

INDICES		IRANIS	
Cephalic	Total facial	No.	Per cent
x-79	x-89	65	24.81
x-79	90-x	160	61.07
80-x	x-89	21	8.02
80-x	90-x	16	6.11
Totals . . . . .		262	100.01

Here it is apparent that 85.88 per cent of my Iran series had relatively long heads and that 61.07 per cent of the total series were also narrow-faced. Only 14.13 per cent of the 262 individuals had a cephalic index of 80 or more.

The following table shows the number of individuals and percentages in each category when the nasal index is also taken into consideration:

INDICES			IRANIS	
Cephalic	Total facial	Nasal	No.	Per cent
x-79	x-89	x-67	27	10.31
x-79	x-89	68-x	38	14.50
x-79	90-x	x-67	131	50.00
x-79	90-x	68-x	29	11.07
80-x	x-89	x-67	20	7.63
80-x	x-89	68-x	1	.38
80-x	90-x	x-67	13	4.96
80-x	90-x	68-x	3	1.15
Totals.....			262	100.00

Exactly half of the total series have relatively long heads, narrow faces, and narrow noses. Sixty-seven (25.57 per cent) of the 225 long-headed individuals have a nasal index of 68-x, but among the thirty-seven round-headed subjects, only four (1.53 per cent) have a nasal index of 68-x.

The next step is to add three classes of profile: concave, straight, and convex plus concavo-convex.

C.I. x-79			C.I. 80-x		
Nasal Profile	No.	Per cent	Nasal Profile	No.	Per cent
Concave.....	21	9.33	Concave.....	3	8.11
Straight.....	86	38.22	Straight.....	10	27.03
Convex, concavo-convex.	118	52.44	Convex, concavo-convex	24	64.86
Totals.....	225	99.99	Totals.....	37	100.00

Straight profiles are more frequent among relatively long heads than among round-heads, but convex and concavo-convex profiles occur more often among round-heads than among long-heads.

When the relatively broad-faced individuals are grouped against the narrow-faced according to the three profile divisions, the results are as follows:

T.F.I. x-89			T.F.I. 90-x		
Nasal Profile	No.	Per cent	Nasal Profile	No.	Per cent
Concave.....	14	16.28	Concave.....	10	5.68
Straight.....	20	23.26	Straight.....	76	43.18
Convex, concavo-convex.	52	60.46	Convex, concavo-convex	90	51.14
Totals.....	86	100.00	Totals.....	176	100.00

Concave nasal profiles occur more often with relatively broad faces than with relatively narrow faces. There is a far greater frequency of straight noses with narrow faces than with broad faces. It is possible that convex and concavo-convex noses are associated here more with broad faces than with narrow faces.

When the relatively narrow-nosed individuals and the broad-nosed are grouped according to the three-fold nasal profile classification, the following table appears:

N.I. x-67			N.I. 68-x		
Nasal Profile	No.	Per cent	Nasal Profile	No.	Per cent
Concave.....	7	3.66	Concave.....	17	23.94
Straight.....	73	38.22	Straight.....	23	32.39
Convex, concavo-convex.....	111	58.12	Convex, concavo-convex.....	31	43.66
Totals.....	191	100.00	Totals.....	71	99.99

Concave profiles are correlated with broad noses much more frequently than with narrow noses. Convex and concavo-convex profiles go more with narrow noses than with broad noses. Straight noses occur in approximately the same proportions in both groups.

Taking all individuals with a nasal index of x-67, divided into groups of relatively long or round heads, we have the following classifications according to nasal profile:

C.I. x-79; N.I. x-67			C.I. 80-x; N.I. x-67		
Nasal Profile	No.	Per cent	Nasal Profile	No.	Per cent
Concave.....	5	3.16	Concave.....	2	6.06
Straight.....	64	40.51	Straight.....	9	27.27
Convex, concavo-convex.....	89	56.33	Convex, concavo-convex.....	22	66.67
Totals.....	158	100.00	Totals.....	33	100.00

There are 158 leptorrhine dolichocephals (82.72 per cent) as against 33 leptorrhine brachycephals (17.28 per cent). Among the individuals with relatively narrow noses, a straight nasal profile is associated more often with long-headed men than with round-heads. Convex and concavo-convex noses go somewhat more with these round-headed subjects than with long-heads.

Sorting by cephalic indices and total facial indices, we find that the Iran groups fall into the following classes:

C.I. x-79; T.F.I. 90-x			C.I. 80-x; T.F.I. x-89		
Nasal Profile	No.	Per cent	Nasal Profile	No.	Per cent
Concave.....	10	6.25	Concave.....	3	14.28
Straight.....	68	42.50	Straight.....	2	9.52
Convex, concavo-convex.....	82	51.25	Convex, concavo-convex.....	16	76.19
Totals.....	160	100.00	Totals.....	21	99.99

Concave nasal profiles occur more frequently among relatively round-headed and relatively broad-faced individuals than among the long-headed, narrow-faced people. Straight profiles are asso-



ciated considerably more with long-headed, narrow-faced individuals than with the round-headed and broad-faced people. Convex and concavo-convex profiles are found here with round-headed and broad-faced people rather than with the long-headed, narrow-faced group.

Sorting for reverse or disharmonic combinations of head form and facial form, we obtain the following table:

C.I. x-79; T.F.I. x-89			C.I. 80-x; T.F.I. 90-x		
Nasal Profile	No.	Per cent	Nasal Profile	No.	Per cent
Concave.....	11	16.92	Concave.....	0	.....
Straight.....	18	27.69	Straight.....	8	50.00
Convex, concavo-convex.	36	55.38	Convex, concavo-convex	8	50.00
Totals.....	65	99.99	Totals.....	16	100.00

The convex and concavo-convex noses are found more frequently among the broad-faced long-heads than among the narrow-faced round-heads. Although no brachycephals have concave noses, there are eleven (16.92 per cent) among the dolichocephals.

On the other hand, when we group the completely harmonic types, we find that only one individual has a relatively round head, broad face, and wide nose, against 131 individuals with long heads, narrow faces, and narrow noses.

C.I. x-79; T.F.I. 90-x; N.I. x-67			C.I. 80-x; T.F.I. x-89; N.I. 68-x		
Nasal Profile	No.	Per cent	Nasal Profile	No.	Per cent
Concave.....	3	2.29	Concave.....	1	100.00
Straight.....	56	42.75	Straight.....	..	.....
Convex, concavo-convex.	72	54.96	Convex, concavo-convex	..	.....
Totals.....	131	100.00	Totals.....	1	100.00

From the foregoing sortings it would appear that the following deductions can be drawn.

*Convex or concavo-convex nasal profiles:*

- (1) Occur more often among brachycephals than among dolichocephals.
- (2) May be more frequently found with relatively broad faces than with narrow faces.
- (3) Are associated more frequently with relatively narrow noses than with broad noses.
- (4) Are related somewhat more often to broad-faced dolichocephals than to narrow-faced brachycephals.
- (5) Are found more frequently among narrow-nosed, narrow-faced dolichocephals than among wide-nosed, broad-faced brachycephals.

*Straight noses:*

- (1) Are more frequent among dolichocephals than among brachycephals.
- (2) Go more with relatively narrow faces than with relatively broad faces.
- (3) Are found with slightly greater frequency among narrow-nosed individuals than among wide-nosed individuals.
- (4) Are associated more often with narrow-faced brachycephals than with broad-faced dolichocephals.
- (5) Occur more often among narrow-nosed, narrow-faced dolichocephals than among broad-nosed, broad-faced brachycephals.

The greater percentage frequency of big, convex noses among brachycephals and broad-faced individuals suggested that Group A, our large group of dolichocephals with convex noses, might have acquired their nasal characteristic from a brachycephalic element. At this point it might be added that convexity of nasal profile appears to be dominant over straight noses as is brachycephaly over dolichocephaly. It was decided, therefore, to compare our brachycephals with convex noses (Group E) to our two most representative groups in Iran. As has been noted, these Groups A and B included a blond element of mixed eyes. Before proceeding, we eliminated individuals with mixed eyes, chiefly Lurs, which left us with Groups C and D.

## GROUP C\*

Measurements	No.	Range	Mean	S.D.	C.V.
Age.....	50	20-69	36.30±1.12	11.75±0.79	32.37±2.18
Stature.....	51	152-178	165.87±0.51	5.37±0.36	3.24±0.22
Sitting height.....	51	72-95	83.17±0.47	4.98±0.33	5.99±0.40
Head length.....	51	176-205	188.25±0.56	5.97±0.40	3.17±0.21
Head breadth.....	51	129-152	141.40±0.42	4.41±0.29	3.12±0.21
Minimum frontal diam..	51	105-124	113.42±0.40	4.20±0.28	3.70±0.25
Bizygomatic breadth...	51	125-149	133.85±0.50	5.25±0.35	3.92±0.36
Bigonial breadth.....	51	98-125	107.98±0.56	5.88±0.39	5.45±0.36
Total facial height....	51	115-139	126.20±0.61	6.50±0.43	5.15±0.34
Upper facial height.....	51	65-89	75.35±0.44	4.70±0.31	6.24±0.42
Nasal height.....	51	48-71	56.42±0.43	4.56±0.30	8.08±0.54
Nasal breadth.....	51	28-39	32.66±0.23	2.46±0.16	7.53±0.50
Ear length.....	51	44-67	58.38±0.49	5.16±0.34	8.84±0.59
Ear breadth.....	51	26-46	35.52±0.31	3.27±0.22	9.21±0.62
<b>Indices</b>					
Relative sitting height..	51	46-57	50.18±0.21	2.26±0.15	4.50±0.30
Cephalic.....	51	65-79	75.00±0.27	2.85±0.19	3.80±0.25
Fronto-parietal.....	51	72-92	80.05±0.28	2.97±0.20	3.71±0.25
Zygo-frontal.....	51	76-95	85.02±0.28	2.92±0.19	3.43±0.23
Zygo-gonial.....	51	72-92	80.83±0.38	3.99±0.27	4.94±0.33
Total facial.....	51	90-109	94.75±0.36	3.85±0.26	4.06±0.27
Upper facial.....	51	46-63	53.30±0.33	3.48±0.23	6.53±0.44
Nasal.....	51	48-67	58.30±0.44	4.68±0.31	8.03±0.54
Ear.....	51	45-76	61.26±0.61	6.48±0.43	10.58±0.71

\*Cephalic index,  $x-79$ ; total facial index,  $90-x$ ; nasal index,  $x-67$ ; nasal profile, convex and concavo-convex. Group C is composed of the individuals from Group A minus those with mixed eyes.

GROUP D\*

Measurements	No.	Range	Mean	S.D.	C.V.
Age	37	15-69	39.05±1.42	12.85±1.01	32.91±2.58
Stature	38	155-175	165.54±0.59	5.43±0.42	3.28±0.25
Sitting height	38	75-95	82.72±0.49	4.47±0.35	5.40±0.42
Head length	38	176-205	189.33±0.65	5.91±0.46	3.12±0.24
Head breadth	38	132-152	140.83±0.41	3.72±0.41	2.64±0.20
Minimum frontal diam.	38	101-120	111.14±0.39	3.60±0.28	3.24±0.25
Bizygomatic breadth	38	125-144	132.90±0.45	4.10±0.32	3.08±0.24
Bigonial breadth	38	98-125	108.14±0.65	5.96±0.46	5.51±0.43
Total facial height	38	115-144	126.20±0.66	6.00±0.46	4.75±0.37
Upper facial height	38	65-89	74.90±0.53	4.80±0.37	6.41±0.50
Nasal height	38	44-75	55.62±0.55	5.00±0.39	8.99±0.70
Nasal breadth	38	25-39	32.24±0.33	3.03±0.23	9.40±0.73
Ear length	37	44-71	59.22±0.58	5.24±0.41	8.85±0.69
Ear breadth	37	29-43	35.34±0.35	3.12±0.24	8.83±0.69
Indices					
Relative sitting height	38	46-55	49.66±0.22	1.98±0.15	3.99±0.31
Cephalic	38	68-79	74.22±0.32	2.97±0.23	4.00±0.31
Fronto-parietal	38	72-86	79.54±0.35	3.21±0.25	4.04±0.31
Zygo-frontal	38	76-91	84.34±0.30	2.76±0.21	3.27±0.25
Zygo-gonial	38	75-89	81.61±0.38	3.45±0.27	4.23±0.33
Total facial	38	90-109	95.95±0.48	4.35±0.34	4.53±0.35
Upper facial	38	46-66	53.72±0.43	3.90±0.30	7.26±0.56
Nasal	38	44-67	58.14±0.66	6.00±0.46	10.32±0.80
Ear	37	49-80	60.02±0.62	5.56±0.44	9.26±0.73

\* Cephalic index, x-79; total facial index, 90-x; nasal index, x-67; nasal profile, straight. Group D is composed of the individuals from Group B minus those with mixed eyes.

COMPARISON BETWEEN GROUP D\* AND GROUP C †

Measurements	GROUP D vs. GROUP C	
	Diff.	x p.e.
Age	+2.75	1.53
Stature	-0.33	0.42
Sitting height	-0.45	0.66
Head length	+1.08	1.27
Head breadth	-0.57	0.97
Minimum frontal diameter	-2.28‡	4.07
Bizygomatic breadth	-0.95	1.42
Bigonial breadth	+0.16	0.19
Total facial height	0.00	...
Upper facial height	-0.45	0.65
Nasal height	-0.80	1.16
Nasal breadth	-0.42	1.05
Ear length	+0.84	1.11
Ear breadth	-0.18	0.38
Indices		
Relative sitting height	-0.52	1.73
Cephalic	-0.78	1.90
Fronto-parietal	-0.51	1.13
Zygo-frontal	-0.68	1.66
Zygo-gonial	+0.78	1.47
Total facial	+1.20	2.00
Upper facial	+0.42	0.78
Nasal	-0.16	0.20
Ear	-1.24	1.43

\* Group D (dark-eyed): Cephalic index, x-79; total facial index, 90-x; nasal index, x-67; nasal profile, straight.

† Group C (dark-eyed): Cephalic index, x-79; total facial index, 90-x; nasal index, x-67; nasal profile, convex and concavo-convex.

‡ Significant difference italicized.

The straight-nosed men (D) are older, slightly shorter in stature and sitting height, longer and narrower-headed, have much narrower foreheads, narrower bizygomatic diameters but slightly broader in the bigonial region, have smaller noses, and ears that are longer but narrower.

The significant differences appear in the minimum frontal diameter and probably in the total facial index. Other differences which may well be significant are the cephalic index and the relative sitting height. The standard deviations and coefficients of variation indicate that on the whole neither group is more or less homogeneous than the other.

The next step was to examine the group of twenty-one broad-headed individuals (C.I. 80-x) with convex and concavo-convex profiles. No elimination with regard to facial index, nasal index, or mixed eye color was made as in groups A to D because the total group of "brachycephals" among these 262 men was so small.

GROUP E*					
Measurements	No.	Range	Mean	S.D.	C.V.
Age . . . . .	21	15-64	34.15±5.03	11.10±1.16	32.50±3.38
Stature . . . . .	21	152-181	164.70±1.18	8.01±0.83	4.86±0.51
Sitting height . . . . .	21	65-92	79.87±0.75	5.10±0.53	6.39±0.67
Head length . . . . .	21	167-193	181.71±0.70	4.77±0.50	2.62±0.27
Head breadth . . . . .	21	141-158	148.42±0.61	4.17±0.43	2.81±0.29
Minimum frontal diam. . . . .	21	109-128	115.26±0.67	4.56±0.47	3.96±0.41
Bizygomatic breadth . . . . .	21	125-149	136.50±0.88	6.00±0.62	4.40±0.46
Bigonial breadth . . . . .	21	102-121	110.18±0.66	4.48±0.47	4.07±0.42
Total facial height . . . . .	21	110-129	120.55±0.68	4.65±0.48	3.86±0.40
Upper facial height . . . . .	21	60-79	70.55±0.72	4.90±0.51	6.95±0.72
Nasal height . . . . .	21	44-67	53.50±0.72	4.92±0.51	9.20±0.96
Nasal breadth . . . . .	21	28-39	32.42±0.34	2.31±0.24	7.13±0.74
Ear length . . . . .	21	48-75	59.22±0.85	5.76±0.60	9.73±1.01
Ear breadth . . . . .	21	29-40	35.28±0.43	2.91±0.30	8.25±0.86
Indices					
Relative sitting height . . . . .	21	40-53	48.30±0.34	2.30±0.24	4.76±0.50
Cephalic . . . . .	21	80-97	82.56±0.52	3.54±0.37	4.29±0.45
Fronto-parietal . . . . .	21	72-86	77.86±0.42	2.85±0.30	3.66±0.38
Zygo-frontal . . . . .	21	80-95	84.94±0.45	3.08±0.32	3.63±0.38
Zygo-gonial . . . . .	21	72-86	80.71±0.50	3.42±0.36	4.24±0.44
Total facial . . . . .	21	80-99	88.45±0.46	3.15±0.33	3.56±0.37
Upper facial . . . . .	21	40-57	49.01±0.53	3.60±0.37	7.35±0.76
Nasal . . . . .	21	48-71	60.18±0.78	5.28±0.55	8.77±0.91
Ear . . . . .	21	45-76	59.46±0.92	6.28±0.65	10.56±1.10

\* Cephalic index, 80-x; nasal profile, convex and concavo-convex.

At this point we must examine the difference between the dark-eyed dolichocephals with convex and concavo-convex (Group C), and with straight profiles (Group D) and the brachycephals with convex and concavo-convex noses, and with no elimination being made with regard to mixed eyes (Group E).

## COMPARISON OF GROUPS C AND D\* WITH GROUP E

Measurements	Group C	Group D	GROUP C VS. E	
			Dolicho-convex vs. brachy-convex	GROUP D VS. E Dolicho-straight vs. brachy-convex
Age . . . . .	36.30	39.05	+2.15	+4.90
Stature . . . . .	165.87	165.54	+1.17	+0.84
Sitting height . . . . .	83.17	82.72	+3.30	+2.85
Head length . . . . .	188.25	189.33	+6.54	+7.62
Head breadth . . . . .	141.40	140.83	-7.02	-7.59
Minimum frontal diam. . . . .	113.42	111.14	-1.84	-4.12
Bizygomatic breadth . . . . .	133.85	132.90	-2.65	-3.60
Bigonial breadth . . . . .	107.98	108.14	-2.20	-2.04
Total facial height . . . . .	126.20	126.20	+5.65	+5.65
Upper facial height . . . . .	75.35	74.90	+4.80	+4.35
Nasal height . . . . .	56.42	55.62	+2.92	+2.12
Nasal breadth . . . . .	32.66	32.24	+0.24	-0.18
Ear length . . . . .	58.38	59.22	-0.84	0.00
Ear breadth . . . . .	35.52	35.34	+0.24	+0.06
Indices				
Relative sitting height . . . . .	50.18	49.66	+1.88	+1.36
Cephalic . . . . .	75.00	74.22	-7.56	-8.34
Fronto-parietal . . . . .	80.05	79.54	+2.19	+1.68
Zygo-frontal . . . . .	85.02	84.34	+0.08	-0.60
Zygo-gonial . . . . .	80.83	81.61	+0.12	+0.90
Total facial . . . . .	94.75	95.95	+6.30	+7.50
Upper facial . . . . .	53.30	53.72	+4.29	+4.71
Nasal . . . . .	58.30	58.14	-1.88	-2.04
Ear . . . . .	61.26	60.02	+1.80	+0.56

\* These two groups are also confined to individuals with a total facial index of 90-x and a nasal index of x-67.

The long-headed group (C) in contrast to the brachycephalic group (E), with convex or concavo-convex nasal profiles, are older, taller in stature, with a much greater sitting height, longer and narrower heads, narrower foreheads and faces, longer faces, particularly in the upper part of the face, longer and broader noses, and shorter and broader ears.

When we examine the differences between the straight-nosed dolichocephals (Group D) and the brachycephalic group with convex or concavo-convex noses (Group E), we see that the former are considerably older, slightly taller in stature and greater in sitting height, have longer and narrower heads, much narrower foreheads and faces, longer upper and total face heights, longer and slightly narrower noses, and ears almost the same in dimensions.

The straight and convex-nosed dolichocephals agree in the direction of their mean deviations from the brachycephals in eleven out of thirteen measurements (84.62 per cent) and in eight out of nine indices (88.89 per cent). The only divergent deviations are small and probably insignificant amounts in nasal breadth, ear length, and in the means of the zygo-frontal index.

The chief differences between the two dolichocephalic groups and the brachycephals are very marked as can be seen from the table. In other words, the brachycephals are without doubt a distinct racial group and there is no reason to suppose that the dolichocephals derived their large convex noses from a brachycephalic element.

In consequence we are brought to the conclusion that Iran, in the small areas I surveyed, has two predominant types, both dolichocephalic, narrow-faced, and narrow-nosed, both independent entities and characterized mainly by having either straight or convex and concavo-convex nasal profiles. Further, the large convex noses of the one group are not due to intermingling with a brachycephalic group, since the latter is a separate and distinct element differing markedly in measurements and indices from the two dolichocephalic groups.

One further consideration was that a still separate element of blondism as typified by the individuals with mixed eyes, might have been present in the population. Consequently the means, standard deviations, and coefficients of variation were calculated for the men with mixed eyes, the narrow-nosed, narrow-faced dolichocephals omitted from Groups A and B. These thirty-seven individuals having either straight or convex and concavo-convex noses were called Group F.

GROUP F*					
Measurements	No.	Range	Mean	S. D.	C.V.
Age	37	15-74	34.55±1.25	11.25±0.88	32.56±2.55
Stature	37	155-181	168.42±0.67	6.00±0.47	3.56±0.28
Sitting height	37	75-98	85.72±0.62	5.61±0.44	6.54±0.51
Head length	37	179-202	189.42±0.54	4.86±0.38	2.57±0.20
Head breadth	37	129-152	139.96±0.52	4.71±0.37	3.37±0.26
Minimum frontal diam.	37	105-120	112.66±0.38	3.44±0.27	3.05±0.24
Bizygomatic breadth	37	120-144	134.05±0.62	5.55±0.44	4.14±0.32
Bigonial breadth	37	94-125	106.62±0.64	5.76±0.45	5.40±0.42
Total facial height	37	120-144	127.80±0.57	5.10±0.40	3.99±0.31
Upper facial height	37	65-94	77.25±0.67	6.05±0.47	7.83±0.61
Nasal height	37	44-75	58.78±0.73	6.60±0.52	11.23±0.88
Nasal breadth	37	28-42	34.58±0.33	2.97±0.23	8.59±0.67
Ear length	37	48-67	58.14±0.44	4.00±0.31	6.88±0.54
Ear breadth	37	26-43	34.71±0.41	3.72±0.29	10.72±0.84
Indices					
Relative sitting height	37	46-57	51.04±0.24	2.16±0.17	4.23±0.33
Cephalic	37	68-79	74.04±0.30	2.70±0.21	3.65±0.29
Fronto-parietal	37	75-89	80.23±0.35	3.15±0.25	3.93±0.31
Zygo-frontal	37	76-95	84.30±0.34	3.08±0.24	3.65±0.29
Zygo-gonial	37	72-89	80.14±0.42	3.78±0.30	4.72±0.37
Total facial	37	90-109	96.20±0.42	3.75±0.29	3.90±0.31
Upper facial	37	43-66	55.19±0.49	4.41±0.35	7.99±0.63
Nasal	37	48-67	59.14±0.61	5.52±0.43	9.33±0.73
Ear	37	49-72	59.58±0.57	5.16±0.40	8.66±0.68

\*Cephalic index,  $x-79$ ; total facial index,  $90-x$ ; nasal index,  $x-67$ ; eye color, mixed. Group F is composed of individuals with mixed eyes from Groups A and B.

The group with mixed eyes (F) can now be compared to the dark-eyed dolichocephals with convex and concavo-convex noses (C)<sup>1</sup> and those with straight nasal profiles (D)<sup>1</sup> as well as to the total brachycephals (E).

COMPARISON OF GROUP F WITH GROUPS C, D, AND E

Measurements	Group F vs. Group C	Group F vs. Group D	Group F vs. Group E
Age.....	-1.75	-4.50	+0.40
Stature.....	+2.55	+2.88	+3.72
Sitting height.....	+2.55	+3.00	+5.85
Head length.....	+1.17	+0.09	+7.71
Head breadth.....	-1.44	-0.87	-8.46
Minimum frontal diameter.....	-0.76	+1.52	-2.60
Bizygomatic breadth.....	+0.20	+1.15	-2.45
Bigonial breadth.....	-1.36	-1.52	-3.56
Total facial height.....	+1.60	+1.60	+7.25
Upper facial height.....	+1.90	+2.35	+6.70
Nasal height.....	+2.36	+3.16	+5.28
Nasal breadth.....	+1.92	+2.34	+2.16
Ear length.....	-0.24	-1.08	-1.08
Ear breadth.....	-0.81	-0.63	-0.57
Indices			
Relative sitting height.....	+0.86	+1.38	+2.74
Cephalic.....	-0.96	-0.18	-8.52
Fronto-parietal.....	+0.18	+0.69	+2.37
Zygo-frontal.....	-0.72	-0.04	-0.64
Zygo-gonial.....	-0.69	-1.47	-0.57
Total facial.....	+1.45	+0.25	+7.75
Upper facial.....	+1.89	+1.47	+6.18
Nasal.....	+0.84	+1.00	-1.04
Ear.....	-1.68	-0.44	+0.12

Comparing Group F with the two dark-eyed dolichocephalic samples (C and D) and with the brachycephalic element (E), we find that F lies nearest Group C in twelve out of twenty-three measurements and indices: stature, sitting height, minimum frontal diameter, bizygomatic breadth, bigonial breadth, upper face height, nasal height and breadth, ear length, relative sitting height, fronto-parietal index, and nasal index. Group F lies nearest Group D, dark-eyed dolichocephals with straight noses, in but six measurements and indices: head length, head breadth, cephalic index, zygo-frontal index, and total facial and upper facial indices. Group F lies nearest the brachycephals in only three instances: ear breadth, zygo-gonial index, and ear index. In short it can be said that of the three groups our mixed-eyed dolichocephals (F) most closely resemble the dolichocephalic, dark-eyed people with convex noses (C).

In addition it will be noted that the actual divergence between means is least great in comparing F and C. The most marked dif-

<sup>1</sup> These dolichocephals have a total facial index of 90-x and a nasal index of x-67.

ferences are in stature, in facial, and in nasal heights, but they are not great enough to identify F as a distinct group.

On the other hand, the difference between the means is greatest when Group F is compared to the brachycephals (Group E), who also have mixed eyes. Again we have confirmation that the brachycephals are a distinct entity and show no evidence of having intermingled or lent their characteristics to the basic dolichocephalic population.

#### MORPHOLOGICAL OBSERVATIONS

The morphological observations were sorted into two classifications, corresponding to our original two most representative groups. Individuals with mixed eyes were not eliminated, since it was felt that they would influence these observations very little.

Group A: Cephalic index,  $x-79$ ; total facial index,  $90-x$ ; nasal index,  $x-67$ ; nasal profile, convex and concavo-convex.

Group B: Cephalic index,  $x-79$ ; total facial index,  $90-x$ ; nasal index,  $x-67$ ; nasal profile, straight.

It will be unnecessary to tabulate all the observations, particularly those which have incomplete records for all subjects examined. The following selection has been made. Before we examine the number of individuals and the percentages under each of the classificatory criteria it is important to record the number of individuals from each of the Iran series in Groups A and B.

Series	GROUP A		GROUP B		GROUP A+B	
	No.	Per cent	No.	Per cent	No.	Per cent
Lurs.....	20	27.77	16	28.57	36	28.13
Kinareh.....	21	29.18	13	23.21	34	26.56
Yezd-i-Khast.....	9	12.50	9	16.07	18	14.06
Jews.....	17	23.61	14	25.00	31	24.22
Rayy.....	5	6.94	4	7.14	9	7.03
Totals.....	72	100.00	56	99.99	128	100.00

#### HAIR

Form	GROUP A		GROUP B	
	No.	Per cent	No.	Per cent
Straight.....	0	.....	0	.....
Very low waves.....	10	14.49	4	7.69
Low waves.....	54	78.26	45	86.54
Deep waves.....	4	5.80	3	5.77
Curly-frizzly.....	0	.....	0	.....
Woolly.....	1	1.45	0	.....
Totals.....	69	100.00	52	100.00



Texture	GROUP A		GROUP B	
	No.	Per cent	No.	Per cent
Coarse.....	6	9.09	8	16.33
Coarse-medium.....	2	3.03	1	2.04
Medium.....	35	53.03	24	48.98
Medium-fine.....	5	7.58	6	12.24
Fine.....	18	27.27	10	20.41
Totals.....	66	100.00	49	100.00

Color	GROUP A		GROUP B	
	No.	Per cent	No.	Per cent
Black.....	22	31.88	18	35.29
Very dark brown.....	1	1.45	0	.....
Dark brown.....	29	42.03	20	39.22
Brown.....	1	1.45	0	.....
Light brown.....	0	.....	0	.....
Red.....	0	.....	0	.....
Reddish brown.....	3	4.35	4	7.84
Black and gray.....	6	8.70	8	15.69
Brown and gray.....	4	5.80	0	.....
Light brown and gray.....	0	.....	0	.....
Gray.....	0	.....	0	.....
White.....	3	4.35	1	1.96
Totals.....	69	100.01	51	100.00

EYES

Color	GROUP A		GROUP B	
	No.	Per cent	No.	Per cent
Black.....	0	.....	38	70.37
Dark brown.....	51	70.83	7	12.96
Blue-brown.....	8	11.11	0	.....
Blue-brown.....	0	.....	8	14.81
Green-brown.....	6	8.33	1	1.85
Green-brown.....	3	4.17	0	.....
Gray-brown.....	3	4.17	0	.....
Blue.....	1	1.39	0	.....
Gray.....	0	.....	0	.....
Light brown.....	0	.....	0	.....
Blue-gray.....	0	.....	0	.....
Blue-green.....	0	.....	0	.....
Totals.....	72	100.00	54	99.99

Iris	GROUP A		GROUP B	
	No.	Per cent	No.	Per cent
Homogeneous.....	50	74.63	40	74.07
Rayed.....	6	8.95	8	14.81
Zoned.....	11	16.42	6	11.11
Totals.....	67	100.00	54	99.99

Sclera	GROUP A		GROUP B	
	No.	Per cent	No.	Per cent
Clear.....	55	82.09	43	79.63
Yellow.....	0	.....	0	.....
Speckled.....	11	16.42	11	20.37
Bloodshot.....	0	.....	0	.....
Speckled and bloodshot.....	1	1.49	0	.....
Speckled and yellow.....	0	.....	0	.....
Totals.....	67	100.00	54	100.00

NOSE					
Profile	GROUP A		GROUP B		
	No.	Per cent	No.	Per cent	
Wavy.....	0	.....	0	.....	
Concave.....	0	.....	0	.....	
Straight.....	0	.....	56	<b>100.00</b>	
Convex.....	69	<b>95.83</b>	0	.....	
Concavo-convex.....	3	<b>4.17</b>	0	.....	
Totals.....	<b>72</b>	<b>100.00</b>	<b>56</b>	<b>100.00</b>	
Tip thickness					
- -.....	27	<b>52.94</b>	20	<b>51.28</b>	
Average.....	9	<b>17.65</b>	10	<b>25.64</b>	
+.....	14	<b>27.45</b>	8	<b>20.51</b>	
++.....	1	<b>1.96</b>	1	<b>2.56</b>	
Totals.....	<b>51</b>	<b>100.00</b>	<b>39</b>	<b>99.99</b>	
Wings					
Compressed.....	8	<b>11.11</b>	5	<b>8.93</b>	
Compressed-medium.....	6	<b>8.33</b>	9	<b>16.07</b>	
Medium.....	41	<b>56.94</b>	30	<b>53.57</b>	
Medium-flaring.....	13	<b>18.06</b>	11	<b>19.64</b>	
Flaring.....	3	<b>4.17</b>	1	<b>1.79</b>	
Flaring+.....	1	<b>1.39</b>	0	.....	
Totals.....	<b>72</b>	<b>100.00</b>	<b>56</b>	<b>100.00</b>	

TEETH					
Bite	GROUP A		GROUP B		
	No.	Per cent	No.	Per cent	
Under.....	0	.....	0	.....	
Edge-to-edge.....	2	<b>2.94</b>	3	<b>6.00</b>	
Slight over.....	49	<b>72.06</b>	42	<b>84.00</b>	
Marked over.....	17	<b>25.00</b>	5	<b>10.00</b>	
Totals.....	<b>68</b>	<b>100.00</b>	<b>50</b>	<b>100.00</b>	
Loss					
None.....	9	<b>21.43</b>	7	<b>22.58</b>	
1-4.....	21	<b>50.00</b>	16	<b>51.61</b>	
5-8.....	4	<b>9.52</b>	0	.....	
9-16.....	7	<b>16.67</b>	5	<b>16.13</b>	
17-32.....	1	<b>2.38</b>	3	<b>9.68</b>	
Totals.....	<b>42</b>	<b>100.00</b>	<b>31</b>	<b>100.00</b>	

When we examine the distribution of percentages in each of the two groups there appears a remarkable similarity throughout the five Iran series. Comparing Group B (C.I. x-79, T.F.I. 90-x, N.I. x-67, nasal profile straight) with Group A (nasal profile convex and concavo-convex), we see that in Group B the hair is slightly wavier, with more accentuated coarser elements, and darker in color.

The eyes are considerably darker, with a smaller percentage of mixed eyes, and the iris and sclera show but minor differences. The nasal profile is markedly different since this was one of the sorting

factors. The nasal tip is slightly thinner with the alae a little more compressed. The occlusion contains a lower percentage of individuals with marked over-bite.

We have seen (p. 426) that while Group B differs significantly from Group A only in nasal profile and in the minimum frontal diameter (p. 412) there are also indications of differences in stature, and in some head and face dimensions. When the morphological differences are added it is clear that these two groups are racially distinct.

On the basis of the foregoing discussions we can draw the following conclusions with regard to the individuals I measured in central and western Iran. The two largest and therefore most representative elements in the population were relatively dolichocephalic, narrow-faced and leptorrhine, distinguished from each other chiefly by a difference in nasal profile. One group was characterized by a straight nose, a slightly greater percentage by a convex or concavo-convex nasal profile. Beyond this, although statistically the two elements are not greatly differentiated, comparison of the morphological observations, in addition to the nasal characteristics, tends to establish them as separate entities.

To determine whether the large, convex-nosed dolichocephalic type was an inherent element in this Iranian population, we tabulated the statistics for our large-nosed brachycephalic individuals. It was at once clear that the brachycephals were in no way related to our representative dolichocephals. The large nose of the dolichocephals had not been adopted from this foreign element.

Furthermore, a fourth group of mixed-eyed dolichocephals, presenting a blond element, especially among the Lurs, appeared close to the large-nosed dolichocephals in measurements and indices.

It is therefore evident on the basis of these conclusions that the hook-nosed dolichocephalic type developed and may even have originated on the Iranian Plateau; the straight-nosed dolichocephals are closer to the Proto-Mediterranean type, whose modern representatives now dwell as Beduins in the wilderness of North Arabia. This hook-nosed dolichocephalic people appears as a new and possibly fundamental type of the Eurafican division of the so-called Whites, perhaps the original source of diffusion of the prominent convex-nosed group, scattered among many other racial stocks.

The plateau of Iran and a strip of equal breadth westward to the Mediterranean may well have been that area of the world in which

*Homo sapiens* developed. The mixed-eyed groups, indicating sub-merged blondism, must be classified under a Proto-Nordic category. The brachycephals undoubtedly pushed southward across the plains of Turkestan into Khurasan and also south from the mountain fastnesses of the Caucasus.

The basic element is long-headed and forms the central link in the chain of Mediterranean types from the Atlantic Ocean to the shores of the Pacific.

The machine sortings give the following individuals in each of the groups. The plate and figure numbers have been added for reference. These individuals have a cephalic index of  $x-79$ , total facial index of  $90-x$ , and nasal index of  $x-67$ .

#### GROUP D: Straight

3304: Pl. 124, Figs. 1, 2	3434: Pl. 56, Figs. 1, 2
3314: Pl. 119, Figs. 1, 2	3443 { Pl. 62, Figs. 1, 2
3324: Pl. 114, Figs. 1, 2	{ Pl. 1, Figs. 1, 2
3326: Pl. 119, Figs. 3, 4	3448: Pl. 51, Figs. 1, 2
3329 { Pl. 125, Figs. 3, 4	3449: Pl. 55, Figs. 3, 4
{ Pl. 1, Figs. 3, 4	3454 { Pl. 50, Figs. 1, 2
3330: Pl. 112, Figs. 3, 4	{ Pl. 2, Figs. 3, 4
3336: Pl. 91, Figs. 3, 4	3466: Pl. 138, Figs. 1, 2
3337: Pl. 82, Figs. 1, 2	3471
3344: Pl. 92, Figs. 3, 4	3480: Pl. 33, Figs. 1, 2
3349: Pl. 88, Figs. 1, 2	3490: Pl. 21, Figs. 3, 4
3350: Pl. 94, Figs. 3, 4	3509: Pl. 23, Figs. 1, 2
3358: Pl. 94, Figs. 1, 2	3516: Pl. 16, Figs. 1, 2
3361: Pl. 81, Figs. 1, 2	3518: Pl. 17, Figs. 1, 2
3365	3527
3371: Pl. 87, Figs. 3, 4	3552
3372: Pl. 83, Figs. 3, 4	3555
3384: Pl. 68, Figs. 1, 2	3556
3418: Pl. 65, Figs. 1, 2	3568
3420: Pl. 64, Figs. 3, 4	
3428: Pl. 60, Figs. 1, 2	
3430 { Pl. 59, Figs. 3, 4	
{ Pl. 2, Figs. 1, 2	

#### GROUP E: Brachycephals

3357: Pl. 71, Figs. 1, 2	3458: Pl. 138, Figs. 3, 4
3362 { Pl. 80, Figs. 3, 4	3475: Pl. 22, Figs. 3, 4
{ Pl. 5, Figs. 1, 2	3479: Pl. 33, Figs. 3, 4
3366: Pl. 86, Figs. 3, 4	3488: Pl. 31, Figs. 1, 2
3369: Pl. 87, Figs. 1, 2	3496: Pl. 29, Figs. 3, 4
3383 { Pl. 70, Figs. 1, 2	3502: Pl. 25, Figs. 3, 4
{ Pl. 11, Figs. 3, 4	3532
3390	3534
3436 { Pl. 52, Figs. 1, 2	3540
{ Pl. 5, Figs. 3, 4	3548
3438	3557
3453: Pl. 53, Figs. 3, 4	3569

GROUP F: Mixed eyes

3282	{ Pl. 120, Figs. 3, 4 Pl. 7, Figs. 1, 2	3327:	Pl. 113, Figs. 1, 2
3288:	Pl. 121, Figs. 3, 4	3328:	Pl. 128, Figs. 3, 4
3291	{ Pl. 123, Figs. 1, 2 Pl. 6, Figs. 3, 4	3342:	Pl. 76, Figs. 1, 2
3292:	Pl. 122, Figs. 1, 2	3380:	Pl. 73, Figs. 1, 2
3293:	Pls. 130, 131	3386:	Pl. 77, Figs. 3, 4
3294	{ Pl. 127, Figs. 3, 4 Pl. 7, Figs. 3, 4	3387:	Pl. 90, Figs. 1, 2
3297:	Pl. 117, Figs. 3, 4	3397	
3298:	Pl. 118, Figs. 3, 4	3400	
3301:	Pl. 110, Figs. 1, 2	3401	
3302:	Pl. 129, Figs. 1, 2	3456	
3308:	Pl. 116, Figs. 1, 2	3469	
3313	{ Pl. 108, Figs. 3, 4 Pl. 6, Figs. 1, 2	3470	
3318:	Pl. 129, Figs. 3, 4	3476	{ Pl. 32, Figs. 1, 2 Pl. 10, Figs. 3, 4
3319:	Pl. 124, Figs. 3, 4	3492:	Pl. 26, Figs. 1, 2
3321:	Pl. 125, Figs. 1, 2	3500:	Pl. 21, Figs. 1, 2
3323:	Pl. 112, Figs. 1, 2	3512:	Pl. 20, Figs. 3, 4
3325:	Pl. 113, Figs. 3, 4	3520:	Pl. 18, Figs. 3, 4
		3528	
		3544	
		3547	

GROUP C: Convex and concavo-convex

3281:	Pl. 120, Figs. 1, 2	3409:	Pl. 58, Figs. 3, 4
3283:	Pl. 116, Figs. 3, 4	3417:	Pl. 49, Figs. 3, 4
3285:	Pl. 121, Figs. 1, 2	3425	{ Pl. 64, Figs. 1, 2 Pl. 4, Figs. 3, 4
3286:	Pl. 118, Figs. 1, 2	3433:	Pl. 63, Figs. 3, 4
3299:	Pl. 105, Figs. 1, 2	3437:	Pl. 61, Figs. 3, 4
3306:	Pl. 111, Figs. 3, 4	3439:	Pl. 63, Figs. 1, 2
3307	{ Pl. 106, Figs. 1-4 Pl. 3, Figs. 1, 2	3444:	Pl. 51, Figs. 3, 4
3309:	Pl. 115, Figs. 1, 2	3446	
3311	{ Pl. 126, Figs. 3, 4 Pl. 3, Figs. 3, 4	3450	
3335:	Pl. 82, Figs. 3, 4	3460:	Pl. 140, Figs. 1, 2
3341:	Pl. 84, Figs. 3, 4	3461:	Pl. 137, Figs. 1, 2
3343:	Pl. 85, Figs. 1, 2	3464:	Pl. 140, Figs. 3, 4
3356:	Pl. 79, Figs. 3, 4	3472:	Pl. 139, Figs. 1, 2
3360:	Pl. 86, Figs. 1, 2	3478:	Pl. 28, Figs. 3, 4
3363	{ Pl. 88, Figs. 3, 4 Pl. 9, Figs. 3, 4	3483:	Pl. 34, Figs. 1, 2
3364:	Pl. 90, Figs. 3, 4	3487:	Pl. 30, Figs. 1, 2
3375	{ Pl. 69, Figs. 3, 4 Pl. 4, Figs. 1, 2	3491:	Pl. 31, Figs. 3, 4
3376:	Pl. 72, Figs. 1, 2	3497:	Pl. 19, Figs. 3, 4
3381		3508:	Pl. 20, Figs. 1, 2
3389		3517:	Pl. 27, Figs. 3, 4
3394		3533	
3396		3536	
3398		3537	
3404:	Pl. 72, Figs. 3, 4	3546	
3406		3553	
		3564	

IMPRESSIONAL SORTINGS OF PHOTOGRAPHS

The next stage in procedure is to examine the photographs, which already gave us the indications used for the mechanical sortings. The impressional types differ but little from those obtained statistically, with the exception that certain individuals can be

placed in definite categories which do not appear in the mechanical sortings. These sub-types, such as Mongoloid, Armenoid, Hamitic, etc., can be recognized by the summing up of several physical characters rather than by measurement, although in the Mongoloid types the bizygomatic breadth would show an increase and in the Armenoid the additional waviness of the hair and the eversion of the lips would be recorded. The photographic types can best be divided into Mediterranean and non-Mediterranean groups and sub-groups. The latter, which are easier to differentiate, will be left to the end since there appear to be several impressional Mediterranean types.

The individual number, plate, and figure number, and age of each individual is included in the following section.

#### MEDITERRANEAN TYPES AMONG PHOTOGRAPHS OF IRANIS

A number of variations of the Mediterranean type are recognizable in this Iran population and since this report can be but a preliminary study to the anthropometry of Iran it seems advisable to distinguish between these types with the full knowledge that after a detailed anthropometric survey is completed it may well be that many of these minor variations will merge into relatively few distinct types.

Before these types can be isolated it is necessary to bring some semblance of order out of the chaos as to definitions of the Mediterranean type and sub-types. In the text I shall deal summarily with the general consensus of definitions, relegating to Appendix A (pp. 515-534) a detailed summary, in chronological sequence, of these definitions as propounded by Ripley, Sergi, Deniker, Elliot Smith, Haddon, and Hooton, so that the reader may at his leisure compare these divergent opinions.

At this juncture, however, we must list the physical characters shared by all these definitions.

#### *General Characters:*

- (1) Build: slender and agile.
- (2) Stature: medium, about 165.0.
- (3) Head: long and narrow with dolicho-mesocephalic index, 73.0-77.0; medium in height; temples flat; occiput prominent; forehead vertical; brow ridges small.
- (4) Face: oval, narrow, and medium long; malars not prominent; chin medium, usually pointed; rarely slight prognathism.

- (5) Nose: narrow and medium long with lepto-mesorrhine index; generally straight, sometimes aquiline or even slightly concave; tip medium; alae medium in breadth.
- (6) Hair: dark brown to black; wavy; texture medium; quantity, abundant on head, medium on face and body.
- (7) Skin: light brown.
- (8) Eyes: medium to dark brown.

*Subdivisions of Mediterranean Race:*

- (1) Classic gracile Mediterranean type described by Sergi.
  - (a) Stock: brown, neither white nor Negroid, nor mixture.
  - (b) Skin: brown.
  - (c) Eyes: chestnut; horizontal; rather large.
  - (d) Hair: brown.
  - (e) Stature: medium, 160.0-170.0.
  - (f) Nose: lepto-mesorrhine.
  - (g) Lips: thin or slightly thick and fleshy.
  - (h) Ears: abstanding.
  - (i) Forehead: more vertical than receding, smooth, often short.
  - (j) Cheekbones: not high, not very wide.
  - (k) Face: not flattened, oval and ellipsoidal contour.
  - (l) Neck: long and cylindrical.
  - (m) Muscularity: well defined in males.
- (2) Crude or primitive Mediterranean type.
  - (a) Stature: medium to short.
  - (b) Head: dolichocephalic.
  - (c) Face: short and medium in width.
  - (d) Skin: medium to dark brown.
  - (e) Nose: straight or concave.
  - (f) Hair: dark brown; wavy; coarse texture; abundant.
  - (g) Lips: moderately full, often with some eversion.
  - (h) Forehead: slightly receding, rough.
  - (i) Muscularity: well developed in males.
  - (j) Cheekbones: medium high; medium wide.
  - (k) Neck: short and cylindrical.
- (3) Proto-Mediterranean type.

The term Proto-Mediterranean was proposed by the writer in 1932 to replace the monstrous term Proto-Semitic, which was based on a linguistic connotation. Proto-Mediterranean refers to the

ancestors of the modern Mediterranean variants. In physical appearance and probably in anthropometric measurements the Proto-Mediterranean resembled closely the modern Beduin or Sulubbi of North Arabia, who possesses a long, narrow head and face; nose medium in length and straight or aquiline; hair dark brown, low waves, medium to fine in texture; brow ridges and glabella not very prominent. In general physique these people were probably light in bone, small framed, and wiry. The Proto-Mediterraneans in their turn were descended from the upper Paleolithic hunters of southwestern Asia.<sup>1</sup>

The differences between a Sicilian fisherman (Mediterranean) and a Shammar camel driver (Proto-Mediterranean) can be seen in photographs better than they can be described in mere words.

When the photographs are sorted on the basis of racial elements in the population we see that certain individuals can be arranged in the following groups to form Mediterranean types and sub-types. The ages are given in the second parentheses.

- (1) Gracile Mediterranean: No. 3313 (Pl. 6, Figs. 1, 2; Pl. 108, Figs. 3, 4) (20).
- (2) Coarse Mediterranean: No. 3291 (Pl. 6, Figs. 3, 4; Pl. 123, Figs. 1, 2) (30).
- (3) Pure Mediterranean: Nos. 3384 (Pl. 68, Figs. 1, 2) (18), 3449 (Pl. 55, Figs. 3, 4) (30), 3452 (Pl. 59, Figs. 1, 2) (40), and 3443 (Pl. 1, Figs. 1, 2; Pl. 62, Figs. 1, 2) (45).
- (4) High-vaulted Mediterranean, straight or aquiline nose: Nos. 3307 (Pl. 3, Figs. 1, 2; Pl. 106, Figs. 1-4) (20), and 3287 (Pl. 117, Figs. 1, 2) (25).
- (5) Atlanto-Mediterranean or Pseudo-Nordic, long, narrow head, long and broad face, straight or slightly convex nose and a square, angular jaw: Nos. 3454 (Pl. 2, Figs. 3, 4; Pl. 50, Figs. 1, 2) (25), 3444 (Pl. 51, Figs. 3, 4) (25), 3423 (Pl. 60, Figs. 3, 4) (40), 3430 (Pl. 2, Figs. 1, 2; Pl. 59, Figs. 3, 4) (40), 3437 (Pl. 61, Figs. 3, 4) (42), 3439 (Pl. 63, Figs. 1, 2) (50), 3433 (Pl. 63, Figs. 3, 4) (52), 3425 (Pl. 4, Figs. 3, 4; Pl. 64, Figs. 1, 2) (60), 3420 (Pl. 64, Figs. 3, 4) (60), 3418 (Pl. 65, Figs. 1, 2) (60) and 3414 (Pl. 65, Figs. 3, 4) (70).

<sup>1</sup> Based on partly published archaeological evidence obtained by the writer as leader of Field Museum North Arabian Desert Expeditions, 1927, 1928, and 1934. See Bibliography.



- (6) South European: No. 3323 (Pl. 112, Figs. 1, 2) (24). In profile his features suggest those of a southern Italian with the characteristic long, narrow head, low wavy hair of dark brown color, dark brown eyes, straight, narrow nose, and thin lips.
- (7) North European: No. 3499 (Pl. 10, Figs. 1, 2; Pl. 29, Figs. 1, 2) (50). Here is an individual who could pass for an inhabitant of northwestern Europe. This type, which also occurs in England, is a Nordic-Mediterranean mixture.

In addition to these arbitrary divisions, the predominant Mediterranean types as observed by me on the Iranian Plateau and in the Hilla *Liwa* of Central Iraq do not exactly correspond in impressionable characters. In Iraq the Irano-Mediterranean would be conspicuous, and conversely in Iran the Iraquo-Mediterranean would appear out of place. Statistically the differences are slight but morphologically they are obvious.

The Irano-Mediterranean element in Iran, Nos. 3443 (Pl. 1, Figs. 1, 2; Pl. 62, Figs. 1, 2) and 3337 (Pl. 82, Figs. 3, 4), includes individuals who are medium in stature (165.0) and equal in trunk and leg length. The head is medium in length and breadth with a dolichocephalic to mesocephalic index; the face medium in length and breadth; the nose short, the alae medium, and the profile convex or straight with a small tip. The hair is dark brown, medium in texture with low waves; the eyes are dark brown, iris homogeneous, and sclera clear.

When compared with my Iraquo-Mediterranean type the Irano-Mediterranean is shorter in stature and in trunk length; head slightly longer but the same in breadth; face similar in upper widths but considerably broader in bigonial breadth; face slightly longer due to increase in length of upper face; nose shorter and narrower. The eye color and the color, form, and texture of the hair show no differences.

The Iraquo-Mediterranean element<sup>1</sup> in Iran, Nos. 3317 (Pl. 109, Figs. 1, 2) (20), 3320 (Pl. 111, Figs. 1, 2) (23), 3314 (Pl. 119, Figs. 1, 2) (28), 3298 (Pl. 118, Figs. 3, 4) (28), 3354 (Pl. 74, Figs. 3, 4) (28), and 3303 (Pl. 128, Figs. 1, 2) (37), comprises individuals who would not be conspicuous from the point of view of the anthropologist if observed in the Hilla *suq* or among the workmen at the Kish excavations. Keith (1935, p. 13) selected four Arabs of Mediterranean

<sup>1</sup>The Irano-Mediterranean and the Iraquo-Mediterranean representatives have been selected by examination of the racial type photographs.

type (Nos. 500, 504, 713, and 714) from among the Iraq Soldiers measured in 1928. A combination of these four individuals reveals a definite type whose main characteristics are as follows: head small, medium in length and breadth with a mesocephalic index; face medium in length and breadth; nose relatively short and broad; hair dark brown, with low waves, and medium in texture; eyes dark brown, sclera clear, and iris homogeneous; eyebrows tending to be heavy with some degree of concurrency; brow ridges rather heavy; nose straight or convex, alae medium-compressed (with numerous individuals at the other end of the scale).

The term *Homo Iranicus* now in use should be reserved for the precursor of the basic type in Iran and then only if it appears to have developed primarily on the Iranian Plateau. When a new name is given to a sub-species of the Hominidae the greatest care should be taken not to add confusion to the already existing state of chaos in regard to the use of proper terms and nomenclature. Bearing all this in mind I still believe that a new term is desirable to signify the basic population of Iran and in turn to differentiate this basic Irani from allied racial stocks in Iraq and in Afghanistan. I suggest the new term "Iranian Plateau Race" which differs from Haddon's *Irano-Mediterraneus* (p. 519) in that the former term is used in a far more restricted sense since it refers to the basic Mediterranean type now living in Iran, a type which I presume to be characterized by being dolichocephalic, leptoprosopic, leptorrhine, and markedly convex in nasal profile.

#### NON-MEDITERRANEAN TYPES AMONG PHOTOGRAPHS OF IRANIS

- (1) Armenoid or Anatolian mixed type with flattened occiput and large aquiline nose: Nos. 3375 (Pl. 4, Figs. 1, 2; Pl. 69, Figs. 3, 4) (20), 3311 (Pl. 3, Figs. 3, 4; Pl. 126, Figs. 3, 4) (35), 3409 (Pl. 58, Figs. 3, 4) (37), 3294 (Pl. 7, Figs. 3, 4; Pl. 127, Figs. 3, 4) (37), 3343 (Pl. 85, Figs. 1, 2) (40), 3363 (Pl. 9, Figs. 3, 4; Pl. 88, Figs. 3, 4) (40), and 3360 (Pl. 86, Figs. 1, 2) (40). In addition there is No. 3319 (Pl. 124, Figs. 3, 4) (30), who, although a Pusht-i-Kuh Lur, could pass for a Kurd from Sulaimaniya or Aqra in northeastern Iraqi Kurdistan.
- (2) Alpinoid type showing strong Alpine(?) or other broad-faced admixture. The face, which is round and broad, tends to be short and the forehead is wide: Nos. 3310 (Pl. 107, Figs. 3, 4) (20), 3308 (Pl. 116, Figs. 1, 2) (25), 3341 (Pl. 84, Figs. 3, 4) (40), 3453 (Pl. 53, Figs. 3, 4) (27),

- 3419 (Pl. 54, Figs. 1, 2) (30), 3455 (Pl. 55, Figs. 1, 2) (30), 3410 (Pl. 8, Figs. 1, 2; Pl. 49, Figs. 1, 2) (23), and 3351 (Pl. 80, Figs. 1, 2) (35).
- (3) Hamitic type: No. 3447 (Pl. 9, Figs. 1, 2; Pl. 57, Figs. 1, 2) (33). The Hamites of northeast Africa are characterized by having long, narrow heads with very long, narrow, ovoid faces.
- (4) Jewish type: Nos. 3514 (Pl. 15, Figs. 1, 2) (21), 3502 (Pl. 25, Figs. 3, 4) (42), 3476 (Pl. 10, Figs. 3, 4; Pl. 32, Figs. 1, 2) (55), and 3494 (Pls. 36, 37) (65). This type has been described in detail (pp. 304-306).
- (5) Negroid type: Nos. 3348 (Pl. 12, Figs. 1, 2; Pl. 89, Figs. 1, 2) (45), 3368 (Pl. 12, Figs. 3, 4; Pl. 93, Figs. 3, 4) (50). There is a definite Negroid strain in the population as emphasized by the wide alae, thick, everted lips, and in one case (No. 3348) by curly hair.
- (6) Mongoloid type: Nos. 3382 (Pl. 69, Figs. 1, 2) (20), 3383 (Pl. 11, Figs. 3, 4; Pl. 70, Figs. 1, 2) (21), 3359 (Pl. 81, Figs. 3, 4) (35), and 3369 (Pl. 87, Figs. 1, 2) (38), 3440 (Pl. 11, Figs. 1, 2; Pl. 57, Figs. 3, 4) (34). These individuals possess broad zygomatic arches and a tendency toward Mongoloid eyes. No. 3383 has marked Mongoloid features, particularly in the apparent lack of waviness in the hair. No. 3482 (Pl. 35, Fig. 4) (51), who shows certain Mongoloid features in the face and particularly in his coarse, leiotrichous beard, could pass for an inhabitant of Bukhara, Uzbek S.S.R.

## SUMMARY

The impressional sortings of the photographs yield results which differ but little from the mechanical sortings. The main deviations occur where it has appeared possible to make finer subdivisions of the Mediterranean and non-Mediterranean types, subdivisions which may or may not be confirmed when the anthropometric survey of Iran is completed.

In general, the population is Mediterranean in type although there is a slight admixture of brachycephaly, particularly in the northwestern and northeastern sections of the country where round-headed invaders have left their imprint on the modern population. The presence of the non-Mediterranean elements, such as Mongoloid, Negroid, Armenoid, Nordic, and Alpine, will be confirmed by

further study and their percentages indicated when the survey has been finished.

The general summary of mechanical and impressional types divides the modern peoples of Iran into the following categories:

I. *Iranian Plateau Dolichocephals*

- (1) Large, convex-nosed, leptorrhine, leptoprosopic, hyperdolichocephals with abundant hair.
- (2) Straight-nosed, square-jawed, long-faced dolichocephals of Mediterranean type.
- (3) Straight or concave, rather broad-nosed, square-jawed, short-faced dolichocephals of primitive Mediterranean type.
- (4) Mixtures of Nos. 1 and 2, possibly Proto-Nordic.

II. *Iranian Plateau Brachycephals*

- (1) Concave- or straight-nosed, square-jawed people with globular heads; possibly Proto-Alpine.
- (2) Markedly convex-nosed, with high-vaulted head and flattened occiput, Armenoid type.
- (3) Convex-nosed, long-faced, hypsicephals, possibly derived from Turkestan brachycephalic admixture with No. 1.

The true racial composition of Iran will be determined only after representative series from all areas are measured and observed.

It is to be hoped that the government of Iran will not only facilitate anthropometric studies by foreigners, but will encourage their own students to be trained for this purpose and to publish the main text of their results in the English language.

EXTERNAL RELATIONS WITH IRAN INCLUDING A SURVEY OF  
ANTHROPOMETRIC DATA FROM SOUTHWESTERN ASIA

Before examining the physical relationships and differences between the peoples of Iran and their neighbors it is desirable to refer to previous anthropometric work in Iran in addition to the data already quoted in Chapter III.

Prior to the World War, S. Weissenberg measured a number of Jews in Southwestern Asia. In Iran he studied groups in Shiraz, Meshed, and Urmia. For purposes of comparison, summaries of his statistical data have been included in the tables in this chapter (p. 442 passim).

The Kurds, measured by Chantre, Danilov, Ivanovskii, von Luschan, Duhouset, and Pittard will be included in my forthcoming report on the Kurds of Iraq. Since I did not measure any Kurds in Iran these data would be out of place here. Miss Eleanor Blish, of the American University of Beirut, measured 9 males and 41 females in northern Iran. The results were published by Kappers and Parr (1934, pp. 74-93) together with data regarding 115 Persians measured by the former in Beirut.

Dr. and Mrs. Harald Krischner, of the American University at Beirut, based their studies on the anthropology of Iran upon the measurements of 1,140 "Persians" including 838 males and 302 females. In addition they measured 55 male and 43 female Armenians from northern Iran, and 180 males and 65 females from New Julfa and Isfahan. In order to assimilate their data from various districts an arbitrary division of their results was made. The data were divided into three groups:

(1) Those from the north including Kermanshah, Qum, and Kashan to a line corresponding with the 34th parallel.

(2) Those from central Iran, mainly from Isfahan, and a series of Zoroastrians from Yezd.

(3) Those from southern Iran including Shiraz, Bushire, and Kerman.

It is indeed unfortunate that Dr. and Mrs. Krischner did not obtain other measurements in addition to the greatest occipital length and the maximum breadth of the head. The general racial grouping of peoples and their subdivision into component elements is indeed difficult even when based on a number of individual measurements, observations, hair and blood samples, and photographs. Furthermore, the time and effort required to obtain these additional data is little in comparison to the struggle and patience involved in obtaining the necessary permits and the actual persuasion of the individual to submit to anthropometric procedure. On the other hand, I agree fully that there is a limit to the endurance of the subject and only the experienced physical anthropologist can draw that fine line with reasonable discretion and certainty.

Although a random sample is helpful in determining the racial structure of a population, it is always more advisable to obtain the sample of a population near its center. It must also be noted that there always exists the oriental tendency to please the interrogator, particularly if *bakshish* is being given for submitting to measurements, observations, and photographs.

The graphs of the cephalic indices of the northern group of males and females measured by the Krischners show peaks at 74, 79, and 83. Graphs prepared by Kappers based on 162 individuals from northern Iran show remarkable similarity. Kappers (1934, p. 80) suggests that this 83 peak is probably caused by Caucasian influence. Von Erckert and Djawachischwili found sub-brachycephalic indices in the western Caucasus. This 83 peak practically disappears among the peoples studied in central Iran.

In order to summarize the statistical material I have prepared the following table based on Kappers' data on the cephalic indices:

Location	Individuals	Peaks	Observer
Azerbaijan	114 males, 21 females	77-79, 81	Chantre
North	125 males, 41 females	74, 79, 83	Kappers
North	34 males	77-79	Danilov
North	?	74, 79, 83	} Krischner
Isfahan	males and females	78	
Yezd (Zoroastrians)	103 males, 16 females	73-74	
Abadeh	51 males, 12 females	73-74	
Southwest	153 males, 22 females	77-78	

Under some of the groups measured during 1934 I have added other comparative statistical data obtained by Weissenberg, von Erckert, Chantre, Kappers, and Krischner.

It is unnecessary to repeat here the work of de Khanikoff, Danilov and numerous other physical anthropologists since extracts from their results have been included either in the historical sections (Chapter III) or in the comparative tables in this chapter.

The asterisk appearing in the tables indicates that the index was derived from the mean of the measurements.

In this chapter I have already dealt with the four groups studied in Iran, including under the Jews of Isfahan some comparative statistical data to show the position of these Jews in relation to other groups of Jews in this general area.

It remains now to compare the four Iran groups with the three 1928 series from Iraq. I shall presume that the reader will have access to my "Arabs of Central Iraq, their History, Ethnology, and Physical Characters" so that not only the raw data, statistical summaries, and photographs are available, but also the Introduction (pp. 11-76) by Sir Arthur Keith.

The figures obtained by the writer on Kish Arabs, Iraq Soldiers, and Ba'ij Beduins during 1928 when a member of the Field Museum-Oxford University Joint Expedition to Kish have been recalculated at Harvard so that the results can be compared directly with those from Iran. The individuals seventeen and younger and seventy-one

or older have been omitted and the sortings have been done on the Hollerith machines. For these reasons there are some slight differences from the figures published (Field, 1935b).

The figures listed under Buxton and Rice were obtained at Kish and at the Hilla Army Camp in January, 1926, by Buxton. During this work I acted as recorder. The mean measurements of these 164 men have been recalculated since I felt that there were two distinct groups, those from the Kish area and the series of Iraq Soldiers measured at Hilla. Consequently the number of individuals and the mean measurements differ from the figures published by Buxton and Rice (pp. 57-119), and Field (1935b, p. 101).

In addition to these I have incorporated the small groups of South Arabs, Egyptians, Chatri Caste, and Pathans used by Keith for purposes of comparison. The following abbreviations will be used in these tables:

## LIST OF ABBREVIATIONS

People	No. of men	Abbreviation
<i>Iran</i>		
Hassan Kuli Khan Lurs of Pusht-i-Kuh . . . . .	52	L
Yezd-i-Khast villagers . . . . .	46	Y
Kinareh villagers . . . . .	74	K
Jews of Isfahan . . . . .	87	J
<i>Iraq</i>		
Arabs living in Kish		
area, Hilla <i>Liwa</i> . . . . .	398	K
Nos. 1-50, camp Sheikh Miniehil . . . . .	50	K <sub>1</sub>
Nos. 100-149, camp Sheikh Miniehil . . . . .	50	K <sub>2</sub>
Nos. 200-249, camps of Sheikh Swadi and <i>Sayyid</i> Ruda . . . . .	50	K <sub>3</sub>
Camps of Sheikh Hunta and Sheikh Aziz . . . . .	50	K <sub>4</sub>
Iraq Soldiers at Hilla Army Camp . . . . .	231	S
Nos. 500-550, born near Kish, at Hilla, An Nasiriya, etc. on Euphrates side of plain . . . . .	50	S <sub>1</sub>
Nos. 553-671, born in An Nasiriya or Hilla . . . . .	50	S <sub>2</sub>
From Baghdad, Kirkuk, Mosul, and Sulaimaniya . . . . .	50	S <sub>3</sub>
Ba'ij Beduins between Kish and Jemdet Nasr . . . . .	38	B
<i>Arabia</i>		
South Arabs of Bertram Thomas . . . . .	35	SA
<i>Africa</i>		
Egyptians, Kharga Oasis, of Hrdlička . . . . .	50	E
<i>India</i>		
Pathans, Punjab, of H. H. Risley . . . . .	50	P
Chatri Caste, United Provinces, of H. H. Risley . . . . .	50	C

The villagers of Yezd-i-Khast and Kinareh, two relatively homogeneous groups, for our purpose can typify the modern inhabitants of southern central Iran. The Lurs of Pusht-i-Kuh show significant differences from these two groups and the Jews of Isfahan must also be treated in a special manner.

Since the three Iraq groups, composed of Arabs of the Kish area, Iraq Soldiers at Hilla army camp, and Ba'ij Beduins of central Iraq, were measured with the same technique, they can be compared with a certain degree of assurance. Consequently in this section devoted to a survey of the external relations with Iran I have discussed in some detail the seven groups measured by the writer in Iran during 1934 and in Iraq during the spring and early summer of 1928.

It seemed desirable, however, to extend the comparison to groups of other writers whose results were based on similar methods, in order to indicate the position of the peoples of Iran in relation to their neighbors. Comparative tables of these figures appear in the following geographical order:

- |                        |              |                              |
|------------------------|--------------|------------------------------|
| 1. Iran                | 5. Palestine | 9. Kurdistan                 |
| 2. Iraq                | 6. Syria     | 10. Turkestan                |
| 3. Arabia <sup>1</sup> | 7. Anatolia  | 11. Afghanistan              |
| 4. Trans-Jordan        | 8. Caucasus  | 12. Baluchistan <sup>2</sup> |

Kurdistan here designates the entire area known by that name, whether it lies in Anatolia, Iraq, or Iran.

In selecting the comparative data from Turkestan I have drawn from the tables published by V. V. Ginzburg (see Bibliography). The Baluchistan figures, selected from the Ethnographic Survey of India (Calcutta, 1908), were drawn to my attention by Dr. Gordon T. Bowles.

To complete the picture some of Guha's figures from the "Census of India, 1931," have been quoted. Our preliminary comparative survey<sup>3</sup> of Southwestern Asia thus examines racial trends from the Aden Crown Colony and Protectorate to Ceylon.

<sup>1</sup> From April to October, 1936, S. A. Huzayyin of the University of Cairo measured 800 men in the Yemen and 550 individuals in the Hadramaut.

<sup>2</sup> See Edward E. Oliver.

<sup>3</sup> In these tables groups of individuals ten or under in number have been placed in footnotes in order not to confuse the issues. Since this is the first attempt to compile the anthropometric data for Iran and neighboring countries even these small groups have some slight value. The country, group, number of individuals, mean and observer are recorded in ascending order within each geographical area, e.g. Iran: Lurs (5), 170.0, Houssay.



I have not attempted to use all the references<sup>1</sup> but rather a selection has been made of data obtained by reliable observers and accurate calculators, which precluded in some cases otherwise valuable material. In compiling these tables I am grateful to Dr. Carleton S. Coon and to Dr. Carl C. Seltzer of the Peabody Museum, Harvard University, for calling my attention to numerous references. The historical section (Chapter III) contains numerous tables of measurements, which have not been repeated here. In my forthcoming book, "The Anthropology of Iraq," the tables of comparative data from Southwestern Asia will be far more extensive, but since we are dealing here primarily with Iran and Iraq, there seems to be some justification for certain omissions.

Although the figures are arranged in ascending order under each geographical division, where there are a number of groups under the same heading, e.g. Bakhtiaris, Turks, Armenians, etc., these have been linked together. This seems to me to be a more satisfactory method than the more usual descending scale where tribes or racial divisions have not been grouped and may thus be scattered sporadically throughout the table.

I have attempted to prepare distribution maps for stature, head form and nasal index but the dearth of measurements throughout Southwestern Asia makes this at present inadvisable.

The anthropometric data will be treated in the following order of measurements and indices: stature, sitting height (trunk length), relative sitting height, head length, head breadth, cephalic index, minimum frontal diameter, fronto-parietal index, bizygomatic breadth, zygo-frontal index, bigonial breadth, zygo-gonial index, upper facial height, upper facial index, total facial height, total facial index, nasal length, nasal breadth, nasal index, ear length, ear breadth, and ear index.

*Stature.*—When the Iran and Iraq groups are compared according to the Harvard threefold classification we have the following table:

PEOPLE	MEAN	SHORT ( $x-160.5$ )		MEDIUM ( $160.6-169.4$ )		TALL ( $169.5-x$ )		TOTALS
		No.	Per cent	No.	Per cent	No.	Per cent	
Yezd-i-Khast....	164.79	12	26.09	24	52.17	10	21.74	46
Isfahan Jews....	164.94	19	22.09	49	56.98	18	20.93	86
Kinareh.....	165.54	16	21.62	40	54.05	18	24.32	74
Ba'ij Beduins....	168.18	3	8.57	18	51.43	14	40.00	35
Kish Arabs.....	168.30	39	11.47	148	43.53	153	45.00	340
Lurs.....	168.63	3	5.77	26	50.00	23	44.23	52
Iraq Soldiers.....	172.56	2	0.90	66	29.73	154	69.37	222

<sup>1</sup> See William Z. Ripley.

Examination of the means in the above table shows that the Iraq Soldiers are the tallest (172.56) and the Yezd-i-Khast villagers the shortest (164.79) in stature. As a whole the Iran groups are markedly shorter than the Iraq samples. The Lurs, who are an exception to this observation, may be said not to represent Iran since they belonged to an occupational group, as do the Iraq Soldiers, where physical selectivity must be recognized as a factor. It must, however, be noted that Houssay's mean for five Lurs (168.0) approximates my series of Lurs.

Upon examination of stature ranges in Southwestern Asia we find that the Lurs are within the averages for Iran, and that the Azerbaijanis and a very small sample of Bakhtiaris are somewhat taller.

STATURE <sup>1</sup>			
<i>Iran</i>			
People	No.	Mean	Author
Yezd-i-Khast	46	164.8	} Field
Jews (Isfahan)	86	164.9	
Ajemis (Tehran Province)	108	165.1	Deniker
Kinareh	74	165.5	Field
Persians	154	165.66	Danilov
Persians	204	166.9	Djawachischwili
Lurs (Push-t-i-Kuh)	52	168.6	Field
Azerbaijanis	35	169.6	Danilov
Iranians (Northern)	50	170.7	Maslovskii
<i>Iraq</i>			
Jews	37	164.1	Weissenberg
Ba'ij Beduins	35	168.2	} Field
Kish Arabs	340	168.3	
Kish Workmen	95	168.39	Buxton and Rice
Arabs	32	171.28	Ehrich
Iraq Soldiers (Hilla)	63	171.63	Buxton and Rice
Iraq Soldiers	222	172.6	Field
<i>Arabia</i>			
Arabs (Sheher)	31	161.6	Leys and Joyce
Arabs	133	162.8	Deniker
Arabs	29	164.28	Mochi
Yemenis	20	164.8	Leys and Joyce
Arabs (Muscat)	31	164.8	Deniker
Arabs (Muscat)	82	164.9	Leys and Joyce
<i>Trans-Jordan</i>			
Akeydat Beduins	120	168.5	} Shanklin
Mualy <sup>2</sup> Beduins	176	170.12	
<i>Palestine</i>			
Samaritans	27	171.07	Szpidbaum
Samaritans	35	173.0	Huxley

<sup>1</sup>Iran: Ajemis (2), 161.5, Houssay; Ajemis (Tehran) (2), 161.5, Duhousset; Dizfulis (9), 163.3, Houssay; Ajemis (9), 165.0, Chantre; Persians (5), 165.8, Bogdanov after Fedchenko; Bakhtiaris (4), 167.0, Gautier; Lurs (5), 168.0, Houssay; and Bakhtiaris (3), 171.5, Houssay. Iraq: Turkoman Arabs (6), 168.17, Ehrich; and Turkoman Kurds (7), 171.43, Ehrich.

<sup>2</sup>Shanklin prefers the spelling Maualy.

*Syria*

People	No.	Mean	Author
Rwala Beduins.....	270	161.89	Shanklin
Syrians.....	...	162.8	Sommier
Syrians.....	251	167.19	Seltzer

*Anatolia*

Turks (E. Provinces).....	32	165.6	Wagenseil
Bektash (Ankara).....	14	166.14	Crowfoot
Turks (Brussa).....	38	166.4	} Wagenseil
Turks (Ankara).....	44	166.5	
Turks (Osmanli) <sup>1</sup> .....	362	166.0	Deniker
Turks (Konia).....	44	167.0	} Wagenseil
Turks (Total).....	272	167.2	
Turks (Dardanelles).....	34	167.6	
Tachtadshy and Bektash.....	50	167.7	von Luschan
Turks.....	200	167.92	Hasluck and Morant
Turks (Kastamuni).....	41	168.1	} Wagenseil
Turks (Smyrna).....	39	168.9	
Turks (Osmanli).....	120	171.0	Deniker
Assyrians.....	22	166.0	Chantre
Assyrians (Lake Urmia).....	33	166.8	Deniker

*Caucasus*

Armenians.....	20	164.6	Weissenberg
Armenians (Tblisi Province).....	792	165.2	Deniker
Armenians.....	...	166.1	Pittard
Armenians.....	101	166.16	Seltzer
Armenians.....	75	167.04	Boas
Armenians.....	105	167.10	Twarjanowitsch
Armenians.....	25	167.4	Hrdlička
Armenians.....	...	168.5	} Chantre
Armenians.....	239	169.44	
Armenians (Trans-Caucasus).....	192	169.4	Deniker
Jews (Georgia).....	37	163.6	} Weissenberg
Jews.....	33	164.0	
Lesghians.....	11	164.0	} Chantre
Jews (Georgia).....	11	164.1	
Georgians.....	900	165.5	Dzhavahov
Azerbaidzhanis.....	288	167.5	Deniker
Ossetes.....	...	168.0	Pittard
Ossetes.....	...	169.0	Riskin
Tatars (Aralych).....	16	169.0	} Chantre
Tatars (Arkhuri).....	15	170.0	

*Kurdistan*

Kurds (Kharput and Erzinghin).....	23	167.0	} Chantre
Kurds (Milanli).....	20	167.0	
Kurds (Turkey, Yerevan, Iran).....	284(?)	168.0	
Kurds.....	162	168.3	Danilov
Kurds.....	...	168.6	Tschepurkowsky
Kurds (Caucasus).....	140	168.6	Deniker
Kurds.....	20	168.6	Pantiukhov
Kurds.....	...	170.0	} Pittard
Kurds.....	48	170.7	
Kurds.....	63	170.7	Deniker

*Turkestan*

Arabs.....	17	163.7	Maslovskii
Bukhara.....	163	163.71	Oshanin

<sup>1</sup> In this series 288 came from Asia Minor.

*Turkestan (Continued)*

People	No.	Mean	Author
Turkomans (Turki).....	...	163.8-167.6	Haddon
Vanch.....	80	164.05	Korovnikov
Arabs.....	100	165.72	Oshanin
Pendzhikent.....	279	165.88	Vishnevskii
Iomuds.....	107	166.34	IArkho
Karategin.....	433	166.39	Oshanin
Arabs.....	29	166.4	Maslovskii
Chaudirs.....	200	166.51	IArkho
Pschem Valley and Bukhara region	100	166.8	.....
Kara-Kirghiz.....	74	166.8	} Deniker
Sarts.....	54	166.8	
Turkomans.....	53	167.0	
Ersari.....	125	167.0	Oshanin
Uzbeks.....	120	168.3	Deniker
Tadzhiks (Sarts).....	...	168.4	Maslovskii
Tadzhiks and Galchas.....	155	169.2	Deniker
Ferghana.....	200	169.45	IArkho
Teke.....	51	170.0	Iavorskii
Gypsies.....	29	171.9	Deniker
<i>Afghanistan</i>			
Afghans.....	18	163.8	Matseevskii
Afghans.....	18	168.1	Poiarkov
Hazara.....	..	168.4	Haddon
<i>Baluchistan</i>			
Dehwari.....	200	164.25	.....
Sayad.....	33	164.55	Joyce and Stein
Brahui (Sarawan).....	...	165.9	Haddon
Pani, Pauni (Pushta).....	100	167.64	.....
Biloch.....	35	167.89	} Joyce and Stein
Seistani.....	25	168.51	

On the basis of the above comparative tables the mountainous regions of western and northwestern Iran seem to contain peoples of taller stature than the central southern area. The South Arab appears to be very short (range 161.6-164.9) while the Beduins of Trans-Jordan are tall (means 168.50 and 170.12). The Samaritans of Palestine are the tallest of these groups (means 171.1 and 173.0). In Syria the Rwala Beduins are very short (161.89) while the groups published by Seltzer (p. 3) have a mean of 167.2, which is relatively tall. In Anatolia there is considerable variation from 165.6 to 171.0, the majority being about 167.0. The Armenians of the Caucasus range from 164.6 to 169.4, the latter figure being nearer the mean. The Jews of this mountain region are very short (163.6-164.1) while the Tatars of Arkhuri are the tallest (170.0). In Kurdistan, a term used in its widest application, the Kurds are tall (167.0-170.7). The figures from Turkestan show a range of 163.7 to 171.9 and indicate a relatively tall population composed of several racial groups.

The stature for central southern Iran, Arabia, Baluchistan, and Syria is included in a low range of 161.5 to 168.6; northern Iran, Iraq,

Trans-Jordan, Palestine, Kurdistan, and Turkestan have a higher range (163.7–173.0), and Anatolia, Afghanistan, and the Caucasus fall intermediately between these extremes.

Attention must be drawn at this point to Guha's figures from India.

Northwest and northeast	West coast and south	
Rajputana.....168.442	Guzrat and Kathiawar. {	
United Provinces....165.478		164.860
Orissa.....164.292		164.269
Bengal..... {	164.782	
	167.005	
	168.030	Southern India..... {
167.071	163.555	
162.826	168.997	
	159.490	
	164.068	

Among the peoples of the northwest and northeast the range is from 162.8 to 168.4, indicating a range of stature not far above the mean for the southern portion of the Iranian Plateau. In Rajputana, according to Haddon (p. 107), the stature of the Bhil of Mewar is 162.9. Guha's figures from Guzrat and Kathiawar on the central west coast are 164.3 to 167.0, and from southern India the range is from 159.5 to 169.0. Haddon (p. 107) observes that the pre-Dravidians were short (157.5) in stature.

The peoples of central southern Iran are short in stature, while the Lurs, Bakhtiariis, and inhabitants of Azerbaijan are tall. In Iraq, especially in the northern area, all the groups, except the Jews, tend to be tall. My unpublished figures on the Al bu Muhammad and Al Suwa'ad "Marsh Arabs" of southern Iraq indicate a medium stature. The South Arabs are short. In Trans-Jordan the Beduins are medium to tall. The Rwala are short but the Boston Syrians are slightly above medium. In Anatolia the Turks (165.6–171.0) are medium to tall.

In the Caucasus area the Armenians (164.6–169.4) show considerable variation but 792 individuals (165.2) are medium to short. Jews and Lesghians are short. A group of Georgians are medium to short (165.5). The Ossetes and Tatars tend to be tall (168.0–170.0).

In this area where there are so many diversified racial, linguistic, and cultural stocks wide variations in physical measurements and observations naturally occur.

The inhabitants of Kurdistan and Turkestan are medium to tall, while the Afghans and Baluchis are medium in stature.

Reviewing the entire area, we find a general tendency toward shortness in stature along the periphery adjoining the Arabian Sea from the Straits of Bab el Mandeb to Cape Cormorin.

In the mountains of western Iran, in Kurdistan, Afghanistan, Anatolia, and northern India, there is a trend toward tallness.

Thus the peoples in the southern part of the area under consideration are medium to short while those in the mountains and northern region appear to be medium to tall in stature. These trends may become more marked or even disappear in the light of additional data.

*Sitting Height.*—Although the comparative table of sitting height will not be so extensive, several indications are at once evident. The three groups of central Iran (79.66–81.97) have the shortest trunk lengths in the area under consideration, as might be expected from our observations on standing height. My three groups from central Iraq (82.51–85.09) fall next in scale, followed by the Akeydat, Mualy, and Rwala Beduins of Trans-Jordan and Syria (82.69–86.80), and then by the groups from Anatolia, the Caucasus, and Seltzer's Syrians (86.9–88.8). Ehrich's groups from northern Iraq, Turkomans, Kurds, and Arabs, all measured near Kirkuk, have, with the exception of the Lurs (89.11), the greatest trunk length (88.0–91.3) of any peoples in these areas.

SITTING HEIGHT (Trunk Length) AND RELATIVE SITTING HEIGHT

People	No.	<i>Iran</i>		Author
		SH	RSH	
Yezd-i-Khast.....	46	79.66	48.16	} Field
Jews (Isfahan).....	86-7	80.84	49.20	
Kinareh.....	74	81.97	49.74	
Lurs (Pusht-i-Kuh).....	52	89.11	52.84	
		<i>Iraq</i>		
Kish Arabs.....	340-2	82.51	49.08	} Field
Ba'ij Beduins.....	35	83.38	49.76	
Iraq Soldiers.....	222	85.09	49.30	
Turkoman Arabs.....	6	88.00	52.00	} Ehrich
Turkoman Kurds.....	7	90.14	52.29	
Turkomans.....	31	90.16	53.06	
Arabs (Kirkuk).....	32	90.22	52.47	
		<i>Trans-Jordan</i>		
Akeydat Beduins.....	120	85.96	50.54	} Shanklin
Mualy Beduins.....	176-7	86.80	50.54	
		<i>Syria</i>		
Rwala Beduins.....	270	82.69	51.11	Shanklin
Syrians.....	233	88.09	52.42	Seltzer
		<i>Anatolia</i>		
Turks.....	200	88.29	52.36	Pittard
Turks.....	200	88.29	52.36	Hasluck and Morant
Turks (Osmanli at Ankara and Konia).....	47	88.8	.....	Zupanic
		<i>Caucasus</i>		
Jews (Georgia).....	19	86.9	53.00	Weissenberg
Armenians.....	98	88.58	53.37	Seltzer
Armenians.....	.....	.....	53.6	Martin
		<i>Kurdistan</i>		
Kurds.....	48-63	88.40	51.78	Pittard
Kurds (Iraq).....	13	91.30	53.38	Ehrich

Any consideration of sitting height, however, is comparatively without meaning unless the stature is taken into consideration. The following table indicates the relationship of these measurements and consequent body proportions for my groups in Iran and Iraq.

People	No.	Stature	SH	RSH	LL
Yezd-i-Khast.....	46	164.79	79.66	48.16	85.13
Jews (Isfahan).....	86	164.94	80.84	49.20	84.10
Kinareh.....	74	165.54	81.97	49.74	83.57
Ba'ij Beduins.....	35	168.18	83.38	49.76	84.80
Kish Arabs.....	340	168.30	82.51	49.08	85.79
Lurs.....	52	168.63	89.11	52.84	79.52
Iraq Soldiers.....	222	172.56	85.09	49.30	87.47

It is evident that there is considerable variation between the trunk length and stature because the Lurs, with the greatest trunk length (89.11), are not the tallest group, due to their having the shortest legs (79.52). The Iraq Soldiers possess the greatest stature (172.56) but are relatively short (85.09) in trunk length. With the exception of the Lurs and the Yezd-i-Khast villagers the relative sitting height index is remarkably uniform, the range of variation for the other five groups being only from 49.08 to 49.76, which designates equal proportions in trunk and limb length. The Lurs have relatively the longest trunks and the Yezd-i-Khast villagers relatively the shortest trunks.

The following table comprises Ba'ij Beduins, two groups of Kish Arabs, Kharga Oasis Egyptians, and one group of Iraq Soldiers. Comparing it with the table for Iran groups (p. 394), we find more significant differences.

	SITTING HEIGHT (Trunk length)					TOTALS
	VERY LONG (900-x) Per cent	LONG (899-850) Per cent	MEDIUM (849-800) Per cent	SHORT (799-750) Per cent	VERY SHORT (x-749) Per cent	
Standing height						Per cent
Very tall..... (1800)	B.....	.....	.....	.....	.....	.....
	K <sub>1</sub> , K <sub>2</sub> .....	1.00	.....	.....	.....	1.00
	E.....	.....	.....	.....	.....	.....
Tall..... (1799-1700)	S <sub>1</sub> .....	2.00	2.00	.....	.....	4.00
	B.....	2.63	18.41	7.89	2.63	31.56
	K <sub>1</sub> , K <sub>2</sub> .....	12.00	20.00	4.00	.....	36.00
Medium..... (1699-1600)	E.....	10.00	2.00	.....	.....	12.00
	S <sub>1</sub> .....	4.00	14.00	38.00	8.00	64.00
	B.....	2.63	7.89	39.45	10.52	60.49
Short..... (1599-x)	K <sub>1</sub> , K <sub>2</sub> .....	1.00	4.00	25.00	19.00	50.00
	E.....	.....	34.00	38.00	.....	72.00
	S <sub>1</sub> .....	2.00	4.00	20.00	6.00	32.00
Totals.....	B.....	.....	5.26	2.63	.....	7.89
	K <sub>1</sub> , K <sub>2</sub> .....	.....	.....	2.00	4.00	7.00
	E.....	.....	14.00	2.00	.....	16.00
	S <sub>1</sub> .....	.....	.....	.....	.....	.....
	B.....	5.26	26.30	52.60	15.78	Men 38
	K <sub>1</sub> , K <sub>2</sub> .....	1.00	17.00	47.00	27.00	8.00
	E.....	.....	44.00	54.00	2.00	50
	S <sub>1</sub> .....	6.00	20.00	60.00	14.00	.....
						50

None of the samples has a single individual in the tall group with very short trunk length nor any one in the very tall group with short or very short trunk lengths. There are also no short men with very long trunks and only two men (Lurs, 3.84 per cent) with short stature and long trunks. As might be expected from the averages there are almost twice as many tall Iraq Soldiers as there are tall men in any of the other seven groups. The Lurs, however, in contrast not only to the Iraq but also to the Iran groups, have a stature dependent to an unusual extent on trunk length since there are 90.24 per cent with long and very long trunks, in contrast to the Iraq Soldiers who are taller but have only 26.00 per cent with long trunks. The Egyptians whose average we do not have but who are evidently shorter than the other groups, with 88.00 per cent in the medium and short groups, are more similar to the Lurs than to any of the other three Iran groups, having 44.00 per cent with long trunks.

In general the Egyptians present a more compact, homogeneous array, as there are no stragglers in either high or low extreme classes of sitting and standing height, 98 per cent of them being short to tall in stature and medium to long in trunk length.

Although the Iraq groups show a slight tendency toward medium stature and very long trunk there is no instance of this among the Iran groups, with, of course, the exception of the Lurs. The Ba'ij Beduins, who are shorter than the other Iraq groups, have a greater percentage of men in the divisions comprising long trunks and tall stature. As one would expect, this is also true of the Ba'ij Beduins with regard to the three shorter Iran groups, but it must be noted that although short the Jews and Kinareh villagers have representatives who are very tall and very long-trunked, which is not true of the Iraq people.

There appears to be a remarkable similarity in relative sitting height between all the available data from Southwestern Asia as seen in the table on page 446. The maximum variation is from 48.16 to 53.38. Closer examination reveals that the Yezd-i-Khast and Kinareh groups, as well as the three Iraq groups, show a range of only 48.16 to 49.76. All other series, including those from northern Iraq, Trans-Jordan, Syria, Anatolia, the Caucasus, and Kurdistan, are above 50.0, so that there may well be some racial significance in this small variation; the peoples in a rectangle formed by the 32°-34° north latitude from eastern Trans-Jordan to Syria to southern central Iran seem to vary only from 48.16 to 49.76. The index appears to be higher in the mountainous regions to the north of this arbitrary



rectangle, and since these peoples, with the exception of the Caucasus Jews, are generally tall we come to the conclusion that there must be a greater tendency to length of trunk than among the more southern groups.

*Head Length, Head Breadth, and Cephalic Index.*—When we examine the head dimensions of the seven groups from Iraq and Iran, certain features can be recognized in the following table:

HEAD DIMENSIONS

People	No.	G.O.L.	G.B.	C.I.	Small	Medium	Large
					Percent	Percent	Percent
Lurs.....	52	189.99	140.68	74.25	38.40	57.60	3.84
Yezd-i-Khast.....	46	192.51	141.55	73.50	17.36	75.95	6.51
Kinareh.....	74	187.02	142.96	76.44	45.21	52.06	2.74
Jews.....	86	186.06	144.28	77.43	39.53	58.13	2.32
Kish Arabs.....	358	188.76	141.91	75.33	46.50	49.50	4.00
Iraq Soldiers.....	222	186.24	143.71	76.62	44.70	49.30	6.00
Ba'ij Beduins.....	35	191.31	139.93	73.29	34.19	63.12	2.63

The maximum range of average head length is from 186.06 to 192.51. The Yezd-i-Khast villagers and the Ba'ij Beduins have the longest heads, the Jews and Iraq Soldiers the shortest. In head breadth the Jews and the Iraq Soldiers are the widest, the Ba'ij Beduins and Lurs the narrowest. The range is from 139.93 to 144.28. The cephalic indices (73.29–77.43) show that all seven groups belong in the generally accepted dolichocephalic to mesocephalic categories. The Lurs, Yezd-i-Khast villagers, and Ba'ij Beduins have cephalic indices which approximate the probable Proto-Mediterranean mean (73.0–74.0). In head size the majority are medium with a strong tendency toward smallness, Yezd-i-Khast villagers and Ba'ij Beduins being the largest in this class and the Kish Arabs and men of Kinareh the smallest. There are very few large-headed individuals among the total number of 873 included in the above table.

According to the Harvard threefold classification of the seven groups the Ba'ij Beduins (82.86 per cent), the Yezd-i-Khast men (80.43 per cent), and the Lurs (76.92 per cent) are the most dolichocephalic, while the Jews (56.98 per cent), Kinareh men (47.95 per cent), and the Iraq Soldiers (43.89 per cent) have the highest percentages of mesocephals. There are only thirty-four brachycephals out of 871 individuals (4.9 per cent).

Thus the majority are dolichocephalic or mesocephalic with relatively few brachycephals.

In the following table are included eight groups from Iraq, as well as small samples of South Arabs, Egyptians, Chatri Caste, and Pathans.

		GROUPS ACCORDING TO CEPHALIC INDEX						
		x-70.0	70.1-75.0	75.1-79.9	80.0-84.9	85.0-x	Totals	
Heads		Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	
Small.....	B.....	10.52	18.41	5.26	.....	.....	34.19	
	K <sub>1, 2, 3, 4</sub> .....	3.00	16.50	21.00	5.00	1.00	46.50	
	S <sub>1, 2, 3</sub> .....	2.67	12.00	20.67	8.00	1.33	44.67	
	SA.....	.....	.....	11.44	25.74	57.20	94.38	
	E.....	.....	24.00	12.00	.....	.....	36.00	
	C.....	8.00	24.00	20.00	2.00	.....	54.00	
	P.....	.....	14.00	24.00	10.00	4.00	52.00	
	B.....	10.52	34.19	13.15	5.26	.....	63.12	
	K <sub>1, 2, 3, 4</sub> .....	3.00	21.00	21.50	4.00	.....	49.50	
	S <sub>1, 2, 3</sub> .....	3.33	14.67	25.33	4.67	1.33	49.33	
Medium...	SA.....	.....	.....	.....	5.72	.....	5.72	
	E.....	.....	40.00	18.00	4.00	.....	62.00	
	C.....	2.00	34.00	8.00	2.00	.....	46.00	
	P.....	.....	24.00	14.00	6.00	.....	44.00	
	B.....	.....	2.63	.....	.....	.....	2.63	
	K <sub>1, 2, 3, 4</sub> .....	.....	0.50	2.50	1.00	.....	4.00	
Large.....	S <sub>1, 2, 3</sub> .....	.....	0.67	4.00	1.33	.....	6.00	
	SA.....	.....	.....	.....	.....	.....	.....	
	E.....	.....	2.00	.....	.....	.....	2.00	
	C.....	.....	.....	.....	.....	.....	.....	
	P.....	.....	4.00	.....	.....	.....	4.00	
Totals...	B.....	21.04	55.23	18.41	5.26	.....	Men	38
	K <sub>1, 2, 3, 4</sub> .....	6.00	38.00	45.00	10.00	1.00	200	
	S <sub>1, 2, 3</sub> .....	6.00	27.34	50.00	14.00	2.67	150	
	SA.....	.....	.....	11.44	31.46	57.20	35	
	E.....	.....	66.00	30.00	4.00	.....	50	
	C.....	10.00	58.00	28.00	4.00	.....	50	
	P.....	.....	42.00	38.00	16.00	4.00	50	

Not more than 6.5 per cent of any of these groups has a head 1450 cc. or more. Although the Iran and Iraq samples have almost equal proportions in the medium and small divisions, there is a slightly greater preponderance of medium heads among the Iranis. The Yezd-i-Khast villagers show this in a marked degree which distinguishes them from even the Iran groups. The Chatri and Pathan peoples of India tend to be smaller than the Iraqis and 94.38 per cent of the South Arabs have small heads. The proportions of distribution for the Egyptians range them with the Iranis. Since no figures are available from the northern regions of our area no geographical trend can be established for head size.

Inspecting the cephalic indices, we see that of the seven groups from Iraq and Iran, all predominantly dolichocephalic, the Ba'ij Beduins have the highest percentage of dolichocephaly, the Lurs and Yezd-i-Khast villagers have the next highest, with the Kish Arabs and the Iraq Soldiers following. The Kinareh villagers show a marked tendency toward mesocephaly. The Jews alone show a swing to brachycephaly. From 10 to 20 per cent of the Lurs, the Yezd-i-Khast sample, and the Ba'ij Beduins are hyperdolichocephalic.

Although the Chatri and Pathan groups of India are also dolichocephalic, the Chatri Caste exhibits almost as strong a tendency to hyperdolichocephaly as the Ba'ij Beduins, while the Pathans, to a lesser extent than the Jews of Isfahan, however, have a slightly greater element of brachycephaly. The Egyptians form a compact group in which 96 per cent are meso-dolichocephalic, a strong dolichocephalic group but with no hyperdolichocephals.

In contradistinction to Iraq, Iran, India and Egypt, the South Arabs measured by Bertram Thomas are brachycephalic in 88.66 per cent, 57.20 per cent of whom are hyperbrachycephalic. It will be remembered that this group alone was extraordinarily small-headed.

We now come to a survey of Southwestern Asia with regard to head dimensions.

HEAD LENGTH<sup>1</sup>

People	No.	Mean	Author
<i>Iran</i>			
Jews (Isfahan).....	87	186.06	} Field
Kinareh.....	73	187.02	
Persians.....	46	188.00	Danilov
Lurs (Push-t-i-Kuh).....	52	189.99	} Field
Yezd-i-Khast.....	46	192.51	
<i>Iraq</i>			
Turkomans.....	31	183.87	Ehrich
Jews.....	37	184.0	Weissenberg
Iraq Soldiers.....	222	186.24	} Field
Kish Arabs.....	358	188.76	
Iraq Soldiers (Hilla).....	63	189.72	} Buxton and Rice
Kish Workmen.....	100	190.14	
Arabs.....	33	190.44	Ehrich
Ba'ij Beduins.....	35	191.31	Field
<i>Arabia</i>			
Arabs.....	29	180.00	Mochi
<i>Trans-Jordan</i>			
Mualy Beduins.....	175	190.42	} Shanklin
Akeydat Beduins.....	120	191.35	
<i>Palestine</i>			
Samaritans.....	35	188.00	Huxley
Samaritans.....	27	191.07	Szpidbaum
<i>Syria</i>			
Druze.....	...	178.2	} Kappers
Lebanese.....	182	181.9	
Syrians.....	263	183.06	Seltzer
Rwala Beduins.....	270	191.48	Shanklin
Ansaries (Antioch).....	42	195	Chantre

<sup>1</sup> Iran: Bakhtiaris (3), 178.0, Houssay; Ajemis (2), 185.0, Houssay; and Ajemis (9), 185.0, Chantre. Iraq: Chaldeans (?), 178.0, Kappers; Turkoman Arabs (6), 181.50, Ehrich; and Turkoman Kurds (7), 182.71, Ehrich.

<i>Anatolia</i>			
People	No.	Mean	Author
Tachtadshy and Bektash.....	50	176.40	von Luschan
Turks (Kastamuni).....	84	180.1	} Wagenseil
Turks (E. Provinces).....	34	180.5	
Turks (Ankara).....	62	180.6	} Hasluck and Morant
Turks.....	200	180.93	
Turks (Total).....	395	181.6	Wagenseil
Turks (Osmanli).....	47	182	Zupanec
Turks (Brussa).....	76	182.1	} Wagenseil
Turks (Dardanelles).....	36	183.1	
Turks (Konia).....	56	183.1	} Crowfoot
Turks (Smyrna).....	47	183.5	
Bektash (Ankara).....	15	184.04	Pittard
Turks.....	200	185.4	Chantre
Assyrians.....	22	173.0	Kappers
Alovi.....	...	178.5	
<i>Caucasus</i>			
Armenians (Yerevan).....	27	168	Chantre
Armenians.....	25	181.0	Hrdlička
Armenians (Ghirussi).....	28	181	Chantre
Armenians.....	105	181.78	Twarjanowitsch
Armenians.....	...	182.0	Kappers
Armenians.....	20	182.0	Weissenberg
Armenians.....	292	182.08	Chantre
Armenians.....	19	182.31	von Erckert
Armenians.....	101	184.30	Seltzer
Armenians.....	75	186.39	Boas
Lesghians.....	11	180.0	Chantre
Jews.....	20	183.0	} Weissenberg
Jews (Georgia).....	33	184.0	
Georgians.....	900	185.0	Dzhavahov
Tadzhiks (Norachaine).....	14	186.0	} Chantre
Tatars (Arkhuri).....	15	186.0	
Tatars (Aralych).....	16	186.0	
Tadzhiks (Kura Valley).....	29	188.9	
Tatars (Yerevan).....	17	189.0	
Tatars (Azerbaidzhan).....	19	189.0	
Turkomans.....	59	193.0	IAvorskiĭ
<i>Kurdistan</i>			
Kurds (Iraq).....	13	181.31	Ehrich
Kurds.....	63	182.68	Pittard
Kurds (Bilikani).....	30	186	} Chantre
Kurds (Kharput and Erzinghin)...	23	188	
Kurds (Iran).....	19	188.5	Danilov
Kurds (Milanli).....	20	190	Chantre
Kurds (Syria and Upper Iraq)...	35	193	Chantre <sup>1</sup>
<i>Turkestan</i>			
Bukhara.....	163	180.69	Oshanin
Vanch.....	80	181.05	Korovnikov
Pskem Valley and Bukhara region.	100	183.31	.....
Ferghana.....	200	185.33	IArkho
Ersari.....	125	188.4	Oshanin
Teke.....	51	193	IAvorskiĭ
Chaudirs.....	200	193.15	} IArkho
Iomuds.....	107	194.25	
Arabs.....	17	183	Maslovskiĭ
Arabs.....	100	183.66	Oshanin
Arabs.....	29	189	Maslovskiĭ

<sup>1</sup>Chantre records the head length on twenty-two Kurds of Upper Iraq as possessing a mean of 201, which seems difficult to believe.

<i>Afghanistan</i>			
Afghans.....	18	185	Matseevskii
<i>Baluchistan</i>			
Bandija.....	35	174.42	.....
Chhutta Lok.....	33	176.34	.....
Lori.....	58	177.66	.....
Sangur.....	16	177.75	.....
Jat.....	100	177.96	.....
Wanechi Pathan.....	59	178.32	.....
Kalandrani.....	21	178.56	.....
Mengal Brahui.....	77	179.49	.....
Dehwari.....	200	179.67	.....
Mir Jat.....	48	180.06	.....
Makrani.....	79	181.17	.....
Pani, Pauni (Pushta).....	100	184.02	.....
Biloch.....	35	184.83	} Joyce and Stein
Sayad.....	33	185.55	
Seistani.....	37	186.24	

In Iran the Bakhtiaris (only three individuals recorded) possess the shortest heads (178.0), the Yezd-i-Khast villagers the longest (192.51). The majority fall between 187.0–190.0.

To the west in Iraq, apart from the Turkoman elements the range is from 184.0 in a group of Jews to 191.31 among the Ba'ij Beduins. The heads of a group of Chaldeans measured by Kappers correspond to the short heads of Houssay's Bakhtiaris (178.0).

The South Arabs have shorter heads (180.0) than the inhabitants of Iraq and Iran.

In Trans-Jordan the head is long, 190.42 and 191.35. The Samaritans of Palestine are also moderately long, 188.00 and 191.07. The Druze and Lebanese of Syria seem to have very short heads while the Rwala Beduins are very long-headed (191.48).

The table reveals that the head length in each of the four Beduin groups shows the following remarkable homogeneity: Mualy (190.42), Ba'ij (191.31), Akeydat (191.35) and Rwala (191.48). These figures, together with my unpublished measurements on the Shammar and Sulubba (Sleyb), again suggest the probable Proto-Mediterranean mean (190.0–191.5).

In Anatolia the head length varies from 176.40 to 185.4, all of them comparatively short.

The Caucasus groups are also short-headed, ranging from 180.0 to 185.0, excepting the Tadzhihs, Tatars, and a group of Turkomans who have a slightly greater head length. One group of Armenians (168.0) may be questioned.

In Kurdistan the heads tend to be short except for three long-headed groups in Syria and Iraq measured by Chantre.

The peoples of Turkestan (range 180.69–194.25), excluding the Arabs (range 183.0–189.0), have medium to long heads. In Baluchistan, however, the tendency seems toward short heads (range 174.4–186.2).

When my Iran groups are compared with western and northern groups there is little to differentiate them in this measurement from the peoples of Iraq. The South Arabs appear to be shorter, the Beduins of Trans-Jordan longer, the peoples of Anatolia and the Caucasus considerably shorter in head length than the groups studied in Iran and Iraq.

It is interesting to note that the Jews in Isfahan, Iraq, and the Caucasus have a range from 183 to 186.

Turning to head breadth, we have the following tables for South-western Asia.

HEAD BREADTH <sup>1</sup>			
<i>Iran</i>			
People	No.	Mean	Author
Lurs (Pusht-i-Kuh).....	52	140.68	} Field
Yezd-i-Khast.....	46	141.55	
Kinareh.....	74	142.96	
Ajemis.....	9	144.0	Chantre
Jews (Isfahan).....	86	144.28	Field
Persians.....	46	146.0	Danilov
<i>Iraq</i>			
Ba'ij Beduins.....	35	139.93	} Field
Kish Arabs.....	359	141.91	
Kish Workmen.....	100	142.75	Buxton and Rice
Iraq Soldiers.....	221	143.71	Field
Jews.....	37	144.0	Weissenberg
Iraq Soldiers (Hilla).....	63	144.34	Buxton and Rice
Turkomans.....	31	146.10	} Ehrich
Arabs.....	33	146.21	
Chaldeans.....	...	153.1	Kappers
<i>Arabia</i>			
Arabs.....	29	148.38	Mochi
<i>Trans-Jordan</i>			
Akeydat Beduins.....	120	146.14	} Shanklin
Mualy Beduins.....	175	147.06	
<i>Palestine</i>			
Samaritans.....	35	147.0	Huxley
Samaritans.....	27	148.40	Szpidbaum
<i>Syria</i>			
Rwala Beduins.....	270	143.63	Shanklin
Lebanese.....	182	154.4	Kappers
Syrians.....	265	155.47	Seltzer
Druze.....	...	155.5	Kappers
Ansaries (Antioch).....	42	164	Chantre

<sup>1</sup> Iran: Ajemis (2), 140.0, and Bakhtiaris (3), 149.0, Houssay. Iraq: Turkoman Arabs (6), 144.17, and Turkoman Kurds (7), 148.57, Ehrich.

People	<i>Anatolia</i>		Author
	No.	Mean	
Turks (Brussa) . . . . .	76	149.3	} Wagenseil
Turks (Smyrna) . . . . .	47	150.3	
Turks (Konia) . . . . .	56	152.0	
Turks . . . . .	200	152.35	Pittard
Turks (Total) . . . . .	396	152.6	Wagenseil
Tachtadshy and Bektash . . . . .	50	152.60	von Luschan
Turks . . . . .	200	152.65	Hasluck and Morant
Turks (Dardanelles) . . . . .	36	153.5	} Wagenseil
Turks (Ankara) . . . . .	62	153.5	
Turks (E. Provinces) . . . . .	34	153.8	
Turks (Osmanli) . . . . .	47	154	Zupanic
Turks (Kastamuni) . . . . .	85	156.0	Wagenseil
Bektash (Ankara) . . . . .	15	157	Crowfoot
Alovi . . . . .	..	152.7	Kappers
Assyrians . . . . .	22	155.0	Chantre
<i>Caucasus</i>			
Armenians (Yerevan) . . . . .	27	153	Chantre
Armenians . . . . .	20	153.0	Weissenberg
Armenians . . . . .	25	155.0	Hrdlička
Armenians . . . . .	..	155.4	Kappers
Armenians . . . . .	292	156.13	Chantre
Armenians . . . . .	19	156.42	von Erckert
Armenians . . . . .	105	157.82	Twarjanowitsch
Armenians . . . . .	101	157.90	Seltzer
Armenians (Ghirussi) . . . . .	28	158	Chantre
Armenians . . . . .	75	159.43	Boas
Tatars (Aralych) . . . . .	16	145	} Chantre
Tatars (Yerevan) . . . . .	17	146	
Turkomans . . . . .	59	146	
Tatars (Arkhuri) . . . . .	15	147	IAvorskiĭ
Tatars (Azerbaidzhan) . . . . .	19	149.0	} Chantre
Tadzhiks (Kura Valley) . . . . .	29	149.0	
Tadzhiks (Norachaine) . . . . .	14	149.0	
Georgians . . . . .	900	154.0	Dzhavahov
Jews . . . . .	20	155.0	} Weissenberg
Jews (Georgia) . . . . .	33	158.0	
Lesghians . . . . .	11	158.0	Chantre
<i>Kurdistan</i>			
Kurds (Kharput and Erzinghin) . . . . .	23	145	Chantre
Kurds (Iran) . . . . .	19	147.0	Danilov
Kurds (Milanli) . . . . .	20	148	Chantre
Kurds (Iraq) . . . . .	13	148.62	Ehrich
Kurds (Bilikani) . . . . .	30	156	} Chantre
Kurds (Upper Iraq) . . . . .	22	157	
Kurds . . . . .	63	157.85	
Kurds (Syria and Upper Iraq) . . . . .	35	159	Pittard
<i>Turkestan</i>			
Ersari . . . . .	125	145.0	Oshanin
Iomuds . . . . .	107	145.78	IArkho
Teke . . . . .	51	146	IAvorskiĭ
Chaudirs . . . . .	200	149.00	IArkho
Vanch . . . . .	80	150.67	Korovnikov
Bukhara . . . . .	163	151.3	Oshanin
Pskem Valley and Bukhara region . . . . .	100	152.73	.....
Ferghana . . . . .	200	155.30	IArkho
Arabs . . . . .	29	158	} Maslovskii
Arabs . . . . .	17	151	
Arabs . . . . .	100	155.4	
			Oshanin

People	No.	Mean	Author
Afghans	18	157	Matseevskii
<i>Baluchistan</i>			
Lori	58	139.42	.....
Wanechi Pathan	59	141.13	.....
Jat	100	141.88	.....
Biloch	35	141.97	} Joyce and Stein
Seistani	37	142.35	
Sayad	33	143.18	
Mir Jat	48	146.44	
Kalandrani	21	146.56	.....
Dehwari	200	146.65	.....
Pani, Pauni (Pushta)	100	147.37	.....
Makrani	79	149.02	.....
Mengal Brahui	77	149.14	.....
Chhutta Lok	33	149.68	.....
Bandija	35	152.02	.....
Sangur	16	153.43	.....

In the above table we see that the head breadth is medium wide among the Iran groups (140.0–146.0), with the exception of the three Bakhtiariis (149.0). In Iraq there is little variation from the Iran series, although the Turkomans and Chaldeans show a marked increase in head breadth. When compared to the four Iran series the head breadths of the South Arabs and the Samaritans of Palestine are slightly greater, the Rwala Beduins about the same, but the Druze, Syrians, and Lebanese considerably greater, and the peoples of Anatolia, the Caucasus, and parts of Kurdistan are much greater in maximum head breadth. Despite the closeness in the head lengths of the four Beduin groups there is considerable variation in head breadth resulting in the following scale: Ba'ij (139.93), Rwala (143.63), Akeydat (146.14), and Mualy (147.06).

Although they all have approximately the same head length the Caucasus Jews (155.0 and 158.0) have much wider heads than the Iran and Iraq Jews.

The Kurds (range 145.0–159.0) and peoples of Turkestan (range 145.0–155.3) have considerably wider heads than the majority of the groups from Baluchistan (range 139.4–147.4).

We now come to one of the most important racial criteria, the cephalic index; from the above comparisons of head length and head breadth the indications will already appear.

According to the Harvard threefold classification the seven Iran and Iraq groups, when arranged in order of ascending magnitude of mean cephalic indices, are as follows:



		CEPHALIC INDEX						
		DOLICHO- CEPHALIC (x-76.5)		MESO- CEPHALIC (76.6-82.5)		BRACHY- CEPHALIC (82.6-x)		TOTALS
People	Mean	No.	Per cent	No.	Per cent	No.	Per cent	No.
Ba'ij Beduins.....	73.29	29	82.86	5	14.29	1	2.86	35
Yezd-i-Khast.....	73.50	37	80.43	7	15.22	2	4.35	46
Lurs.....	74.25	40	76.92	11	21.15	1	1.92	52
Kish Arabs.....	75.33	224	62.57	125	34.92	9	2.51	358
Kinareh.....	76.44	36	49.32	35	47.95	2	2.74	73
Iraq Soldiers.....	76.62	110	49.77	97	43.89	14	6.33	221
Isfahan Jews.....	77.43	32	37.21	49	56.98	5	5.81	86

The above table shows that the majority are dolichocephalic with a slightly lesser number of mesocephals, as pointed out on page 449. The brachycephalic element never exceeds 6.33 per cent in any group. There is a marked difference in the grouping of the Yezd-i-Khast and Kinareh villagers, there being 80.43 per cent of the former and only 49.32 per cent of the latter in the dolichocephalic category, due entirely to a difference in head width.

The comparative table follows:

CEPHALIC INDEX<sup>1</sup>*Iran*

People	No.	Mean	Author
Yezd-i-Khast.....	46	73.50	} Field
Lurs (Pusht-i-Kuh).....	52	74.25	
Kinareh.....	73	76.44	
Azerbaijanis.....	34	76.0	Deniker
Jews (S. Iran).....	14	76.6	Krischner
Jews (Isfahan).....	86	77.43	Field
Persians.....	46	78.4	Danilov
Persians.....	168	78.4	} Deniker
Dizfulis.....	11	78.4	
Persians.....	123	78.7	Various
Iranians.....	50	80.06	Maslovskii
Bakhtiariis.....	20	88.38	Various

*Iraq*

Ba'ij Beduins.....	35	73.29	Field
Kish Workmen.....	100	75.30	Buxton and Rice
Kish Arabs.....	358	75.33	Field
Iraq Soldiers (Hilla).....	63	76.23	Buxton and Rice
Iraq Soldiers.....	221	76.62	Field
Arabs.....	33	76.85	Ehrich
Jews.....	37	78.1	Weissenberg
Turkomans.....	31	79.44*	Ehrich

<sup>1</sup> Iran: Ajemis, south of Tehran, (?), 77.74, Chantre; Ajemis (9), 77.83, Chantre; Ajemis (2), 81.54, Houssay; and Yezidis near Isfahan (4), 88.15, Gautier. Bakhtiariis: (3), 83.70, Houssay; (1), 83.88, Danilov; (1), 88.4, Danilov; (4), 89.0, Duhousset; (9), 89.32, Gautier; (1), 91.0, Krischner; and (1), 93.4, Krischner. Iraq: Turkoman Kurds (7), 73.29, Ehrich; Turkomans (6), 74.45, Kappers; and Turkoman Arabs\*, (6), 79.43, Ehrich. Arabia by Bertram Thomas: Bautahari (1), 79.12; Yaf'i (5), 81.68; Harasis (1), 83.33; Omanis (3), 85.18; Mashai (1), 86.20; Mahra (5), 86.67; Shahari (9), 88.12; Qara (7), 89.12; and Al Kathiri (4), 90.32. Trans-Jordan: (8) Howeitat (Matareih), 74.21, Chantre. Caucasus: Yezidis (Zara) (3), 72.36, Chantre; and Yezidis (Karaku) (3), 78.61, Chantre. Kurdistan (all Kurds): Iran (5), 86.2, Duhousset; Lake Urmia (5), 86.68, Chantre; and Batum (5), 88.1, Chantre.

People	No.	Mean	Author
Kohtan Arabs . . . . .	64	84.50	} Kappers
Chaldeans (Qaraqosh) <sup>1</sup> . . . . .	19	86.01	
<i>Arabia</i>			
Yemenis (Sana'a) . . . . .	30	77.47	Atkey
Omanis (Muscat) . . . . .	31	78.28	Leys and Joyce
Jidda . . . . .	12	79.37	Mochi
Arabs . . . . .	154	80.7	Deniker
Arabs (Sheher) . . . . .	82	80.92	} Leys and Joyce
Arabs (Yemen) . . . . .	20	81.07	
Arabs . . . . .	29	81.59	Mochi
Arabs (Yemen) . . . . .	41	81.9	Deniker
Arabs (Yemen) . . . . .	...	82.5	} Mugnier
Yemenis . . . . .	25	82.56	
Yemenis . . . . .	20	82.56	Bertholon and Chantre
<i>Trans-Jordan</i>			
Akeydat Beduins . . . . .	120	76.39	} Shanklin
Khazaal . . . . .	221	76.78	
Mualy Beduins . . . . .	175	77.28	
<i>Palestine</i>			
Tuarah (Sinai) . . . . .	18	73.3	} Chantre
Ma'aza (between Suez and Keneh) . . . . .	...	75.0	
Fallahin (Safed) . . . . .	30	75.7	} Weissenberg
Fallahin (Jaffa) . . . . .	32	76.9	
Samaritans (Nablus) . . . . .	27	77.23	Kappers
Samaritans . . . . .	27	77.64	Szpidbaum
Samaritans . . . . .	35	78.1	Huxley
Jews (Sephardim) . . . . .	101	78.6	} Kappers
Jews (Aschkenazim) . . . . .	100	81.2	
Arabs . . . . .	139	81.6	
<i>Syria</i>			
Rwala Beduins . . . . .	270	75.00	Shanklin
Beduins . . . . .	107	77.2	Kappers
Jews (Damascus) . . . . .	...	80.9	Weissenberg
Desert border . . . . .	135	81.7	Kappers
Ansaries (near Tripoli) . . . . .	48	84.43	Chantre
Lebanese . . . . .	182	84.88	Kappers
Syrians . . . . .	265	85.11	Seltzer
Alouites (near Tripoli) . . . . .	136	85.66	} Kappers
Druze . . . . .	80	87.26	
<i>Anatolia</i>			
Turks (Brussa) . . . . .	88	81.80	Wagenseil
Turks . . . . .	200	82.24	Pittard
Turks (Smyrna) . . . . .	60	82.43	} Wagenseil
Turks (Konia) . . . . .	66	83.53	
Turks (Total) . . . . .	455	84.19	} Chantre
Turks (Dardanelles) . . . . .	38	84.21	
Turks (Osmanli) . . . . .	120	84.33	Elisieev
Turks (Osmanli) . . . . .	131	84.40	Deniker
Turks (Osmanli) . . . . .	16	84.5	} Zupanic
Turks (Osmanli at Ankara and Konia) . . . . .	47	84.61	
Turks . . . . .	40	84.7	
Bektash (Ankara) . . . . .	15	85.20	Pantiukhov
			Crowfoot

<sup>1</sup> Other spellings: Kara-koash, Kara-gush, etc. Cf. Alexander Sushko, "Gaugamela, the Modern Qaraqosh," *Biblioteca Eurasiatrica Americana*, Vol. IX, p. 12, Chicago, 1936.

*Anatolia (Continued)*

People	No.	Mean	Author
Bektash (Lycia) . . . . .	15	85.3	Deniker
Turks (E. Provinces) . . . . .	39	85.35	} Wagenseil
Turks (Ankara) . . . . .	69	85.38	
Turks (Mongol) . . . . .	10	85.53	} Kappers
Alovi . . . . .	..	85.67	
Tachtadshy and Bektash . . . . .	..	86.56	von Luschan
Turks (Kastamuni) . . . . .	95	86.61	Wagenseil
Turks . . . . .	200	87.20	Hasluck and Morant
Assyrians (Lake Urmia) . . . . .	33	88.70	Deniker
Assyrians . . . . .	22	89.50	Chantre

*Caucasus*

Armenians . . . . .	20	84.1	Weissenberg
Armenians . . . . .	75	85.11	Boas
Armenians . . . . .	25	85.35	Hrdlička
Armenians* (Beirut) . . . . .	97	85.38	Kappers
Armenians . . . . .	341	85.6	} Deniker
Armenians (Transcaucasus) . . . . .	278	85.6	
Armenians . . . . .	297	85.71	} Chantre
Armenians . . . . .	292	85.77	
Armenians . . . . .	101	85.81	Seltzer
Armenians . . . . .	19	86.21	von Erckert
Armenians . . . . .	318	86.7	Djawachischwili
Armenians . . . . .	105	86.89	Twarjanowitsch
Armenians (Ghirussi) . . . . .	28	87.29*	} Chantre
Armenians (Yerevan) . . . . .	27	91.07*	
Turkomans . . . . .	59	75.6	IAvorskiï
Tatars (Azerbaidzhan) . . . . .	207	77.6	Various
Tatars (Aralych) . . . . .	16	77.96*	} Chantre
Tatars (Azerbaidzhan) . . . . .	19	78.83	
Tats (Baku) . . . . .	129	79.2	Deniker
Tatars (Yerevan) . . . . .	17	80.11*	} Chantre
Tadzhiks (Norachaine) . . . . .	14	80.11*	
Ossetes . . . . .	300	81.5	Riskin
Abazeck . . . . .	11	81.6	von Erckert
Ossetes . . . . .	554	81.9	Deniker
Circassians . . . . .	54	82.05	Kappers
Ossetes . . . . .	17	83.1	} Chantre
Mingrelians . . . . .	12	83.2	
Georgians . . . . .	900	83.2	Dzhavahov
Jews . . . . .	20	84.7	Weissenberg
Tats (Daghestan) . . . . .	56	84.9	} Deniker
Lazes . . . . .	152	85.6	
Jews (Georgia) . . . . .	33	85.9	Weissenberg
Jews . . . . .	43	87.5	Pantiukhov
Lesghians . . . . .	11	87.77	Chantre

*Kurdistan*

Kurds . . . . .	67	76.2	} Chantre
Kurds (Kharput and Erzinghin) . . . . .	23	77.12	
Kurds . . . . .	300	77.6	Ivanovskii
Kurds (Iran) . . . . .	19	77.63	Danilov
Kurds (Milanli) . . . . .	20	77.89*	} Chantre
Kurds . . . . .	140	78.5	
Kurds . . . . .	332	78.5	Deniker
Kurds (Upper Iraq) . . . . .	22	78.11*	Chantre
Kurds (Airiga, Transcaucasia) . . . . .	25	78.48	Nasonov
Kurds . . . . .	272	78.53	Chantre
Kurds (Hamadan) . . . . .	12	79.5	Krischner
Kurds (Iraq) . . . . .	13	82.00*	Ehrich

<i>Kurdistan (Continued)</i>			
People	No.	Mean	Author
Kurds (Syria and Iraq) . . . . .	35	82.54	} Chantre
Kurds (Bilikani) . . . . .	30	85.16*	
Kurds (Syria) . . . . .	35	85.2	} Pittard
Kurds (Dobrodja) . . . . .	63	86.49	
<i>Turkestan</i>			
Iomuds . . . . .	107	75.16	IArkho
Turkomans . . . . .	59	75.6	} IAvorskiï
Teke . . . . .	51	75.64	
Ersari . . . . .	125	77	Oshanin
Chaudirs . . . . .	200	77.24	IArkho
Turkomans . . . . .	23	77.9	} Deniker
Arabs . . . . .	16	82.1	
Karategin . . . . .	433	82.77	Oshanin
Vanch . . . . .	80	83.21	Korovnikov
Pskem Valley and Bukhara region . . . . .	100	83.57	.....
Ferghana . . . . .	200	84.04	IArkho
Bukhara . . . . .	163	84.20	Oshanin
Pendzhikent . . . . .	279	85.84	Vishnevskiï
Arabs . . . . .	17	82.1	} Maslovskiï
Arabs . . . . .	29	83.4	
Arabs . . . . .	100	84.77	Oshanin
<i>Afghanistan</i>			
Afghans . . . . .	18	75.59	Poiarkov
Afghans . . . . .	18	84.86	Matseevskiï
Hazara . . . . .	...	85.0	Haddon
<i>Baluchistan</i>			
Seistani . . . . .	37	76.50	} Joyce and Stein
Biloch . . . . .	35	76.81	
Sayad . . . . .	33	77.21	.....
Lori . . . . .	58	78.77	.....
Wanechi Pathan . . . . .	59	79.42	.....
Jat . . . . .	100	79.97	.....
Pani, Pauni (Pushta) . . . . .	100	80.28	.....
Brahui (Sarawán) . . . . .	...	81.5	Haddon
Mir Jat . . . . .	48	81.69	.....
Dehwari . . . . .	200	81.84	.....
Kalandrani . . . . .	21	81.87	.....
Makrani . . . . .	79	81.90	.....
Mengal Brahui . . . . .	77	82.98	.....
Chhutta Lok . . . . .	33	84.93	.....
Sangur . . . . .	16	86.64	.....
Bandija . . . . .	35	87.00	.....

The peoples of the Iranian Plateau seem to be mesocephalic to dolichocephalic, with the exception of the Bakhtiaris, who appear to be hyperbrachycephalic (mean, 88.38). In central and southern Iraq the majority are dolichocephalic to mesocephalic; but, on the basis of my unpublished figures on 598 Kurds and 105 Assyrians, in the northern and northeastern area there is a marked increase in the cephalic index indicating that the majority are brachycephalic.

Although the majority of South Arabs quoted here are brachycephalic, there are definite dolichocephalic elements present in the northern Beduin tribesmen listed below under Syria and Trans-

Jordan. In Coon's unpublished data from the Yemen there are also long-headed groups. At present no figures are available from Saudi Arabia, but my prediction is that the inhabitants north of the Rub' al Khali are mesocephalic to dolichocephalic, particularly since the Beduins of Trans-Jordan, Syria, and Iraq, whose direct ancestors lived in northern central Arabia, have few brachycephalic tribesmen.

In Trans-Jordan the Beduins are mesocephalic to dolichocephalic, as are the inhabitants of Palestine. The Syrian Beduins of Kappers are mesocephalic, the Rwala Beduins dolichocephalic, but other groups of Syria are brachycephalic.

The inhabitants of Anatolia are strongly brachycephalic, as are the majority of the dwellers in the Caucasus. This excepts, however, a group of Yezidis (72.36) and Turkomans (75.6) who, like the Turkomans in Iraq (73.29-79.44) and some in Turkestan (75.6-77.9), are dolicho-mesocephalic. Attention must also be drawn to a mesocephalic element found in the Tatars and Tadhiks of the Caucasus.

The Kurds are mesocephalic to brachycephalic. The peoples of Turkestan, who are both long- and round-headed, show a wide range (75.16-84.8), with the three Arab groups also in the brachycephalic division. In Baluchistan there is also a wide range (76.5-87.0), the majority having a cephalic index greater than 80.0.

The Hazara of Afghanistan and the Brahui of Baluchistan indicate brachycephalic and mesocephalic neighbors to the east of Iran.

Place	HEAD MEASUREMENTS FROM INDIA				
	No.	G.O.L.	G.B.	C.I.	
Rajputana . . . . .	50	189.04	141.48	74.98	
United Provinces . . . . .	50	192.66	139.50	72.48	
Orissa . . . . .	143	183.13	141.34	77.31	
Bengal . . . . .	{	50	186.36	146.96	78.93
		100	185.25	149.59	80.84
		50	184.08	141.80	77.13
Guzrat and Kathiawar . . . . .	{	105	185.12	150.59	81.38
		99	185.30	149.16	80.58
		93	184.00	144.73	78.77
Southern India . . . . .	{	40	187.58	151.25	80.71
		55	194.89	141.24	72.51
		60	192.28	142.52	74.18
		50	190.02	139.34	73.38
		50	188.32	145.50	77.36

These groups appear relatively close in absolute measurements and in cephalic indices to those from the series recorded in Iran and Iraq.

To summarize, the mesocephalic and dolichocephalic peoples of the Iranian Plateau and the southeastern corner of the "Fertile

Crescent" extend to the west across the North Arabian or Syrian Desert through Trans-Jordan and Palestine into the Nile Valley and to the southeast into India, where dolichocephaly prevails in Kashmir, Jammu, Punjab, United Provinces, Rajputana, Bihar, Orissa, eastern Hyderabad, the Madras States, and Assam.

Among dolichocephals, groups in Trans-Jordan, Palestine and Iraq are tall, but the Rwala Beduins and the peoples in south central Iran are short.

The brachycephalic groups, descendants of conquering Central Asiatic hordes who swept into Southwestern Asia through Turkestan and through the Caucasus, occur in the following areas or among the following peoples: the mountain fastnesses of western Iran (Bakhtiaris) and in all probability the Kurds to the north; the peoples of Anatolia, especially the Assyrians; many groups in the Caucasus, including the Armenians and the Ossetes; the Druze; the majority of South Arabs from Yemen to Oman; some Turkomans, Afghans, and Baluchis; Bombay, Kathiawar, Baroda, Mysore, southern Bengal and Burma.

Among brachycephals, the South Arabs and some Syrians are short; the peoples of Anatolia and Baluchistan are medium; and some Syrians, Bakhtiaris, some groups in the Caucasus, the Kurds, Turkomans, and Afghans are tall.

The scattering of the samples, together with their general inadequacy for the entire region, render it impossible to make sweeping generalizations in regard either to head form or to any correlation with stature.

*Minimum Frontal Diameter and Fronto-parietal Index.*—The Arabs of Iraq and the four groups of Iranis which I measured possessed wide foreheads. According to the means the seven groups from Iran and Iraq may be arranged in the following order: Lurs (114.50), Iraq Soldiers (114.10), Yezd-i-Khast (112.78), Kinareh (112.14), Jews (111.90), Kish Arabs (111.50), and Ba'ij Beduins (110.86).

When the Iranian foreheads were grouped according to Keith's system (p. 396) we saw that the majority were wide with a marked tendency toward the narrow division, there being but a small percentage classified as very wide. There were no individuals with very narrow foreheads.

The following table divides the groups from Iraq and India into the same classifications:

MINIMUM FRONTAL DIAMETER

Head breadth		VERY NARROW	NARROW	WIDE	VERY WIDE	TOTALS
		(x-99) Per cent	(100-109) Per cent	(110-119) Per cent	(120-x) Per cent	(120-x) Per cent
Very narrow (120-129)...	B	....	5.26	2.63	....	7.89
	K <sub>1</sub>	....	2.00	....	....	2.00
	S <sub>1</sub>	....	....	2.00	....	2.00
	C	4.00	....	....	....	4.00
	P	....	....	....	....	....
Narrow (130-139).....	B	....	18.41	13.15	....	31.56
	K <sub>1</sub>	6.00	22.00	2.00	....	30.00
	S <sub>1</sub>	....	2.00	18.00	2.00	22.00
	C	16.00	36.00	....	....	52.00
	P	....	10.00	10.00	....	20.00
Wide (140-149).....	B	....	26.30	26.30	2.63	55.23
	K <sub>1</sub>	....	38.00	26.00	....	64.00
	S <sub>1</sub>	....	2.00	48.00	16.00	66.00
	C	4.00	34.00	4.00	....	42.00
	P	....	30.00	38.00	4.00	72.00
Very wide (150-x).....	B	....	....	5.26	....	5.26
	K <sub>1</sub>	....	....	2.00	2.00	4.00
	S <sub>1</sub>	....	....	4.00	6.00	10.00
	C	....	2.00	....	....	2.00
	P	....	....	6.00	2.00	8.00
Totals.....	B	....	49.97	47.34	2.63	Men 38
	K <sub>1</sub>	6.00	62.00	30.00	2.00	50
	S <sub>1</sub>	....	4.00	72.00	24.00	50
	C	24.00	72.00	4.00	....	50
	P	....	40.00	54.00	6.00	50

The greatest percentage of the Iran groups fell into the class of wide heads and wide foreheads, the next greatest into narrow heads and wide foreheads, with the exception of the Jews, who had a bias toward wide heads and narrow foreheads. The Iraq Soldiers follow the three Iran groups, but the Ba'ij Beduins and Kish Arabs, who show a greater dispersion, have wide or narrow heads and predominantly narrow foreheads.

The Chatri Caste have a marked tendency toward narrow heads and very narrow foreheads while the Pathans swing toward wide heads and wide or narrow foreheads.

Of the nine groups only the Kish Arabs and Chatri Caste possess any very narrow foreheads but the Chatri alone have no very wide foreheads.

The relationship between the minimum frontal diameter and the maximum head breadth places the seven groups from Iran and Iraq in the following scale: Isfahan Jews (77.77), Kinareh (78.64), Kish Arabs (78.67), Iraq Soldiers (79.33), Ba'ij Beduins (79.60), Yezd-i-Khast (79.99), and Lurs (81.19). In other words, the Lurs and Yezd-i-Khast villagers have relatively broader foreheads than the

Iraq groups, while the Kinareh villagers and Jews have relatively narrower foreheads than the Iraq groups. The slight increase in head breadth of the Kinareh men over that of the Yezd-i-Khast villagers accounts for the difference in fronto-parietal indices. When the seven groups are arranged in ascending order these two series are generally so similar that they fall next to each other. Their separation in this index thus becomes striking.

The comparative table for groups measured in Southwestern Asia is as follows:

MINIMUM FRONTAL DIAMETER AND FRONTO-PARIETAL INDEX<sup>1</sup>

People	No.	<i>Iran</i>			Author
		G.B.	M.F.D.	F.P.I.	
Persians	46	146.0	103	71.7(?)	Danilov
Jews (Isfahan)	86	144.3	111.90	77.77	} Field
Kinareh	74	142.96	112.14	78.64	
Yezd-i-Khast	46	141.6	112.78	79.99	
Lurs (Pusht-i-Kuh)	52	140.7	114.50	81.19	
<i>Iraq</i>					
Turkomans	31	146.1	102.9	70.58	} Ehrich
Arabs	33	146.21	104.15	71.21	
Iraq Soldiers (Hilla)	63	144.34	106.42	73.90	} Buxton and Rice
Kish Workmen	100	142.75	107.86	75.70	
Ba'ij Beduins	35	139.9	110.86	79.60	} Field
Kish Arabs	358	141.9	111.50	78.67	
Iraq Soldiers	221	143.7	114.10	79.33	
<i>Arabia</i>					
Arabs	29	148.38	107.72	72.59*	Mochi
<i>Trans-Jordan</i>					
Akeydat Beduins	120	146.1	117.64	80.52*	} Shanklin
Mualy Beduins	175	147.1	118.50	80.56*	
<i>Palestine</i>					
Samaritans	35	147.0	103.0	70.07*	Huxley
Samaritans	27	148.40	104.3	77.98	Szpidbaum
<i>Syria</i>					
Syrians	262-5	155.47	106.82	68.80	Seltzer
Rwala Beduins	270	143.6	110.98	77.28*	Shanklin
Ansaries (Antioch)	42	164	115	70.12	Chantre
<i>Anatolia</i>					
Turks (Osmanli)	47	154	105	68.18*	Zupanec
Bektash (Ankara)	15	157	110.0	70.06*	Crowfoot
Turks	200	152.35	111.9	73.38	Pittard
Tachtadshy and Bektash	50	152.60	113.28	74.40	von Luschan
<i>Caucasus</i>					
Armenians	101	157.9	107.75	68.24	Seltzer
Armenians	75	159.43	118.55	75.61*	Boas
Armenians	105	157.82	118.55	75.12*	Twarjanowitsch

<sup>1</sup> Iraq: Turkoman Arabs (6), M.F.D. 104.17, F.P.I. 72.50, Ehrich; and Turkoman Kurds (7), M.F.D. 104.43, F.P.I. 70.29, Ehrich.



People	<i>Kurdistan</i>				Author
	No.	G.B.	M.F.D.	F.P.I.	
Kurds (Syria and Upper Iraq) . . . . .	35	159	100	62.89*	Chantre
Kurds (Iran) . . . . .	19	147	104	70.5(?)	Danilov
Kurds (Iraq) . . . . .	13	148.6	105.69	71.08	Ehrich
Kurds . . . . .	63	157.85	114.9	72.83	Pittard
Kurds (Upper Iraq) . . . . .	22	157	116	73.89*	Chantre
	<i>Turkestan</i>				
Iomuds . . . . .	107	.....	104.97	.....	} Iarkho
Chaudirs . . . . .	200	.....	107.30	.....	
Ferghana . . . . .	200	.....	107.98	.....	
Arabs . . . . .	29	.....	103	.....	} Maslovskii
Arabs . . . . .	17	.....	109	.....	
	<i>Afghanistan</i>				
Afghans . . . . .	18	.....	109	.....	Matseevskii

The figures for Iran show a remarkable difference between Danilov's average for minimum frontal diameter (103) and those obtained in 1934. On the basis of my figures the Iranians have minimum frontal diameters ranging from 111.90 to 114.50, which is little different from my three Iraq groups (110.86-114.10). Shanklin's figures for the Akeydat and Mualy seem to be extremely high, especially when compared with those of the Rwala, whose mean minimum frontal diameter is almost identical with the figure given for the Ba'ij Beduins.

With regard to Ehrich's figures based on small mixed samples in the Kirkuk area his measurements differ considerably in being approximately 6.5 less than my unpublished data on 599 Kurds and 60 Turkomans from northern Iraq.

In Anatolia, the Caucasus and Kurdistan there are such great variations based on relatively small series made by different observers that no comparisons can be drawn. The maximum range for the entire area is from 100.0 to 118.50 with the probable mean about 110.0 to 112.0. Since this measurement is correlated closely with maximum head breadth, it will be more advantageous to discuss the relation of these two measurements.

In Iraq, the northern groups, measured by Ehrich, have wider heads and narrower foreheads than my samples from central Iraq and Iran. Only the Beduins of Trans-Jordan in the surrounding countries have relatively broader foreheads than my two groups. In absolute and relative terms the South Arabs, Samaritans of Palestine, Zupanic's Turks, and some of the Kurds possess narrower foreheads. Further, although the actual measurements of minimum frontal diameter for the Ansaries, some of the peoples of Anatolia, the Caucasus, and some of the Kurds approximate those of the Iranis

and central Iraqis, a much greater width of head gives the former groups relatively narrower foreheads. In Turkestan the forehead appears to be moderately narrow (range 104.9–109).

To summarize, in absolute measurement<sup>1</sup> the peoples of the Iranian Plateau have wide foreheads, a diameter slightly greater than those obtained in central Iraq. While the comparative data are scanty, it is also probable that the inhabitants of Anatolia differ but little in minimum frontal diameter from the modern dwellers on the Iranian Plateau. Among the Armenians of the Caucasus the marked degree of brachycephaly caused by a shortening and broadening of the head did not result in an equivalent widening of the forehead.

Since the use of the Armenian cradle-board (Fig. 7), which causes artificial cranial deformation, shortens the head without affecting the natural development of the minimum frontal diameter this may be the answer to this apparent inconsistency.

From India, on the other hand, the foreheads appear to be extremely narrow (101.54–105.23), a factor which differentiates them from the peoples of Iran or Iraq.

The variation in the minimum frontal diameter makes it impossible to draw any definite trends or conclusions for the groups in this area.

*Bizygomatic Breadth.*—The breadth between the zygomatic arches is an important facial character, particularly since extra width may be an indication of Mongoloid admixture. The seven groups of Iran and Iraq arranged according to the means in bizygomatic breadth fall into the following order: Ba'ij Beduins (128.15), Kish Arabs (129.90), Kinareh (133.35), Iraq Soldiers (133.95), Jews (134.20), Yezd-i-Khast (134.50), and Lurs (134.70). With the exception of the narrow-faced Ba'ij Beduins and Kish Arabs the other five groups show remarkably little divergence, the range in fact being only 1.35.

Referring to the tables of bizygomatic breadth and total facial height for Iran (p. 397) and Iraq (p. 476), we find that although the Iran groups are either medium or wide in bizygomatic breadth, in equal proportions, the Ba'ij Beduins and Kish Arabs are markedly narrower with a greater percentage in the  $x-124$  class than in the  $135-x$  class. The Egyptians of the Kharga Oasis have predominantly medium width between the zygomatic arches and a moderate tendency toward the wide class.

<sup>1</sup>In taking this measurement my own tendency is toward too high a figure.

BIZYGOMATIC BREADTH, AND ZYGO-FRONTAL INDEX<sup>1</sup>

<i>Iran</i>					
People	No.	M.F.D.	Biz. B.	Zygo- fr. index	Author
Kinareh.....	74	112.14	133.35	84.54	} Field
Jews (Isfahan)....	86	111.90	134.20	84.02	
Yezd-i-Khast.....	46	112.78	134.50	84.10	
Lurs (Pusht-i-Kuh)	52	114.50	134.70	84.58	
Persians.....	46	103.0	137.0	75.18*	Danilov
<i>Iraq</i>					
Ba'ij Beduins.....	35	110.86	128.15	86.30	} Field
Kish Arabs.....	355-8	111.50	129.90	85.98	
Iraq Soldiers (Hilla)	63	106.42	133.60	79.78	Buxton and Rice
Iraq Soldiers.....	221-2	114.10	133.95	84.94	Field
Jews.....	37	.....	134.0	.....	Weissenberg
Turkomans.....	31	102.9	134.84	76.32	Ehrich
Kish Workmen....	100	107.86	135.10	79.74	Buxton and Rice
Arabs.....	33	104.15	137.73	74.88	Ehrich
<i>Arabia</i>					
Arabs.....	29	107.72	138.48*	77.79*	Mochi
<i>Trans-Jordan</i>					
Akeydat Beduins..	120	117.64	135.58	86.77*	} Shanklin
Mualy Beduins...174-5		118.50	135.91	87.19*	
<i>Palestine</i>					
Samaritans.....	35	103.0	132.0	78.3	Huxley
Samaritans.....	27	104.3	133.85	77.92	Szpidbaum
<i>Syria</i>					
Rwala Beduins....	270	110.98	129.87	85.60	Shanklin
Syrians.....	263-5	106.82	138.85	76.94	Seltzer
Ansaries (Antioch)	42	115.0	154.0	74.68*	Wagenseil
<i>Anatolia</i>					
Turks (Brussa)....	76	.....	134.7	.....	} Wagenseil
Turks (Smyrna)....	48	.....	138.6	.....	
Turks (Osmanli)..	47	105.0	140.0	75.0*	Zupanic
Turks (Total)....	406	.....	140.4	.....	} Wagenseil
Turks (Konia)....	58	.....	140.9	.....	
Turks (E. Prov.)..	34	.....	140.9	.....	
Turks (Ankara)....	62	.....	141.3	.....	
Turks.....	200	111.9	141.4	79.43	Pittard
Tachtadshy and Bektash.....	50	113.28	141.34	80.54	von Luschan
Turks(Dardanelles)	36	.....	141.6	.....	} Wagenseil
Turks (Kastamuni)	92	.....	141.9	.....	
Turks.....	200	.....	142.28	.....	Hasluck and Morant
Bektash (Ankara)..	15	110.0	143.13	76.85*	Crowfoot
Assyrians.....	22	.....	137.0	.....	Chantre
<i>Caucasus</i>					
Armenians.....	20	.....	136.0	.....	Weissenberg
Armenians.....	25	.....	140.6	.....	Hrdlička
Armenians (Yerevan).....	27	.....	141	.....	} Chantre
Armenians (Ghirussi).....	28	.....	141	.....	
Armenians.....	19	.....	141.58	.....	von Erckert
Armenians.....	292	.....	141.60	.....	Chantre

<sup>1</sup>Iran: Ajemis (9), Biz. B. 137.0, Chantre. Iraq: Turkoman Arabs (6), M.F.D. 104.17, Biz. B. 134.67, Zygo-frontal index 77.33, Ehrich; and Turkoman Kurds (7), M.F.D. 104.43, Biz. B. 137.29, Zygo-frontal index 76.29, Ehrich.

<i>Caucasus (Continued)</i>					
People	No.	M.F.D.	Biz. B.	Zyg. fr. index	Author
Armenians . . . . .	101	107.75	142.84	75.61	Seltzer
Armenians . . . . .	105	118.55	143.45	82.64*	Twarjanowitsch
Armenians . . . . .	75	118.55	143.63	.....	Boas
Tadzhiks (Kura Valley) . . . . .	29	.....	139.76	.....	Chantre
Jews . . . . .	20	.....	141.0	.....	} Weissenberg
Jews (Georgia) . . . . .	33	.....	142.0	.....	
Georgians . . . . .	900	.....	143.0	.....	Dzhavahov
Lesghians . . . . .	11	.....	143.0	.....	Chantre
<i>Kurdistan</i>					
Kurds (Kharput and Erzinghin) . . . . .	23	.....	136	.....	Chantre
Kurds (Iran) . . . . .	19	104	138.0	75.36*	Danilov
Kurds (Iraq) . . . . .	13	105.69	138.38	76.08	Ehrich
Kurds (Milanli) . . . . .	20	.....	139	.....	} Chantre
Kurds (Bilikani) . . . . .	30	.....	140	.....	
Kurds . . . . .	63	114.9	141.06	80.99	Pittard
Kurds (Syria and Upper Iraq) . . . . .	35	100	149	67.09*	} Chantre
Kurds (Upper Iraq) . . . . .	22	116	151	76.82	
<i>Turkestan</i>					
Teke . . . . .	51	.....	129	.....	Iavorskiĭ
Vanch . . . . .	80	.....	136.65	.....	Korovnikov
Bukhara . . . . .	163	.....	138.0	.....	Oshanin
Iomuds . . . . .	107	104.97	138.16	.....	IArkho
Pskem Valley and Bukhara region . . . . .	100	.....	140.79	.....	.....
Chaudirs . . . . .	200	107.30	141.82	.....	} IArkho
Ferghana . . . . .	200	107.98	143.32	.....	
Arabs . . . . .	17	109	137	.....	} Maslovskiĭ
Arabs . . . . .	29	103	141	.....	
Arabs . . . . .	100	.....	142.1	.....	Oshanin
<i>Baluchistan</i>					
Lori . . . . .	58	.....	129.75	.....	.....
Biloch . . . . .	35	.....	130.63	.....	Joyce and Stein
Dehwari . . . . .	200	.....	131.55	.....	.....
Jat . . . . .	100	.....	132.15	.....	.....
Seistani . . . . .	37	.....	132.30	.....	Joyce and Stein
Makrani . . . . .	66	.....	132.45	.....	.....
Kalandrani . . . . .	21	.....	132.70	.....	.....
Chhutta Lok . . . . .	33	.....	132.95	.....	.....
Mir Jat . . . . .	48	.....	133.35	.....	.....
Mengal Brahui . . . . .	77	.....	133.55	.....	.....
Bandija . . . . .	35	.....	133.70	.....	.....
Wanechi Pathan . . . . .	59	.....	133.85	.....	.....
Sangur . . . . .	16	.....	133.85	.....	.....
Sayad . . . . .	33	.....	135.39	.....	Joyce and Stein

The above tables indicate that except for the Ba'ij Beduins (128.15) and my combined groups of Kish Arabs (129.90), whose foreheads are narrower as well, the peoples of Iran and Iraq have a bizygomatic breadth of about 133 to 137. Taking 134 as the most representative value for these two countries, we find the Trans-Jordan Beduins are considerably higher (means 135.6 and 135.9),

but that the Rwala of Syria (129.9) are closer to the two lowest Iraq groups (Ba'ij Beduins and Kish Arabs). The Samaritans of Palestine approximate my lowest figures from Iran.

In Anatolia and the Caucasus the faces are distinctly wider, the majority being more than 141.0. The Kurds, although variable to a questionable extent (136.0–151.0), are again wider in facial breadth.

The peoples of Turkestan (range 129.0–143.3), including the three Arab groups (means 137.0–142.1), show flaring zygomatic arches, characteristic of Mongoloid admixture. In Baluchistan, on the other hand, the faces are considerably narrower (range 129.8–135.39).

In India, according to Guha's figures, the majority vary little, from 132.0–134.0, figures which are close to the Iran means.

Thus we see that the Beduins of Iraq and Syria, as well as my Kish Arabs, seem to belong to a narrow-faced group, whereas the peoples of the Iranian Plateau, of northern Iraq, Trans-Jordan and Palestine, and of India are considerably wider in facial breadth, but by no means as wide as the series from Anatolia and the Caucasus.

The relationship between the minimum frontal diameter and the bizygomatic breadth gives the zygo-frontal or jugo-frontal index. The seven groups may thus be arranged in ascending order: Isfahan Jews (84.02), Yezd-i-Khast (84.10), Kinareh (84.54), Lurs (84.58), Iraq Soldiers (84.94), Kish Arabs (85.89), and Ba'ij Beduins (86.30). These groups show little variation (2.28) and since in this index they are relatively homogeneous, further discussion is unnecessary.

The tables (pp. 467–468) indicate that zygo-frontal indices for northern Iraq groups are lower than those for central and southern Iraq and southern central Iran, due more to a narrow forehead than to an unusual increase in bizygomatic breadth. The South Arabs are also considerably lower, but the Rwala Beduins approximate the Ba'ij Beduins and Kish Arabs. Although the indices do not differ much, the Trans-Jordan Beduins have greater facial and forehead widths in absolute terms than the Ba'ij and Syrian Beduins. The series from Anatolia, the Caucasus, and Kurdistan are lower in zygo-frontal index than our Iran and Iraq groups because of greater facial breadth.

*Bigonial Breadth and Zygo-gonial Index.*—The lower part of the face shows considerable variation within my seven groups from Iran and Iraq, which are arranged in ascending order as follows: Ba'ij Beduins (101.34), Kish Arabs (103.10), Lurs (105.42), Iraq Soldiers (107.10), Kinareh villagers (107.78), Isfahan Jews (107.86), and

Yezd-i-Khast villagers (109.58). The representatives of the Iranian Plateau appear to be considerably wider in bigonial breadth than the Lurs or the Arabs and Ba'ij Beduins of central Iraq.

The comparative table follows:

BIGONIAL BREADTH <sup>1</sup>				
<i>Iran</i>				
People	No.	Big. B.	Zyg. gon. index	Author
Lurs (Pusht-i-Kuh).....	52	105.42	78.64	} Field
Kinareh.....	74	107.78	80.83	
Jews (Isfahan).....	85-86	107.86	80.77	
Yezd-i-Khast.....	46	109.58	81.28	
<i>Iraq</i>				
Ba'ij Beduins.....	35	101.34	79.51	} Field
Kish Arabs.....	355-7	103.10	79.27	
Iraq Soldiers (Hilla).....	63	104.50	78.37	} Buxton and Rice
Kish Workmen.....	100	105.06	77.56	
Iraq Soldiers.....	220-1	107.10	79.69	Field
Turkomans.....	31	103.81	70.58	} Ehrich
Arabs.....	33	96.00	71.21	
Turkomans.....	31	.....	77.16	
<i>Arabia</i>				
Arabs.....	29	.....	72.59	Mochi
<i>Trans-Jordan</i>				
Akeydat Beduins.....	120	108.04	80.28*	} Shanklin
Mualy Beduins.....	174	108.10	79.54*	
<i>Palestine</i>				
Samaritans.....	35	.....	70.07	Huxley
Samaritans.....	27	.....	77.98	Szpidbaum
<i>Syria</i>				
Rwala Beduins.....	270	105.53	81.45	Shanklin
Syrians.....	262-3	107.62	77.26	Seltzer
<i>Anatolia</i>				
Turks (Brussa).....	46	107.2	.....	} Wagenseil
Turks (E. Provinces).....	34	107.4	.....	
Turks (Smyrna).....	44	107.6	.....	
Turks (Total).....	304	108.1	.....	
Turks (Kastamuni).....	45	108.2	.....	
Turks (Konia).....	47	108.3	.....	
Turks (Ankara).....	53	108.4	.....	
Turks (Dardanelles).....	35	110.1	.....	
Turks.....	200	.....	73.38	
Tachtadshy and Bektash...	50	.....	74.40	
<i>Caucasus</i>				
Armenians.....	19	108.63	76.47	von Erckert
Armenians.....	101	109.94	77.03	Seltzer
Armenians.....	105	112.26	78.26	Twarjanowitsch
<i>Kurdistan</i>				
Kurds (Iran).....	19	.....	70.5(?)	Danilov
Kurds.....	63	.....	72.83	Pittard
Kurds (Iraq).....	13	105.62	76.23	Ehrich

<sup>1</sup> Iraq: Turkoman Arabs (6), Z.G.I. 72.50, Ehrich.

*Turkestan*

People	No.	Big. B.	Zyg. gon. index	Author
Iomuds . . . . .	107	107.89	.....	} IArkho
Chaudirs . . . . .	200	111.58	.....	
Teke . . . . .	51	112	.....	IAvorskiï
Ferghana . . . . .	200	112.26	.....	IArkho
Arabs . . . . .	17	112	.....	} Maslovskiï
Arabs . . . . .	29	118	.....	

*Afghanistan*

Afghans . . . . .	18	113	.....	Matseevskii
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*Baluchistan*

Bandija . . . . .	35	99.49	.....	.....
Lori . . . . .	58	99.98	.....	.....
Dehwari . . . . .	200	101.58	.....	.....
Mir Jat . . . . .	48	101.66	.....	.....
Wanechi Pathan . . . . .	59	102.10	.....	.....
Jat . . . . .	100	102.70	.....	.....
Kalandrani . . . . .	21	103.80	.....	.....
Mengal Brahui . . . . .	77	105.14	.....	.....
Pani, Pauni (Pushta) . . . . .	100	106.94	.....	.....
Chhutta Lok . . . . .	33	99.49	.....	.....
Sangur . . . . .	16	108.74	.....	.....
Makrani . . . . .	66	109.02	.....	.....

From the above tables only the Rwala Beduins and the Lurs have as narrow lower faces as the groups from central Iraq (101.34–107.10). Other peoples from Syria, Trans-Jordan, Anatolia, and the Caucasus have the same or a slightly greater mandibular breadth than the central Iran groups (107.78–109.58).

In Turkestan, omitting Arabs, the lower part of the face is remarkably wide (range 107.9–112.26) whereas in Baluchistan the range is from 99.49 to 109.02, indicating a considerably narrower bigonial breadth.

According to Guha's figures the peoples of India are considerably narrower in bigonial breadth (96.22–101.66) than any of the groups I measured, with the exception of the Ba'ij Beduins (101.34). It must, however, be observed that in taking this measurement there can easily be a great variation in technique due to the amount of pressure applied, particularly when there is considerable development of the masseter muscles.

To summarize, the Beduins and Arabs of Iraq and Syria, as well as the peoples of Baluchistan and India, including Rajputana, United Provinces, Bengal, and the Southern Provinces, appear to have narrow bigonial breadths, while the peoples of central Iran, Trans-Jordan, and Anatolia, the Syrians, Armenians, and peoples of Turkestan are broader in the lower part of the face.

The relationship between the bigonial breadth and the bizygomatic breadth is called the zygo-gonial or jugo-mandibular index.

The seven groups, arranged in ascending order, follow: Lurs (78.64), Kish Arabs (79.27), Ba'ij Beduins (79.51), Iraq Soldiers (79.69), Isfahan Jews (80.77), Kinareh (80.83), and Yezd-i-Khast (81.28). The two representative series from Iran have the highest indices.

The table (pp. 470-471) shows that, taking the Yezd-i-Khast (81.28) and the Kinareh (80.83) villagers as our standard series for southern central Iran, we find all Iraq groups are lower in the zygo-gonial index, although my three significantly homogeneous groups are only slightly lower in this index. The South Arabs appear to be considerably lower, but the Rwala, Akeydat, and Mualy Beduins are almost identical with our Iran indices. The figures from Anatolia, the Caucasus, and Kurdistan indicate that these brachycephalic groups tend to have a distinctly lower zygo-gonial index. In other words, the Iran groups and the Rwala Beduins have a relatively wider lower face than any of the other groups from Southwestern Asia.

We now come to an examination of the important facial measurements and proportions. I shall deal with the upper face height, total face height, and relative face height in that order.

*Upper Facial Height and Upper Facial Index.*—In absolute upper facial height the seven groups may be arranged in ascending order as follows: Yezd-i-Khast (69.60), Kinareh (71.75), Isfahan Jews (72.40), Kish Arabs (73.00), Ba'ij Beduins (73.30), Iraq Soldiers (74.15), and Lurs (78.35). There is marked variation in the length of the upper part of the face, with a range of 8.75 mm. The peoples of central and southern Iraq appear to have slightly longer upper faces than the dwellers in Iran, with the exception of the Lurs. Among the northern groups in Iraq there seems to be a considerable lengthening of the face, approximating and even exceeding that of the Lurs of Pusht-i-Kuh (78.35).

#### UPPER FACIAL HEIGHT<sup>1</sup>

People	Iran			Author
	No.	U.F.H.	U.F.I.	
Yezd-i-Khast.....	46	69.60	51.83	} Field
Kinareh.....	73	71.75	53.81	
Jews (Isfahan).....	86-7	72.40	54.11	
Lurs (Pusht-i-Kuh).....	52	78.35	58.43	
		Iraq		
Iraq Soldiers (Hilla).....	63	66.20	49.34	} Buxton and Rice
Kish Workmen.....	100	67.30	49.55	
Kish Arabs.....	355	73.00	56.51	} Field
Ba'ij Beduins.....	35	73.30	57.29	
Iraq Soldiers.....	221	74.15	55.43	

<sup>1</sup> Iraq: Turkoman Kurds (7), U.F.H. 75.57, U.F.I. 55.00, Ehrlich; and Turkoman Arabs (6), U.F.H. 81.17, U.F.I. 60.17, Ehrlich.



<i>Iraq (Continued)</i>				
People	No.	U.F.H.	U.F.I.	Author
Kurds.....	13	78.62	57.62	} Ehrich
Arabs.....	33	79.09	57.42	
Turkomans.....	31	79.52	59.10	
<i>Trans-Jordan</i>				
Akeydat Beduins.....	120	71.82	52.10*	} Shanklin
Mually Beduins.....	174	73.00	53.71*	
<i>Syria</i>				
Rwala Beduins.....	270	69.99	53.96	Shanklin
Syrians.....	264-5	72.80	52.61	Seltzer
<i>Anatolia</i>				
Tachtadshy and Bektash.....	50	75.80	53.78	von Luschan
Turks (Osmanli).....	47	77.0	55.0*	Zupanic
<i>Caucasus</i>				
Armenians.....	100	76.61	53.67	Seltzer

From the above tables we see that the Rwala, Akeydat, and Mually Beduins of Trans-Jordan and Syria fall well within a slight degree of variation (69.99-73.00) equivalent to the central Iran and central Iraq groups. The scant figures from Anatolia and the Caucasus suggest that in this region the upper faces tend to be slightly longer but not as long as the northern Iraq groups and the Lurs. The peoples of India, according to Guha's tables, vary from 64.26-70.16, figures which indicate a short upper face, slightly below that for southern central Iran.

When we examine the relation of the length of the upper face to that of the total face the following results appear: Yezd-i-Khast (51.83), Kinareh (53.81), Isfahan Jews (54.11), Iraq Soldiers (55.43), Kish Arabs (56.51), Ba'ij Beduins (57.29), and Lurs (58.43). From this array it is evident that the representative Iran groups have relatively shorter upper faces than the Iraqis and the Lurs.

In this relative facial index Keith notes a "ram-faced" type, about which he (1935, pp. 52-60) writes: "Among eastern peoples distributed in the southwestern part of Asia from the Pamir to Asia Minor, there occurs a type of face which seizes upon the attention of the student of human races. People with this type of face are sometimes described as 'ram-faced'; the upper face carrying the nose is long, while the mandibular part of the face is short. . . . The preponderance of the upper face in the Arab is a character which leads us to seek a relationship among upland peoples of southwest Asia. It is common among the peoples of Iran and among those who inhabit countries to the north and east of Iran."

The above prediction with regard to the occurrence of "ram-faced" individuals, i.e. those with a face length of 119 mm. or less and

an upper face height of 70 mm. or more, in Iran is not borne out by my measurements but it may well be true for the entire country when complete anthropometric data are available.

Among the nine groups measured in Iraq and Iran the following percentages of "ram-faced" individuals occur: Jews 10.70, Yezd-i-Khast villagers 10.85, Kinareh villagers 10.96, Lurs 7.68, Ba'ij Beduins 49.97; Kish Arabs (K<sub>1</sub>) 16.00, (K<sub>2</sub>) 22.00, (K<sub>3</sub>) 24.00; Iraq Soldiers (S) 32.00. From this array it is obvious that the groups from Iran have a less "heavy" upper face than the Iraqis. At least half of the Ba'ij Beduins and one-third of the Iraq Soldiers are "ram-faced," whereas only 10 per cent of the Iran groups have this characteristic.

The relation of upper facial height and facial breadth, as given in the upper facial index in the preceding table shows only slight differences from the trend for absolute upper face heights. The narrow bizygomatic breadth of the Ba'ij Beduins is responsible for a slight abnormal increase of the index.

*Total Facial Height and Total Facial Index.*—This measurement shows considerable variation when the seven groups from Iran and Iraq are arranged in ascending order: Ba'ij Beduins (116.70), Kish Arabs (119.95), Yezd-i-Khast (121.00), Iraq Soldiers (121.10), Kinareh (122.40), Isfahan Jews (123.45), and Lurs (126.40). In general the Iran groups have longer faces than the central Iraqis. The Yezd-i-Khast and Kinareh groups, however, are only slightly higher than the Kish Arabs and Iraq Soldiers; but in northern Iraq there seems to be considerable lengthening of the face, as there is among the Lurs.

TOTAL FACIAL HEIGHT<sup>1</sup>

People	No.	<i>Iran</i>		Author
		T.F.H.	T.F.I.	
Yezd-i-Khast.....	46	121.00	90.15	} Field
Kinareh.....	74	122.40	91.95	
Jews (Isfahan).....	83-4	123.45	92.30	
Lurs (Pusht-i-Kuh).....	52	126.40	93.85	
		<i>Iraq</i>		
Kish Workmen.....	100	114.30	84.40	} Buxton and Rice
Iraq Soldiers (Hilla).....	63	115.40	86.35	
Ba'ij Beduins.....	35	116.70	91.30	} Field
Kish Arabs.....	354-5	119.95	92.65	
Iraq Soldiers.....	220-1	121.10	90.45	
Jews.....	37	124.0	92.5	} Weissenberg
Turkomans.....	31	128.26	95.03	
Arabs.....	33	128.67	93.36	} Ehrich

<sup>1</sup> Iraq: Turkoman Kurds (7), T.F.H. 122.71, T.F.I. 89.14, Ehrich; and Turkoman Arabs (6), T.F.H. 128.0, T.F.I. 96.17, Ehrich.

People	No.	T.F.H.	T.F.I.	Author
Akeydat Beduins.....	120	123.32	91.90	} Shanklin
Mualy Beduins.....	175	124.04	92.34	
<i>Palestine</i>				
Samaritans.....	27	120.0	89.7	} Szpidbaum Huxley
Samaritans.....	35	125.0	94.4	
<i>Syria</i>				
Rwala Beduins.....	270	119.20	91.67	} Shanklin Seltzer
Syrians.....	263-4	122.90	88.58	
<i>Anatolia</i>				
Turks (Dardanelles).....	36-8	120.1	85.39	} Wagenseil
Turks (Smyrna).....	48-61	120.4	87.16	
Turks (Brussa).....	76-88	120.5	87.14	
Tachtadshy and Bektash..	50	121.44	85.88	} von Luschan
Turks (Total).....	406-66	121.6	86.74	
Turks (E. Provinces).....	34-9	121.8	87.07	} Wagenseil
Turks (Kastamuni).....	92-103	122.1	86.08	
Turks (Konia).....	58-68	122.1	87.00	
Turks (Ankara).....	62-69	123.1	87.09	} Hasluck and Morant Crowfoot
Turks.....	200	124.22	87.40	
Bektash (Ankara).....	15	131.80	91.80	
<i>Caucasus</i>				
Armenians.....	25	120.2	85.5	} Hrdlička Weissenberg
Armenians.....	20	122.0	89.7	
Armenians.....	19	123.16	86.74	} von Erckert Seltzer
Armenians.....	100	127.96	89.74	
Armenians.....	105	130.24	90.79	} Twarjanowitsch Weissenberg
Jews (Georgia).....	33	125.0	88.0	
Jews.....	20	125.0	88.6	
Georgians.....	900	126.0	88.1	} Dzhavahov
<i>Kurdistan</i>				
Kurds (Iraq).....	13	127.62	.....	} Ehrich
<i>Turkestan</i>				
Vanch.....	80	115.42	.....	} Korovnikov
Pskem Valley and Bukhara region.....	100	117.45	.....	} Oshanin IAvorskiĭ
Bukhara.....	163	120.4	.....	
Teke.....	51	122	.....	} IAarkho
Iomuds.....	107	130.42	.....	
Ferghana.....	200	130.54	.....	
Chaudirs.....	200	132.90	.....	} Maslovskiĭ Oshanin
Arabs.....	29	122.7	.....	
Arabs.....	100	124.66	.....	
<i>Baluchistan</i>				
Biloch.....	35	114.43	.....	} Joyce and Stein
Dehwari.....	200	114.85	.....	} Joyce and Stein
Sayad.....	33	116.73	.....	
Seistani.....	37	117.65	.....	
Pani, Pauni (Pushta).....	99	119.35	.....	} .....

The Rwala (119.20), Akeydat (123.32), and Mualy (124.04) Beduins have longer faces than the group of Ba'ij Beduins (116.70).

In general, there is remarkably little variation in the Anatolian series, the majority falling between 120.1 and 124.22, figures which approximate closely those of central Iran.

In the Caucasus (range 120.2–130.24) the face tends to be long but in Turkestan the range (115.4–132.9) is so great that no deductions can be drawn except perhaps to state that around Bukhara the faces seem to be considerably shorter than in other areas of Turkestan where the face is extremely long in total face height. In Baluchistan, on the other hand, the face is extremely short (range 114.4–119.4).

There is a trend toward increase in total face length among the peoples of the Caucasus, Turkestan, and possibly in Kurdistan.

The total facial index, the relationship between total face height and bizygomatic breadth, expressed according to the threefold classification, appears as follows:

People	MEAN	TOTAL FACIAL INDEX						
		EURYPROSOPIC (x-84.5)		MESOPROSOPIC (84.6-89.4)		LEPTOPROSOPIC (89.5-x)		TOTALS
		No.	Per cent	No.	Per cent	No.	Per cent	
Yezd-i-Khast....	90.15	5	10.87	17	36.96	24	52.17	46
Iraq Soldiers....	90.45	25	11.36	79	35.91	116	52.73	220
Ba'ij Beduins....	91.30	3	8.57	9	25.71	23	65.71	35
Kinareh.....	91.95	5	6.76	22	29.73	47	63.51	74
Jews.....	92.30	4	4.82	21	25.30	58	69.88	83
Kish Arabs.....	92.65	43	12.15	77	21.75	234	66.10	354
Lurs.....	93.85	3	5.77	6	11.54	43	82.69	52

The above table shows that out of 864 individuals 545 (63.08 per cent) are leptoprosopic, 231 (26.74 per cent) are mesoprosopic, the remaining 88 (10.19 per cent) being euryprosopic. Turning to Keith's system of classification, we see the Kish Arabs, Ba'ij Beduins, and Egyptians broken up so as to be comparable with the table for Iran on page 397.

	BIZYGOMATIC BREADTH				
		NARROW (x-124)	MEDIUM (125-134)	WIDE (135-x)	TOTALS
		Per cent	Per cent	Per cent	Per cent
Total facial height					
Short (x-114).....	B.....	13.15	15.78	.....	28.93
	K <sub>1, 2, 3</sub> .....	8.67	8.67	4.66	22.00
	E.....	4.00	30.00	8.00	42.00
Medium (115-124).....	B.....	15.78	34.19	18.41	68.38
	K <sub>1, 2, 3</sub> .....	15.33	24.67	12.67	52.67
	E.....	.....	38.00	14.00	52.00
Long (125-x).....	B.....	.....	.....	2.63	2.63
	K <sub>1, 2, 3</sub> .....	4.00	13.33	8.00	25.33
	E.....	.....	6.00	.....	6.00
Totals.....					Men
	B.....	28.93	49.97	21.04	38
	K <sub>1, 2, 3</sub> .....	28.00	46.67	25.33	150
	E.....	4.00	74.00	22.00	50

Whereas the Iran groups have predominantly medium to long and medium to wide faces, the Lurs possessing almost twice as many long and wide faces as any of the other three groups, the Ba'ij

Beduins tend to have medium to short and wide to narrow faces. The Kish Arabs present less compact grouping of percentages but show an almost balanced grouping of short and long and narrow and wide faces. The Egyptian faces are medium to short in length and medium in width.

From the table for total facial index throughout Southwestern Asia, it appears that the range for our two standard Iran groups (90.15-91.95) does not differ very markedly from that of the three Iraq groups (90.45-92.65). The three Beduin groups, the Akeydat, Mu'aly, and Ruala, have a range of 91.67 to 92.34, only slightly higher than that of the Ba'ij Beduins, although there was a considerable difference in actual face height. Proportion of length to breadth for the Beduin faces, therefore, appears to be similar. In Anatolia, however, the Turks (85.39-87.40) have a considerably lower total facial index, as have the peoples of the Caucasus (85.5-90.79), and the Syrians (88.58).

From Guha's figures the range for India appears to be 86.77-91.68, the majority falling below 89.0.

Thus the peoples of Iran, Iraq, the Beduins of Trans-Jordan and Syria, seem to have a higher total facial index than the peoples of Anatolia, the Caucasus, and India, and in consequence relatively longer faces.

*Nasal Measurements and Index.*—The size and shape of the nose has always been regarded as one of the most important racial criteria.

#### NASAL MEASUREMENTS

People	Nasal height	Nasal breadth	Nasal index
Lurs.....	62.22	35.75	57.42
Yezd-i-Khast.....	51.22	32.84	64.62
Kinareh.....	51.66	32.81	64.54
Jews (Isfahan).....	53.82	34.19	63.86
Kish Arabs.....	58.50	35.42	61.14
Iraq Soldiers.....	57.02	34.76	61.62
Ba'ij Beduins.....	59.90	34.82	58.06

With the exception of the Lurs, the noses of the Iran series are markedly shorter than those of the Iraq groups. There is the same tendency toward increased breadth, but it is not as strong. This is borne out by the nasal index, which shows that the Iraq groups have relatively narrower noses than the Iran groups. The Isfahan Jews possess relatively short noses, well below the averages of the Iraq groups and 8.4 mm. below that of the Lurs.

In order to show the important trends in nasal measurements and indices, the percentages of individuals from Iraq, Egypt, and

India have been tabulated according to Keith's classification in the following table, so as to be comparable with the table for Iran (p. 400).

		NASAL WIDTH						
		VERY NARROW (x-29) Per cent	MEDIUM NARROW (30-35) Per cent	MEDIUM WIDE (36-41) Per cent	WIDE (42-x) Per cent	TOTALS		
						Per cent		
Nasal length	Short (x-49).....	B.....	.....	.....	.....	.....		
		K <sub>1, 2</sub> .....	1.00	3.00	.....	.....	4.00	
		S <sub>1</sub> .....	.....	.....	.....	.....	.....	
		E.....	.....	16.00	34.00	6.00	56.00	
		C.....	2.00	32.00	32.00	.....	66.00	
	P.....	.....	26.00	12.00	.....	38.00		
Medium (50-59)...	Medium (50-59)...	B.....	.....	34.19	7.89	42.08		
		K <sub>1, 2</sub> .....	4.00	26.00	16.00	.....	46.00	
		S <sub>1</sub> .....	.....	42.00	38.00	2.00	82.00	
		E.....	2.00	6.00	32.00	4.00	44.00	
		C.....	.....	14.00	18.00	2.00	34.00	
	P.....	.....	54.00	8.00	.....	62.00		
Long (60-x).....	Long (60-x).....	B.....	.....	23.67	31.56	57.86		
		K <sub>1, 2</sub> .....	1.00	25.00	21.00	3.00	50.00	
		S <sub>1</sub> .....	.....	10.00	8.00	.....	18.00	
		E.....	.....	.....	.....	.....	.....	
		C.....	.....	.....	.....	.....	.....	
	P.....	.....	.....	.....	.....	.....		
Totals.....	Totals.....	B.....	.....	57.86	39.45	2.63	Men	
		K <sub>1, 2</sub> .....	6.00	54.00	37.00	3.00	38	
		S <sub>1</sub> .....	.....	52.00	46.00	2.00	100	
		E.....	2.00	22.00	66.00	10.00	50	
		C.....	2.00	46.00	50.00	2.00	50	
	P.....	.....	80.00	20.00	.....	50		

There is an apparent difference between the Iran groups and those from Iraq. In Iran there are more individuals in the very narrow (x-29) and medium (50-59) class than there are in Iraq.

Taking the largest divisions or combined divisions we find that 80 per cent of the Iraq Soldiers are medium in width and length of nose. Of the Kish Arabs 46 per cent are medium in width and long, while 42 per cent of the noses are medium in width and medium in length. The Ba'ij Beduins have 55.23 per cent with noses medium in width and long.

Yezd-i-Khast and Kinareh villagers fall into approximately the same proportions with predominantly medium-narrow and medium to short noses, although the Yezd-i-Khast people have more cases of extreme length and less of extreme width, an observation which is not brought out by either the average or the Harvard three-fold system of classification.

Among the Jews 69.62 per cent have noses medium in width and medium in length, falling intermediately between the Iraq Soldiers and the Kish Arabs. The Lurs are medium in width and

long (58.80 per cent), a percentage equal to that of the Ba'ij Beduins, although, whereas 34.19 per cent of the Ba'ij Beduins' noses are medium narrow and medium in length, only 17.64 per cent of the Lurs come in this single class, having a slightly greater tendency toward medium-wide noses.

In general, the Egyptians and Indians have much shorter and, with the exception of the Pathans, wider noses than our people from Iran and Iraq. In India the Chatri and Pathan samples differ from each other. While 64 per cent of the Chatri Caste have noses medium in width and short, the Pathans have 62 per cent with noses medium in width and length and 26.00 per cent with short, medium-narrow noses, but few short, medium-wide noses.

The Egyptians lie between these two extremes, having 50 per cent with noses short and medium in width and 32 per cent with medium-long and medium-wide noses.

No individual in the three groups from Egypt and India has a long nose. The Ba'ij Beduins and Iraq Soldiers have no short or very narrow noses. The Lurs have no very narrow noses and the Yezd-i-Khast villagers have no very wide noses.

To show the trends eastward Guha's figures on the peoples of India have been added.

INDIA (After Guha)

People	No.	Nasal ht.	Nasal br.	Nasal index
Bengali Brahmin.....	50	54.20	36.58	67.71
Bengali Kayastha.....	100	54.61	37.09	68.11
Bengali Pod.....	50	51.18	36.66	71.81
Orissa Brahmin.....	143	51.76	36.36	70.46
United Provinces Brahmin.....	50	53.64	37.18	69.56
Rajputs.....	50	52.38	36.56	70.03
Nambudiri.....	55	51.98	37.22	72.28
Nair.....	60	52.32	37.70	72.37
Tamil Brahmin.....	50	51.38	36.82	71.92

It is evident that the peoples of India tend to have shorter and broader noses than the three Iraq groups. On the other hand, the Yezd-i-Khast and Kinareh men differ but slightly in nasal length, but are narrower than the series from India. The nasal indices from the Iran and Iraq groups are decidedly lower than those from India.

NASAL LENGTH<sup>1</sup>

People	No.	Mean	Author
Yezd-i-Khast.....	46	51.22	} Field
Kinareh.....	74	51.66	
Jews (Isfahan).....	86	53.82	
Lurs (Pusht-i-Kuh).....	51	62.22	

<sup>1</sup> Iran: Ajemis (9), 52.0, Chantre; Ajemis (2), 58.0, Houssay; and Bakhtiaris (3), 65.0, Houssay.

<i>Iraq</i>			
People	No.	Mean	Author
Iraq Soldiers (Hilla) . . . . .	63	46.46	} Buxton and Rice
Kish Workmen . . . . .	100	47.58	
Jews . . . . .	37	56.0	} Weissenberg
Iraq Soldiers . . . . .	221	57.02	
Kish Arabs . . . . .	358	58.50	} Field
Arabs . . . . .	33	58.52	
Turkomans . . . . .	31	58.81	} Ehrlich
Ba'ij Beduins . . . . .	35	59.90	
<i>Arabia</i>			
Arabs . . . . .	29	50.24	Mochi
<i>Trans-Jordan</i>			
Akeydat Beduins . . . . .	120	54.66	} Shanklin
Mualy Beduins . . . . .	175	55.42	
<i>Palestine</i>			
Samaritans . . . . .	27	54.33	Szpidbaum
Samaritans . . . . .	35	55.0	Huxley
<i>Syria</i>			
Rwala Beduins . . . . .	270	55.11	Shanklin
Syrians . . . . .	264	55.22	Seltzer
<i>Anatolia</i>			
Turks . . . . .	200	52.48	Pittard
Turks . . . . .	200	53.95	Hasluck and Morant
Turks (Smyrna) . . . . .	44	56.2	} Wagenseil
Turks (Dardanelles) . . . . .	35	56.2	
Turks (Brussa) . . . . .	46	56.3	
Turks (Kastamuni) . . . . .	46	56.6	
Turks (Total) . . . . .	306	57.0	
Turks (Konia) . . . . .	48	57.2	
Turks (Ankara) . . . . .	53	57.8	
Turks (E. Provinces) . . . . .	34	58.6	
Bektash (Ankara) . . . . .	15	58.80	
Assyrians . . . . .	22	52.0	
<i>Caucasus</i>			
Armenians . . . . .	25	53.0	Hrdlička
Armenians . . . . .	292	53.98	Chantre
Armenians . . . . .	20	55.0	Weissenberg
Armenians . . . . .	19	55.79	von Erckert
Armenians . . . . .	75	56.28	Boas
Armenians . . . . .	101	59.93	Seltzer
Lesghians . . . . .	11	51.0	} Chantre
Tadzhiks (Kura Valley) . . . . .	29	52.48	
Jews . . . . .	20	57.0	} Weissenberg
Jews (Georgia) . . . . .	33	58.0	
Georgians . . . . .	900	60.0	
<i>Kurdistan</i>			
Kurds (Syria) . . . . .	35	49	} Chantre
Kurds (Upper Iraq) . . . . .	22	50	
Kurds (Kharput) . . . . .	23	52	
Kurds (Bilikani) . . . . .	30	53	
Kurds . . . . .	63	55.86	Pittard
Kurds (Milanli) . . . . .	20	56	Chantre
Kurds (Iraq) . . . . .	13	58.92	Ehrlich

When we compare the seven groups from Iraq and Iran with those from other parts of Southwestern Asia we see that in length



the South Arabs (50.24) and two groups of Kurds (49.0-50.0) come closest to and slightly below our shortest Iran series, and that the Isfahan Jews have shorter noses than the Jews from Iraq and the Caucasus. The Akeydat, Mualy, and Rwala Beduins and the Samaritans are almost 4 mm. longer than the South Arabs. In Anatolia the Turks have noses about 5 mm. longer than my Iranis. In the Caucasus there is great variation, the Lesghians and the Tadzihks of Kura Valley, as well as the Assyrians of Anatolia, being close to the two Iran groups; the remainder of the series seem to be slightly higher, with 900 Georgians (60.0) as the highest. The Kurds vary from 49.0 to 58.92, although Chantre's series from Upper Iraq is close to that of the two type groups from Iran. The Iraq groups have comparatively long noses and the Lurs and Bakhtiariis, at the top of the scale, exceptionally long noses.

In nasal breadth there are apparently few differences, but since this measurement is so small these variations have significance.

NASAL BREADTH<sup>1</sup>

<i>Iran</i>			
People	No.	Mean	Author
Kinareh.....	74	32.81	} Field
Yezd-i-Khast.....	46	32.84	
Jews (Isfahan).....	86	34.19	
Lurs (Pusht-i-Kuh).....	51	35.75	
<i>Iraq</i>			
Iraq Soldiers (Hilla).....	63	33.47	} Buxton and Rice
Kish Workmen.....	100	33.74	
Jews.....	37	34.0	} Weissenberg
Iraq Soldiers.....	222	34.76	
Ba'ij Beduins.....	35	34.82	} Field
Turkomans.....	31	35.00	
Arabs.....	33	35.39	} Ehrich
Kish Arabs.....	359	35.42	
<i>Arabia</i>			
Arabs.....	29	35.10	Mochi
<i>Trans-Jordan</i>			
Akeydat Beduins.....	118	36.28	} Shanklin
Mualy Beduins.....	175	36.82	
<i>Palestine</i>			
Samaritans.....	35	37.0	Huxley Szpidbaum
Samaritans.....	27	37.77	
<i>Syria</i>			
Syrians.....	264	34.76	Seltzer Shanklin
Rwala Beduins.....	270	35.00	

<sup>1</sup> Iran: Ajemis (9), 35.0, Chantre; Ajemis (2), 38.0, Houssay; Bakhtiariis (3), 39.0, Houssay.

<i>Anatolia</i>			
People	No.	Mean	Author
Turks (Brussa).....	46	34.4	} Wagenseil
Turks (Dardanelles).....	35	34.9	
Turks (Smyrna).....	44	34.9	
Turks (Kastamuni).....	45	35.3	
Turks (Total).....	304	35.3	
Turks.....	200	35.65	Hasluck and Morant
Turks (Ankara).....	53	35.9	} Wagenseil
Turks (Konia).....	47	35.9	
Bekdash (Ankara).....	15	36.07	Crowfoot
Turks.....	200	36.63	Pittard
Turks (Osmanli).....	47	37	Zupanic
Turks (E. Provinces).....	34	38.0	Wagenseil
Assyrians.....	22	35.0	Chantre
<i>Caucasus</i>			
Armenians.....	105	30.40	Twarjanowitsch
Armenians.....	20	33.0	Weissenberg
Armenians.....	25	35.6	Hrdlička
Armenians.....	292	35.60	Chantre
Armenians.....	19	35.74	von Erckert
Armenians.....	75	37.17	Boas
Armenians.....	101	37.96	Seltzer
Georgians.....	900	34.0	Dzhavahov
Jews (Georgia).....	33	34.0	} Weissenberg
Jews.....	20	35.0	
Tadzhiks (Kura Valley).....	29	35.96	} Chantre
Lesghians.....	11	36.0	
<i>Kurdistan</i>			
Kurds (Bilikani).....	30	35	} Chantre
Kurds (Kharput).....	23	35	
Kurds (Iraq).....	13	35.15	Ehrich
Kurds (Syria).....	35	36	} Chantre
Kurds (Milanli).....	20	36	
Kurds (Upper Iraq).....	22	39	

The Bakhtiaris have the broadest noses (39.0), but since there must be a high degree of correlation between nasal length and breadth the largest noses would tend to be broader than the others. The nasal breadth of one group of Chantre's Kurds from Upper Iraq is also 39.0 but the nasal length is only 50.0 as contrasted with that of the Bakhtiaris (65.0). Although the Lur nose is 10 mm. longer it is only 3 mm. wider than the averages of the other Iran groups.

In nasal breadth the Iraq groups, the South Arabs, and the Syrians seem only about 2 mm. wider than the villagers of southern central Iran, although the latter have relatively longer noses. The Trans-Jordan Beduins and the Palestine Samaritans are from 3 to 4 mm. wider than the Iran groups. The Turks of Anatolia vary from 34.4 to 38.0, the majority being from 35.3 to 36.6. In the Caucasus the Armenians show an extremely wide range (30.40-37.96) with a mean of 35.60 for 292 individuals. The Kurds seem to be several millimeters wider than the two Iran groups.

When the relation of the length and breadth of the nose is examined we find that the nasal indices can be grouped in the following classifications.

People	NASAL INDEX						TOTALS
	MEAN	LEPTORRHINE ( $x-67.4$ )		MESORRHINE ( $67.5-83.4$ )		PLATYRRHINE ( $83.5-x$ )	
		No.	Per cent	No.	Per cent	No. Per cent	
Lurs	57.42	45	88.24	6	11.76	0	51
Ba'ij Beduins	58.06	32	91.43	3	8.57	0	35
Kish Arabs	61.14	292	81.56	64	17.88	2	358
Iraq Soldiers	61.62	133	82.81	38	17.19	0	221
Jews	63.86	62	72.94	23	27.06	0	85
Kinareh	64.54	50	67.57	20	27.03	4	74
Yezd-i-Khast	64.62	30	65.22	14	30.43	2	46

The majority are leptorrhine with a tendency toward mesorrhiny. The platyrrhine individuals appear to be almost negligible, but it must be noted that the two series from southern central Iran contain 4 to 5 per cent in this category. The nasal index of the Yezd-i-Khast (64.62) and Kinareh villagers (64.54) is considerably higher than in my groups from Iraq, because of this tendency toward platyrrhiny.

NASAL INDEX<sup>1</sup>

People	<i>Iran</i>		Author
	No.	Mean	
Lurs (Pusht-i-Kuh)	51	57.42	} Field
Jews (Isfahan)	85	63.86	
Kinareh	74	64.54	
Yezd-i-Khast	46	64.62	
<i>Iraq</i>			
Ba'ij Beduins	35	58.06	Field
Turkomans	31	59.49	Ehrich
Jews	37	60.7	Weissenberg
Arabs	33	60.73	Ehrich
Kish Arabs	358	61.14	} Field
Iraq Soldiers	221	61.62	
Kish Workmen	100	71.74	} Buxton and Rice
Iraq Soldiers (Hilla)	63	72.86	
<i>Arabia</i>			
Arabs	29	71.48*	Mochi
<i>Trans-Jordan</i>			
Akeydat Beduins	116	65.95	} Shanklin
Mualy Beduins	175	66.26	
<i>Palestine</i>			
Samaritans	35	66.4	Huxley
Samaritans	27	69.87	Szpidbaum
<i>Syria</i>			
Syrians	262	63.26	Seltzer
Rwala Beduins	270	63.73	Shanklin
Ansaries (Antioch)	42	72.00	Chantre

<sup>1</sup> Iran: Bakhtiaris (3), 60.0\*, Houssay; Ajemis (2), 65.52\*, Houssay; Ajemis (9), 67.30, Chantre; and Dizfulis (9), 86.00\*, Houssay.

People	No.	Mean	Author	
<i>Anatolia</i>				
Bekdash (Ankara).....	15	61.34	Crowfoot	
Turks (E. Provinces).....	39	61.41	} Wagenseil	
Turks (Dardanelles).....	37	61.81		
Turks (Brussa).....	58	61.96		
Turks (Kastamuni).....	56	62.39		
Turks (Ankara).....	60	62.40		
Turks (Total).....	364	62.42		
Turks (Smyrna).....	57	63.03		
Turks (Konia).....	57	63.36		
Turks (Osmanli).....	47	66		Zupanic
Turks.....	200	67.20		Hasluck and Morant
Turks (Osmanli).....	300	69.2	} Pittard	
Turks.....	200	69.74		
Assyrians.....	22	67.30	Chantre	
<i>Caucasus</i>				
Armenians.....	20	60.0	Weissenberg	
Armenians.....	110	60.4	Pantiukhov	
Armenians.....	101	63.80	Seltzer	
Armenians.....	19	64.16	von Erckert	
Armenians.....	125	66.0	Pittard	
Armenians.....	75	66.04	Boas	
Armenians.....	292	66.04	Chantre	
Armenians.....	25	67.17*	Hrdlička	
Georgians.....	900	56.6	Dzhavahov	
Jews (Georgia).....	33	58.6	} Weissenberg	
Jews.....	20	61.4		
Russian Jews.....	...	62.0	Elkind	
Georgians.....	...	64.5	} Chantre	
Tatars (Yerevan).....	17	66.04*		
Tatars (Azerbaidzhan).....	19	66.04.		
Ossetes.....	534	66.5	Deniker	
Tadzhiks (Kura Valley).....	29	66.64	} Chantre	
Tatars (Aralych).....	16	66.67*		
Ossetes.....	...	66.8	Gil'chenko	
Tatars (Arkhuri).....	15	67.31*	Chantre	
Lazes.....	152	67.8	Pittard	
Lesghians.....	11	70.59	Chantre	
<i>Kurdistan</i>				
Kurds (Iraq).....	13	59.65*	Ehrich	
Kurds.....	300	62.4	Ivanovskii	
Kurds.....	63	63.94	Pittard	
Kurds (Milanli).....	20	64.29*	} Chantre	
Kurds (Bilikani).....	30	66.04*		
Kurds (Kharput).....	23	67.31		
Kurds (Syria).....	35	73.47*		
Kurds (Upper Iraq).....	22	78.00*		
<i>Turkestan</i>				
Galchas.....	27	66.8	Deniker	
Kirghiz.....	20	71.8	Ivanov	
Kara-Kirghiz (Semirietchié).....	40	74.9	Seeland	
Turfan.....	...	78.3	Joyce	
<i>Afghanistan</i>				
Hazara.....	...	80.5	Haddon	
<i>Baluchistan</i>				
Baluchis.....	60	69.4	Pittard	
Brahui (Sarawán).....	...	70.9	Haddon	

This table reveals that the Lurs and Bakhtiaris from Iran, the Iraq groups, some Georgians and Armenians, and Caucasus Jews have the greatest degree of leptorrhiny for the areas under consideration. Second in leptorrhine tendency are the Bektash, Wagen-seil's Turks from Anatolia, the Syrians and Rwala Beduins, Caucasus Armenians, and our Iran groups. At the other end of the scale the peoples of Turkestan, Afghanistan and Baluchistan, of South Arabia, the Ansaries and Chantre's Kurds from Syria and Upper Iraq show the greatest tendency to platyrrhiny. Other groups are intermediary. The South Arabs (71.48) are more platyrrhine, but the Akeydat (65.95), Mualy (66.26), and Rwala (63.73) Beduins, while differing from the Ba'ij Beduins (58.06), approximate our Iran figures. It must be noted here that the infiltration of Negro blood among the Beduin tribesmen as the result of the importation of slaves from Africa in ancient and modern times would tend to show itself in the nasal measurements.

From Anatolia the Turks show a considerable range (61.34-69.74), the majority being about 62.42 with another concentration at 67.2-69.74. In the Caucasus region the Armenians vary from 60.0 to 67.17, the majority being slightly higher than the Iran groups. Throughout this mountainous region there is a great deal of variation (56.6-70.59), which would indicate on the basis of nasal index alone a plethora of racial elements, an indication also established on anthropometric, cultural, and linguistic grounds.

The inhabitants of Kurdistan also show considerable variation (59.65-78.00), but the majority differ but little from our two Iran groups.

The nasal index in Turkestan appears to vary from 66.8 to 78.3, but the small size of the sporadic groups prevents further discussion on such inadequate series. The Baluchis seem to have a higher nasal index than the dwellers on the Iranian Plateau. As shown on pages 478 and 479 the peoples of India tend to have shorter and broader noses than our series from Iran and Iraq.

It is clear that one will not find here any geographical distribution of nasal indices. Some of the countries include such a wide range of variation that an individual study of each group would be necessary to make any racial distinctions. It may be said, moreover, that the technique of nose measurements, especially the nasal height and the frequent difficulty in locating nasion, lends itself to error more than any other anthropometric measurement.

Variations here may be due to differences in observation and the anthropologist must approach his conclusions warily.

We have now examined the nasal measurements and indices and there remains but to tabulate the nasal form. As will be seen from the following table the shape of the nose was classified in Iran under five headings and only under four divisions in Iraq.

	Wavy	NASAL FORM			Concavo-convex
		Concave	Straight	Convex	
Lurs.....	3.92	.....	49.02	45.10	1.96
Yezd-i-Khast.....	2.17	10.87	39.13	43.48	4.35
Kinareh.....	2.99	4.48	34.33	52.24	5.97
Jews.....	1.15	14.94	32.18	47.13	4.60
Kish Arabs.....	.....	11.00	57.60	20.10	11.30
Iraq Soldiers.....	.....	9.90	57.00	31.00	2.10
Ba'ij Beduins.....	.....	15.79	73.70	2.63	7.89

The above table shows that the greatest number of the Iranis and Iraqis possess straight or convex noses, the former being in the majority. Among the four Iran groups about half of the individuals recorded had aquiline noses, a percentage which suggests that this accentuated character may have developed on the Iranian Plateau. These statistical results, combined with a study of the photographs, have led Dr. Hooton (1937b, pp. 171-172) to make the following statements:

"The present center of distribution, and perhaps the area of differentiation of these high-bridged, convex noses [with the very depressed tip, convex septum and recurved alae] is certainly the Iranian plateau. The recent anthropometric field work of Dr. Henry Field in Iran and Iraq, as yet incompletely published, makes it perfectly clear that a fundamental racial type in that area is characterized by extreme dolichocephaly, long faces and very prominent, beaky noses, sometimes straight, but usually convex. The dominant convexity of this nose has apparently been diffused into many adjacent stocks through intermixture, but there seems little doubt that it is 'at home' in this Iranian Plateau race. I am of the opinion that the so-called 'Armenoid' nose which has a thick, spatulate, and often depressed tip is derived from a mixture of this Iranian type with a brachycephalic, rather broad-nosed type. If this is true the Armenoid nose is a hybrid nose. It seems also probable that the very thin, aquiline noses found in many 'Mediterranean' race Arabs may be derived from this source, as are also the Jewish convex noses. The prevalent habit of speaking of the Jewish nose as 'Armenoid' is, on this basis, incorrect.

"These prominent aquiline noses, originating, probably, on the Iranian Plateau, were not only acquired in a mixed and modified

form by the peoples to the west and south, but also by those to the north and east. They are distributed through Afghanistan and Northern India. Through the Turkish stocks to the north of Persia they were diffused to the Mongoloids, and ultimately, to America. We know enough about the inheritance of nose form to be fairly certain that convex, high-bridged noses are in a Mendelian sense dominant over the low, concave, short-tipped forms which are the more infantile. The fact is very notable in the study of Negro-white crosses in the United States."

Among the Beduins of the North Arabian or Syrian Desert, Shanklin (1935, p. 379) found that "the Rwala have high, straight noses, typical of the Semitic race. Of 105 subjects, on which nose form was recorded, 96 (91.4 per cent) were straight, 5 (4.8 per cent) convex, and 4 (3.8 per cent) concave. The nose was compressed in 80 (76.2 per cent) of the subjects, medium in 23 (21.9 per cent), and flaring in 2 (1.9 per cent). The measurements on the Rwala nose confirm the observations that the nose is long and narrow."

Before we leave the discussion of the nasal index attention must be drawn to the paper by Professor Arthur Thomson and Dr. L. H. Dudley Buxton entitled "Man's Nasal Index in Relation to Certain Climatic Conditions" wherein they summarize (1923, pp. 115-116) their conclusions in these words: "Our evidence leads us to the belief that a platyrrhine nasal index is associated with a hot moist climate, and a leptorrhine nasal index with a cold dry climate, the intermediate conditions being associated with hot dry and cold moist climates. There is a positive correlation both on living males and on crania between the nasal index and the temperature. On living males there is also a positive correlation between the nasal index and relative humidity. In order to test these results we have calculated reconstruction formulae, whereby from a knowledge of temperature and humidity the nasal index on the living or on crania can be calculated and compared with actual observations."

The table (p. 488) in which Buxton and Thomson<sup>1</sup> give statistics on the nasal index, in relation to temperature, humidity, and climate, of groups from Egypt, the Caucasus, Iraq, Iran, and India indicates a remarkable similarity between the observed nasal indices and those calculated by formula. Attention must, however, be drawn to the marked differences between the observed nasal indices tabulated above and those recorded by other anthropologists in this same area.

<sup>1</sup>See Bibliography, pp. 118-119.

## NASAL INDEX IN RELATION TO CLIMATE

People.....	No.	Observed	Calculated	Temp. F.°	Humidity Per cent	Climate
		N.I.	N.I.			
Modern Egyptians . . . . .	137	50.6	50.5	78.6	44	Hot, dry
Armenians . . . . .	105	59.5(?)	70.8	60.0	67	Cold, moist
Persians and Georgians (Tblisi) . . . . .	67	67.5	68.4	55.0	67	Cold, moist
Punjabis (Turko- Iranian) . . . . .	140	68.8	77.6	76.4	63	Hot, moist
Persians . . . . .	?	70.0	70.2	56.4	72	Cold, moist
Punjabis (Indo- Aryan) . . . . .	312	71.4	77.6	76.4	63	Hot, moist
Rajputs . . . . .	420	74.4	77.7	79.3	55	Hot, dry
Jews (Baghdad) . . . . .	37	75.0	74.9	72.6	59	Hot, dry
United Provinces (Aryo-Dravidian) . . . Large		80.8	79.6	77.2	69	Hot, moist

*Ear Measurements and Indices.*—The length, breadth, and index of the ear are held to have no apparent racial significance, but this may be due in no small measure to our lack of comparative data.

## EAR MEASUREMENTS AND INDICES

People	<i>Iran</i>				Author	
	No.	E.B.	E.L.	E.I.		
Lurs (Pusht-i-Kuh) . . . . .	52	32.61	57.18	56.82	} Field	
Yezd-i-Khast . . . . .	46	35.61	58.70	61.98		
Jews (Isfahan) . . . . .	86-7	35.79	58.98	61.14		
Kinareh . . . . .	73	36.33	59.54	61.90		
		<i>Iraq</i>				
Iraq Soldiers . . . . .	221-2	36.06	59.82	60.94	} Field	
Kish Arabs . . . . .	359	35.31	62.26	57.06		
Ba'ij Beduins . . . . .	35	36.51	62.42	59.06		
		<i>Trans-Jordan</i>				
Akeydat Beduins . . . . .	112	32.74	62.10	52.78	} Shanklin	
Mualy Beduins . . . . .	168	32.26	62.56	51.71		
		<i>Syria</i>				
Rwala Beduins . . . . .	270	33.12	60.48	54.97	Shanklin	

The ears of the Iran groups tend to be shorter than those of groups in Iraq, where the Ba'ij Beduins' are the longest. The Akeydat and Mualy Beduins appear to be very similar in ear length to the Ba'ij Beduins, although the Rwala are slightly shorter.

The maximum breadth of the external ear is closely correlated with the length, and both measurements show progressive increase with advancing years.

The Lurs, the Mualy, and Akeydat and Rwala Beduins have the narrowest ears (32.26-33.12) while the Ba'ij Beduins have the broadest ears (36.51). The Isfahan Jews, Yezd-i-Khast and Kinareh villagers, Kish Arabs, and Iraq Soldiers show little variation (35.31-36.33).



The table (p. 488) shows that Shanklin's three groups of Trans-Jordan and Syrian Beduins have the lowest ear indices (51.71–54.97) as might be expected from the fact that they had the longest and narrowest ears. The Ba'ij Beduins (59.06) are remarkably different in this respect, due to an increase in ear breadth. The Isfahan Jews, Yezd-i-Khast, and Kinareh villagers show a remarkable resemblance (61.14–61.98). The Lurs have a lower index because the ear is relatively narrower than in the other three Iran groups.

#### RACIAL POSITION OF THE MODERN INHABITANTS OF IRAN

In this final section I shall attempt to indicate the racial position of the modern inhabitants of Iran. In view of the poverty of anthropometric data either on the living or on skeletons this may appear as a Herculean task, to be approached with diffidence; but a brief summary may serve as a sketch for a fuller picture as new data are published.

#### GEOGRAPHICAL POSITION OF IRAN

A map of the world on Mercator's projection shows Iran to be approximately equidistant from Manchukuo, Australia, South Africa, and the British Isles. Orographic studies of the continent of Asia reveal that Iran lies on a natural line of migration between Central Asia and Africa, as well as between Central Asia and Europe.

*Highways of Migration.*—Let us glance at the geographical position of Iran. Southwestern Asia, including Iran, Iraq, Transcaucasia, Anatolia, Syria, Palestine, Trans-Jordan, and the entire Arabian Peninsula, is surrounded by water with the exception of the eastern boundary of Iran and Transcaucasia, where the Caucasus range forms a geographic barrier. Thus, the only westward approach from Central Asia into Southwestern Asia must lie through Iran. This is somewhat modified by the location of the Hindu Kush Mountains in Afghanistan and the mountain complex of Baluchistan, extending southward to the Makran coast. To the west within the eastern confines of Iran there are further geographical barriers to migration, namely, the Elburz Range, the Dasht-i-Kavir, and the Dasht-i-Lut. Thus, extensive recent migrations from the east could only have taken place along the coastal strip between the Elburz Mountains and the Caspian Sea, through passes in these mountains, or following the Irano-Afghan and Irano-Baluchistan boundaries to the neighborhood of Bampur, from which point the direction of the mountain folding makes traveling relatively easy. The map (Frontis-

piece) shows clearly that the valleys lie in a northwesterly direction, so that migrants would find few geographical difficulties in reaching northwestern Iran.

The relative ease of travel is particularly true for migrations to and from India, but the Indus Valley is partly separated from Iran by the mountain ranges of southern Baluchistan. While the



FIG. 19. Geographical position of Iran.

Brahui Mountains, the Central Makran range, and the Makran Coast range offer certain obstacles, the 450 miles separating Hyderabad (Sind) from Gwadar would not prevent movements of early peoples.

There is little question but that all these important geographical features played a prominent part in westward migrations to Iran.

I suggest that in addition to the natural barriers of impassable mountains and waterless deserts the Caspian littoral, probably at least since Paleolithic times, has been fever-ridden, which would tend to discourage travel north of the Elburz Mountains. In consequence, the first route mentioned above has probably been the least important throughout the ages.

The mountain passes at Sulaimaniya, Rowandiz, and Aqra allow migratory movements between the Iranian Plateau and the alluvial plain of Iraq.

*Climate.*—Since I have already discussed in some detail the present climate of Iran (see rainfall map, Fig. 1) there is little need for further comment here except to call attention to the distribution of forest, grassland, and desert (Fig. 2). The climate of the Iranian Plateau differs markedly from that of the "Fertile Crescent" on the west and also from the rich Indus Valley to the east. In passing it is interesting to note that Ellsworth Huntington (1938, pp. 433-435), in searching for the part of the Old World where in prehistoric times the climate of an area would correspond in temperature and humidity to ideal conditions not only for human conception and fertility but also for chances of survival, found that southern Iran was the only region where these prerequisites were present. From these and other factors Huntington predicts that Iran may have been the territory where *Homo sapiens* developed.

The climate of Iran in ancient times is uncertain, but it is probable that desiccation has taken place, particularly in certain areas now uninhabitable. My only observation of this character was on the shores of Lake Maharlu, now a crystalline sea of salt overlying heavy blue mud, where dwelt Paleolithic and early historical peoples. W. E. Browne, Anglo-Iranian geologist, informed me in Shiraz that he had found other evidence of desiccation on the eastern shores of Lake Maharlu, near Lake Niriz, and also in the Kuhgalu country. I presume that the fringes of the great Dasht-i-Kavir would also yield evidence of a former fertility.

To the west, in the North Arabian or Syrian Desert, I was able to establish evidence of former fertility in this wilderness. All of Southwestern Asia must have been influenced by a great climatic change at a date that I fix tentatively at about 6,500-7,000 years ago (Field, 1929b, 1931, 1932b, 1932d, 1933, 1934).

Griffith Taylor (1936, pp. 81, 131-141) includes the postulate that due to decrease in rainfall the level of the Caspian Sea fell 150 feet between 438 B.C. and A.D. 200.

Furthermore, the two flood levels found at Kish by the Field Museum-Oxford University Expedition (Watelin, pp. 40-44) indicate important local fluctuations in climate, rainfall, and heavy snow on the mountains in Anatolia to the north of Mesopotamia, now Iraq.

In general, it would appear that the evidence available points toward a former fertility in Southwestern Asia, a fertility transformed into steppe, wilderness, or desert through desiccation and geological agents. The role played by deserts<sup>1</sup> in the restriction of migratory zones and their economic place in nature has not as yet been treated fully, but a climatic map of the world reveals an almost continuous line of deserts from the western limits of the Sahara across Arabia with its Rub' al Khali, the Dasht-i-Kavir and Dasht-i-Lut in Iran, the Thar of Baluchistan, the Kara Kum and Kizil Kum of Soviet Turkestan, to the Takla Makan and Gobi deserts of Central Asia—a distance of about 9,000 miles. These xerophytic regions have not always been barren, inhospitable wildernesses. In fact, archaeological evidence is all to the contrary on this point since there are traces of human occupation of regions now waterless and uninhabitable except by those who practice pastoral nomadism. The weight of evidence available points to a former fertility of many of these desiccated regions and since important climatic changes can be established it may well be that the conditions have become reversed and those barren areas of present times were once the homeland of our ancestors, who through the vagaries of climate were forced to abandon the now desert areas from the Sahara to Gobi. This problem will have to be studied in further detail but the results of Dr. Sven Hedin, Sir Aurel Stein, and others already provide us with a wealth of information on Central Asia.

*Flora.*—The flora of Iran has been discussed in Chapter II (pp. 20-25). On the northern slopes of the Elburz range from 3,000 feet to the Caspian shoreline, the flora is "Mediterranean," while at higher altitudes, that is, to the peak of Demavend (18,600 feet), northern flora appear. The steppe types of the plateau gradually change to the flora of the "Sahara region," which extends eastward to Sind (Cox, p. 550). Thus there is a wide range of flora in Iran

<sup>1</sup> See A. J. McInerny, 1937a, and ethnographical map of the eastern hemisphere, 1937b.

and indications based on the varietal diversity of cultivated plants show that Southwestern Asia is one of Vavilov's five principal world centers of agriculture.

In 1924 the Institute of Applied Botany in Leningrad sent an expedition to Afghanistan under the leadership of N. I. Vavilov, who was assisted by D. D. Bukinich and V. N. Lebedev. The report, which supplements the work of J. E. T. Aitchison, is mainly agricultural but some notes on the physical characters of the people have been included.

With regard to the general characteristics of the cultivated plants of Afghanistan and their relation to neighboring countries Vavilov and Bukinich (p. 603) give the following summary: "As the investigation of the varietal diversity of the cultivated plants has shown, Afghanistan with the adjacent countries, especially the districts of North-Western India, is one of the most important primary world agricultural centers, where the diversity of a whole series of plants has originated. This is quite objectively proved by the varietal diversity of a series of crop plants and by the coincidence of the area of the varietal diversity of many most important European crops."

Vavilov (1932b, pp. 331-332) writes that "five principal world centres of the most important crops have been established. One of these centres is Southwestern Asia. A detailed investigation of the cultivated vegetation of Afghanistan, carried out during the last years by Prof. N. I. Vavilov and his collaborators admits of a more precise location of the separate crops. Even in Afghanistan itself, the chief importance of its South-Eastern corner as an accumulator of genes, may be established. The comparative study of the cultivated plants of Punjab, Kashmir, the whole of India, have shown that the corner between the Hindu-Kush and the Himalaya must be singled out from the whole of South-Western Asia."

On the other hand, Merrill (1936, pp. 430-439) contributes the following information on plants and civilizations: "As noted by Cook, historians and others (among whom I would class some anthropologists and ethnologists, particularly the diffusionists, and a much larger number of popular writers) who do not have a biological background may and often do fail to consider some of the most significant factors in locating centers of primitive culture. He [Cook] emphasizes the fact, patent to all biologists, that the Mediterranean basin was not the site of an indigenous development of agriculture, because the most important crops on which the Medi-

terranean cultures were based were exotics, having been introduced in the prehistoric and historic periods from other regions.

“Thus, to refute the claims of those diffusionists who claim that agriculture and civilization originated and developed in the Nile Valley, it is only necessary to indicate that not a single crop plant cultivated by the ancient Egyptians was native of the region; and the same statement is true for that other great center of development of early civilizations in Southwestern Asia, the great Mesopotamian valley. Agriculture must have been a highly developed art somewhere in southeastern Asia, outside of the great valleys, long before man could adapt his agricultural knowledge to the different conditions existing in the great valleys of the Tigris, the Euphrates and the Nile.”

From the above diametrically opposed statements the physical anthropologist emerges with considerable uncertainty, but my own opinion leans toward that of Vavilov, with whom I discussed this question in Leningrad during September, 1934. Furthermore, among the collections of the Institute of Plant Industry there are many new species and sub-species of cereals from Afghanistan, Turkestan, Iran, Kurdistan, and the Caucasus, indicating that this part of Asia lies at one center of agricultural development due primarily to its being the homeland of numerous species, including the most important cereals (cf. Field, 1932c; and Guest).

*Fauna.*—The animals of Iran include a considerable number of species, some of which show relationships with Asia, Africa, and Europe. In Chapter II a brief faunal survey has been compiled, which indicates that in no possible sense has Iran been isolated from contiguous regions.

The study of ancient and modern climate with its correlated distribution of forest, grassland, steppe, and desert, the number and distribution of species of cultivated plants and domesticated animals, and the development of physical types, cultural centers, and their interrelationships will reveal many at present unco-ordinated records.

#### THE INHABITATION OF IRAN

We now pass to the evidence of the human occupation of Iran from the Paleolithic period down to recent times.

*Paleolithic.*—No prehistoric survey in Iran has as yet been undertaken. Consequent negative evidence from large areas of the country is perhaps misleading, since distribution maps of Paleolithic sites

must necessarily remain blank for the greater part of Iran. I have always felt that in making sweeping generalizations from a map it should be noted whether the areas were unmarked because exploration and excavation had not been attempted, or because adequate investigation had been fruitless. The latter does not apply to Iran, and from indications found in 1934 I anticipate the discovery of Paleolithic sites, and, more important still, the skeletal remains of these hunters of the Old Stone Age. To return to our fragmentary evidence, on the western shores of Lake Maharlu, southeast of Shiraz, I found stone implements of upper Paleolithic types on the scree slopes of two rock-shelters (pp. 555-556). During March, 1937, Dr. Dorothy A. E. Garrod of Cambridge University, who examined the few specimens in the collections of Field Museum, expressed the tentative opinion that the culture resembled that from the caves excavated by her in Iraq Kurdistan several years ago. In addition to this fragmentary evidence of the existence of pre-Neolithic man in Iran there are the two typologically Mousterian flakes found by W. E. Browne of the Anglo-Iranian Oil Company at a height of 8,000 feet above Lake Niriz. These two specimens were examined by the Abbé Breuil, who accepted this typological classification. These important discoveries have been described in fuller detail elsewhere (pp. 552-553). In view of the numerous recent discoveries in Palestine and Syria, and in gravels near Ankara, and, by the Field Museum North Arabian Desert Expeditions of 1927, 1928, 1934, in Trans-Jordan, in Syria, and in Iraq north of Kirkuk, there exists an established chain of Paleolithic stations from the eastern shores of the Mediterranean to the Zagros Mountains of Iraq Kurdistan. The new evidence from Iran thus links southwestern Iran with the Mediterranean. In Paleolithic times the southern part of Mesopotamia (Iraq) was under water so that lines of migration eastward or westward must have passed little further south than Sulaimaniya, where Miss Garrod and I independently found typologically Paleolithic implements (Garrod, 1937, pp. 33-40; Field, 1935b, p. 462).

The discovery of *Homo Iranicus* and his physical relationship to the Neanderthaloids of Athlit in Palestine on the west and *Homo Indicus* on the east will solve many problems regarding the distribution of ancient man and in particular the relationship of the earliest inhabitants of the Near East with those of Europe. Recent archaeological evidence shows that such a relationship does exist and Southwestern Asia might well have been the section of the

earth's surface where *Homo sapiens* developed (Elliot Smith, p. 50, and Field, 1934). Iran is therefore the key point for further investigation, not only for the links between the Mediterranean and India but also to the northeast with Central Asia and to the northwest with the Caucasus and Anatolia.

Attention must again be drawn at this point to the central geographical location of Iran in relation to the continental mass of the Old World. The most ancient human remains and the earliest artifacts show the widest possible divergence from Iran, our hypothetical center. When we look on a map at the dispersion of *Sinanthropus* and *Pithecanthropus* on the eastern periphery of Asia, *Homo rhodesiensis* or his ancestor in South Africa, Swanscombe man and his flint implements as well as the human artifacts from the terraces and gravels of the river Thames in England, we see that the evidence for the earliest human beings has been found not in some central part of the great continental land mass but rather at the extreme edges, in China, South Africa, and England (Field, 1934).

I have called attention to the central position of Iran in relation to these three ancestral outliers but perhaps it will be more important to show the distribution of Paleolithic sites around Iran. We have cultural evidence of man in Paleolithic stages of culture, although not necessarily contemporaneous, at the following places: many stations in India leading through southeastern Asia into Indo-China; across Central Asia to Verkholskaia Gora near Irkutsk and other Siberian sites to the northeast; the sites of Devis Khvrel, Chiaturi, Gvardzhilas Khlde, Rudolf Virchow's Höhle, and others in the Caucasus region;<sup>1</sup> caves and surface stations near Sulaimaniya, Kirkuk, Rowandiz, and Aqra; the chain of surface sites from Rutba to the Mediterranean; and the excavations at Tagba, beside the Lake of Galilee and near Athlit in Palestine; and in Syria and Trans-Jordan (Garrod, 1937, pp. 33-40). In a private communication Professor John L. Myres of Oxford University informed me that during 1938 searches in gravels near Ankara<sup>2</sup> yielded five typologically Paleolithic implements as yet unpublished.

In addition to the evidence from near Lake Maharlu and Lake Niriz, the fact that excavations from India to the Mediterranean indicate the existence of Stone Age man at both extremes gives

<sup>1</sup> Cf. Field and Prostov, 1936, 1937 and 1938.

<sup>2</sup> Dr. Dorothy Garrod examined caves, rock-shelters and gravel beds in Anatolia for evidence of Paleolithic occupation.



every reason to believe that Paleolithic man and his culture will be revealed in Iran.

*Neolithic.*—It can be presumed with a degree of safety that Neolithic man followed more or less the same line of migration as his predecessors, particularly within the boundary of a country where the natural physical barriers made independent desire conform to definitely accepted lines. Future investigation should therefore lie along the eastern border, in caves and rock-shelters from Laristan to Kurdistan, and in suitable places in the Elburz range. In the lowest archaeological levels a supposedly Neolithic phase of culture has appeared, so that the indications are favorable to the establishment of a chain of Neolithic sites throughout Iran.

*Chalcolithic.*—Sir Aurel Stein (1937a) has recently concluded a preliminary archaeological survey of the Indo-Iranian borderlands. These explorations have brought to light “plentiful remains of the Chalcolithic and later periods.” He traced the links between the earliest civilizations of the Indus Valley and Mesopotamia by archaeological reconnaissances over the vast intervening area.

According to Frankfort, wherever excavations of any extent are carried out in Southwestern Asia, the earliest layers not only contain metal, but the originality of the shapes of these earliest copper implements proves that we are already entitled to speak definitely of a Copper Age.

*Early Historical Period.*—Excavations, notably those of Susa, Damghan, Rayy, Persepolis, Giyan, Shah Tepe, Turang Tepe, and Hanai Tepe, have revealed the general stratigraphical sequence of cultures, and in some few cases human skeletal remains have been preserved for anthropometric study. The important point to be brought out here is that during the early historical periods there seem to have been direct culture contacts between Mesopotamia on the west and the Indus Valley on the east. There were also exchanges of culture with Anatolia, Transcaucasia, and Turkestan.

When the final publications have appeared dealing with the ancient cities of Tepe Gawra, Tell Billa, Khorsabad, Tell Asmar, Khafaje, Seleucia, Kish, Ur, Al 'Ubaid, Tello, Uruk and Warka in Mesopotamia (Iraq), and of Mohenjo-Daro, Harappa, Nal, Bayana, Taxila, Nalanda, Amri, Rugar, and Sialkot in India we shall be able to trace the physical relationships of the ancient inhabitants of these areas as well as the degree of cultural exchanges and influences between them.

In order to complete the picture additional information from eastern Anatolia, Armenia, Soviet Azerbaidzhan, Lenkoran, Turkestan, the Pamiro-Altai region, Afghanistan, and Baluchistan is desired.

*Late Historical Period.*—Waves of migration and numerous invasions have been dealt with to some extent in Chapters II and III. While it might appear probable that such invasions and migrations would affect the modern population, the results of studies in the Nile Valley and in Iraq indicate that the basic elements of the population have remained but little changed during the past six thousand years of recorded history. It is to be expected that the same will hold true for Iran. Once the basic types have been completely established as the result of a detailed anthropometric survey, it will be possible to determine the relationship of the different stocks, not only within the borders of Iran but also their external relationships with the modern peoples of Iraq, Anatolia, the Caucasus, Turkestan, Afghanistan, and Baluchistan.

*Modern Peoples.*—In the preceding pages I have discussed the evidence for the existence of man in Paleolithic and Neolithic phases of culture. There now remains but to outline the racial position of the modern peoples of Iran in relation to Asia, Africa, and Europe. Before we proceed to this final section we must examine Ratzel's map (Fig. 20), which shows his conception of the ethnological position of the peoples of Southwestern Asia.

With regard to Iraq, Keith (p. 19) gives the following account: "To the north, in a mountainous region, lies the home of the Iranians and kindred peoples. In the Iranian group we may include the peoples of Asia Minor (Ottomans, as Ratzel has named them). The whole of Arabia, from the Red Sea to the Persian Gulf and from the Levant to the Indian Ocean, is indicated by Ratzel as the home of the Semites. The Semites are represented as spreading across northern Africa, occupying the southern shores of the Mediterranean. Adjoining Arabia on the west and south, but separated by the Red Sea, is the home of the Hamitic peoples. They occupy a tract of Africa, east of the Nile, which extends from Cairo in the north almost to Zanzibar in the south. Still farther away in the east is India, occupied by a dark-skinned people—Dravidians in the south, Aryo-Dravidians in the north."

Keith (pp. 75-76) concludes his observations on the Arabs in the following words: "How does the Arab stand with regard to

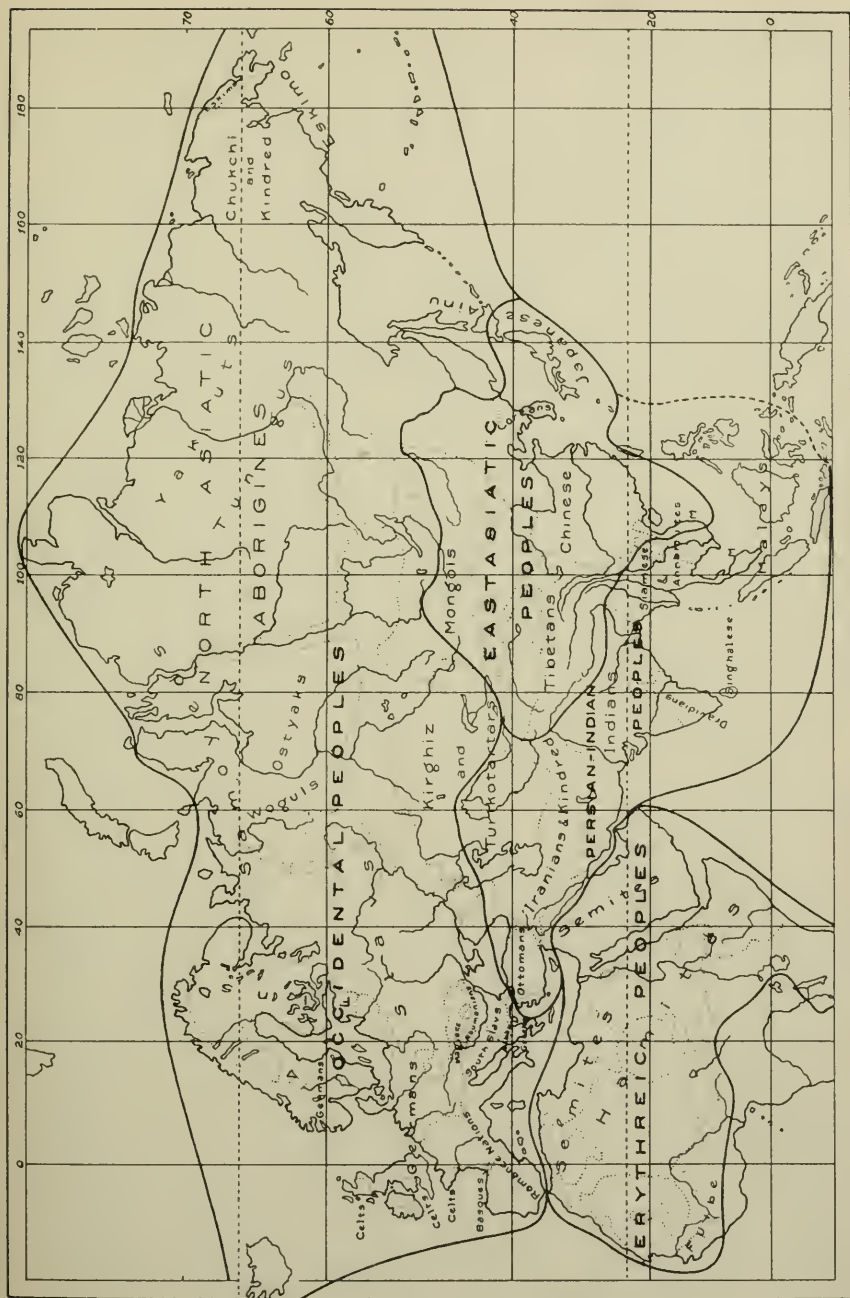


FIG. 20. Ethnological position of the peoples of Southwestern Asia (after Ratzel).

other races of mankind? On entering into this inquiry we must note the relationship of Arabia to adjacent racial frontiers. The Red Sea separates the great Arabian peninsula from the Hamitic peoples of Africa, many of which, to be sure, have received Arab infusion. Arabia is separated from the mainland of Asia by the Persian Gulf and the Gulf of Oman. This inlet of the Indian Ocean is also a racial frontier separating the Arab from a people not remotely akin to him, people of the Indo-Afghan type. Also, in the north the base of the peninsula abuts on another racial frontier, the southern frontier of the main or purer Caucasian stock. Then away in the east are the peoples of India, who have many other resemblances to the Arab besides a dark brown skin and dark brown or black hair. If we presume that the modern stocks of mankind have been evolved in or near the regions which they now occupy then we ought to find that the Arab has an evolutionary relationship to all surrounding peoples. That is what we have found in the course of our analysis. The Arab shares traits with Hamitic peoples of Africa, with the Dravidian and Indo-Aryan peoples of India, and with the peoples which extend from the gates of India to the Levant. The Arab's facial features are often so Caucasoid in appearance that we may mistake him for a South European but his pigmentation is usually deeper than that seen in South Europeans. Undoubtedly in his composition we recognize many Negroid traits, and traits which link him with Dravidian and with Hamite.

"Now, how are we to account for Arabia's being occupied by people who are mainly Caucasian in their physical make-up and yet possess so many features in common with dark-skinned neighboring races? In seeking to explain these facts there are other circumstances and relationships which have to be considered. Even today a belt of pigmented human races crosses the Old World. At one extreme we have the Negro of Africa, at the other extreme the Negro of the Pacific. India lies midway in this pigmented belt, one which we suspect extended continuously in Pleistocene times from one extremity of the Old World to the other. On this theory the original inhabitants of Arabia were deeply pigmented and akin to the Hamites of Africa on the one hand and to the Dravidians of India on the other. To the north of the black belt there were two other evolutionary centers: the Mongolian, north of the Himalayas, and the Caucasian, north of the upland mountainous plateau which extends westward from the Himalayas across Iran to Asia

Minor. That there was an early break-through from the Mongolian center at the eastern end of the Himalayas is manifest; the Mongol stock at different times broke into the black belt and spread out in the Pacific. There was a Caucasian southward migration at the western end of the Himalayas. In Pleistocene times the great Arabian peninsula was a land to tempt adventurous hunters. The peoples of Arabia might thus represent a mixture of darker-skinned Dravidians into which invaders from the southern or Semitic fringe of the Caucasian center had infused their blood. Such a theory explains many of the facts relating to the racial composition and affinities of the inhabitants of Arabia. Or did the evolutionary center of the Caucasian type actually extend into Arabia? In the latter case the Arab would be a more evolutionary race."

While there is in my mind an undoubted relationship between the Iranis and the Arabs living to the west of Iran, the extent to which this relationship exists must remain a matter of doubt in the light of available anthropometric evidence. In other sections within this chapter I have discussed the statistical and descriptive comparisons of the groups measured and studied in Iran and in Iraq. The degree of relationship with the peoples of Iraq will be clearer after my next volume on the peoples of Iraq is published, especially since this will contain the report on the Kurds of Iraqi Kurdistan and the Al bu Muhammad Arabs of the Amara *Liwa*.

The reader will find in Chapter III historical references to the racial composition of the inhabitants of Iran from Herodotus down to 1938. In Chapter IV have been compiled the names of the tribes and subtribes, their numbers, and location throughout the country. The present chapter deals with the physical anthropology of the peoples of Iran, based on my own scanty measurements and those of other anthropologists; the basic, racial elements in the population; observations on skeletal material; and comparative data from Southwestern Asia.

The basic elements of the Iran population which I studied are Mediterranean, although they show considerable variation and divergence. There are two types of Iranian Plateau dolichocephals, one straight-nosed, the other with large, convex noses. The former are probably connected racially with the Beduins of North Arabia, the latter appear to have developed on the Iranian Plateau. These two dolichocephalic, leptorrhine, and leptoprosopic types are separate and distinct entities, but include many individuals showing varying degrees of admixture of these two elements.

In addition, there are three types of Iranian Plateau brachycephals; one concave or straight-nosed; one with markedly convex noses, high-vaulted heads and flattened occipita, forming the so-called Armenoid type; and lastly a convex-nosed, long-faced, hypsicephalic type, possibly the result of Turkestan admixture.

In addition there are present in the modern population North and South European, Mongoloid, Negroid, and Hamitic types.

The presence of these individuals of Asiatic, African, and European appearance indicates physical relationships between Iran and the peoples of all three continents. Furthermore, evidence is available of the human occupation of Iran since Paleolithic times, with considerable intermingling of racial stocks as witnessed by widely divergent cultural contacts revealed by archaeological excavations and correlative studies.

In the section discussing the external relations with Iran (pp. 436-489) have been compiled tables of comparative data for the measurements and indices of the peoples of Southwestern Asia and these have each been discussed in their proper place. It will suffice here to state that the modern inhabitants of the central southern part of the Iranian Plateau seem to be related more closely to the peoples of the west and northwest than to those of the east, with the exception of the adjoining territory of Afghanistan, and to those of the northeast, not including the Turkomans.

No detailed anthropometric survey has been made of Afghanistan but Dr. Gordon T. Bowles of the Peabody Museum, Harvard University, returned during 1937 with a large series of measurements and photographs taken of individuals from Afghanistan along the southern slopes of the Himalayan chain to the Shan States. He very kindly allowed me to examine his racial type photographs from Afghanistan, which include the following 172 individuals<sup>1</sup> in four groups:

	No.
1. Afghani from Kabul east to Jelalabad.....	50
2. Afridi from south of Khyber Pass and Tirah Valley.....	40
3. Mohmandi from north of Khyber Pass and northeast of Bajaur..	42
4. Pathans. Kattaks and Bangash from southwest of Peshawar...	40
	<hr/>
Pushtu-speakers.....	172

During a period of nearly three years he recorded measurements and observations and photographed several thousand individuals.

<sup>1</sup> The Afghans measured by Dr. Bowles were dolichocephalic to mesocephalic with a stature range of 164.0-170.0. My individual No. 3302 (Pl. 129, Figs. 1, 2) was selected by Dr. Bowles as the same type as his Afghan No. 1786, aged 40, stature 171.0, C.I. 73.0, F.I. 97.0, and N.I. 52.0.

It seemed, therefore, of especial value to invite him to look through the photographs of my four Iran groups so that he might make some observations on physical type resemblances and dissimilarities with his racial type of photographs obtained eastward from Iran to Burma.

Dr. Bowles writes as follows: "On the basis of individual photographs of the four Iran groups it is difficult to be certain that the country even in the areas or groups from which these samples have been drawn is adequately represented. Assuming this to be the case, however, there are a few significant factors which seem to be quite clear in the relationships between these groups and the various peoples of eastern Afghanistan and northwestern India. In the first place not one of the groups can be considered to be very close to the Pathans, who speak Pashto (Pushtu), or to the peoples of the Punjab. The inference to be drawn from this is that there seems to be a large number of dissimilar physical factors although these are in many cases of such a nature as to characterize local morphological types rather than to distinguish fundamental racial differences. In general, Iran and Indo-Afghanistan contain the same basic racial elements. Secondly, there do occur in the Indo-Afghan area occasional individuals, who strongly suggest individuals in the Iran series. On the whole, however, these are accidental in distribution and are to a great extent atypical. It might be more accurate to say that whereas a few examples do occur in the Indo-Afghan area, which are similar to individuals in the Iran series, these are very sporadic and would suggest a slight infiltration rather than a basic fundamental similarity between the main bulk of peoples of the two areas. Thirdly, there do seem to be more of these occasional examples of similar types in the western Pahari-speaking areas of the mountainous slopes of the northern States, especially in Chamba State, Kangra district, the Simla Hill States, than in the North-West Frontier Provinces, the northwestern part of the Punjab and eastern Afghanistan. Fourthly, there are a few examples also of peoples who are found in concentration in the western Pahari regions of the northern Punjab who do occur sporadically in Iran. The subgroups especially concerned are the Lahuli of Lahoul, the Gaddi or Brahmauri and Churahi of Chamba and to a certain extent the Dogri, Mirpuri, Punchi of southern Kashmir State and the Plains Punjabi between the Indus and the Sutlej and especially along the base of the Siwalik hills.

"In order to define these areas more closely: Chamba State is in the northwestern part of the Punjab just east of Kashmir State; the

western Pahari live only in the foothills of the Himalayas, a region which includes Chamba State as far east as the Sutlej; and central Pahari from the Sutlej to the border of Nepal.

"Of the four Iran series the Kinareh and the Yezd-i-Khast seem to be most affected."

Dr. Bowles<sup>1</sup> says that "the types which seem to be typical of the Isfahan Jews such as Nos. 3486 (Pl. 39, Figs. 3, 4), 3493 (Pl. 39, Figs. 1, 2), 3498 (Pl. 38, Figs. 1, 2), 3515 (Pl. 38, Figs. 3, 4), 3494 (Pls. 36, 37), 3482 (Pl. 35, Fig. 4), 3484 (Pl. 35, Figs. 1, 2), *3483* (Pl. 34, Figs. 1, 2), *3503* (Pl. 34, Figs. 3, 4), 3479 (Pl. 33, Figs. 3, 4), *3476* (Pl. 10, Figs. 3, 4; Pl. 32, Figs. 1, 2), 3501 (Pl. 32, Figs. 3, 4), *3487* (Pl. 30, Figs. 1, 2), 3496 (Pl. 29, Figs. 3, 4), *3478* (Pl. 28, Figs. 3, 4), *3495* (Pl. 28, Figs. 1, 2), *3502* (Pl. 25, Figs. 3, 4), *3507* (Pl. 24, Figs. 1, 2), 3500 (Pl. 21, Figs. 1, 2), and 3512 (Pl. 20, Figs. 3, 4), so far as I know never occur among the Afghani or in India unless possibly they are to be found in the stray Jewish population. It does not seem to have penetrated into the Afghans or Pathans proper or in any part of northern India.

"Of the remainder, Nos. 3516 (Pl. 16, Figs. 1, 2), 3514 (Pl. 15, Figs. 1, 2), and 3513 (Pl. 15, Figs. 3, 4) are so young that it is difficult to tell what they will turn out to be. They could develop into some of the Jewish types or they might occur in the northern Punjab of India.

"Nos. 3505 (Pl. 16, Figs. 3, 4), 3518 (Pl. 17, Figs. 1, 2), 3523 (Pl. 17, Figs. 3, 4), 3522 (Pl. 18, Figs. 1, 2), 3520 (Pl. 18, Figs. 3, 4), 3504 (Pl. 19, Figs. 1, 2), 3497 (Pl. 19, Figs. 3, 4), and 3508 (Pl. 20, Figs. 1, 2) are not likely to occur in eastern Afghanistan or northwestern India.

"No. 3492 (Pl. 26, Figs. 1, 2), on the other hand, might well occur either in the northwestern Punjab or even in the Pahari [hill] regions of the northern Punjab.

"No. 3499 (Pl. 10, Figs. 1, 2; Pl. 29, Figs. 1, 2) could well be found in the Lahoul district of the northwestern Punjab (non Indo-European group).

"In conclusion only occasional and very few individuals would fit into the non-Jewish Afghan, Pathan, or northwestern area of India."

My deductions were that in general these Afghans appear to have definite racial affinities with Iran rather than toward the Indus

<sup>1</sup>The figures in italics were selected as being most typical.



Valley. The majority could pass for inhabitants of the region lying between Tehran and Shiraz, and in some cases for Arabs of central Iraq, particularly those in the Hilla *Liwa*. On the other hand several men would be classified as belonging to India rather than to Iran. As a tentative suggestion based on scanty evidence it appears that the physical features of certain groups of Afghans are linked with the Iranian Plateau rather than with India. Furthermore, among our photographic series from Iran few if any individuals would pass for peoples of India although from an anthropometric standpoint individuals who dwell along the west coast of India from Ras Pishkan to Cape Comorin may differ little from our Iranian series.

Thus there appears to be a dividing line somewhere in eastern Afghanistan, probably the Hindu Kush, sometimes called Paropamisus or Caucasus Indicus, with its loftiest peak, Tirach Mir, rising to 25,420 feet. Since a so-called Mediterranean type extends from Morocco across the lower part of Asia to the shores of the Pacific Ocean the connecting links must run through Baluchistan south of the southernmost extension of the Hindu Kush and its northern neighbor, the Tien Shan Mountains of western Sinkiang. In this connection it must be noted that Sir Arthur Keith postulates a Negroid band across the southern part of this same territory from northeast Africa to Melanesia.

To the north of these hypothetical Mediterranean and Negroid belts lies the Turkoman Socialist Soviet Republic, whose territory holds the secret of many anthropological and archaeological problems.<sup>1</sup> Soviet scientists have been working in Turkestan during the past few years but their reports are for the most part unpublished or unobtainable. During 1937, however, three reports were published on the peoples of Tadzhikistan: "Mountain Tadzhiks" and "The Population of the Western Pamirs" by V. V. Ginzburg, the latter based on the data of N. V. Bogoiavlenskii; and "Iranian Tribes of the Western Pamirs" by L. V. Oshanin (see Bibliography).

From a preliminary examination of these three reports<sup>2</sup> it may be stated that the general physical characteristics of the inhabitants of the Pamir region are: brachycephaly, often hyperbrachycephaly; medium stature; dark and abundant hair and beard; dark eyes; and a high prominent nose. The prevalence of brachycephaly precludes

<sup>1</sup> Field and Prostov: 1936, pp. 285-288; 1937, pp. 474-479; 1938, pp. 671-675; and 1939a and b.

<sup>2</sup> Summaries will be included in the forthcoming Field Museum publication, "Physical Anthropology in the U.S.S.R.," by Henry Field and Eugene Prostov.

the assumption of kinship between the Pamirian tribes and representatives of the basic type on the Iranian Plateau, in spite of the fact that the former speak Iranian dialects and that their investigators express the opinion that they came originally from Iran.

Dr. Carleton S. Coon of the Peabody Museum of Harvard University informed me that Boris N. Vishnievskii of the Institute of Anthropology and Ethnography (IAE) in Leningrad measured the following groups in the Turkoman S.S.R.: Tadjiks of Pedzherent (118), Samarkand (25), Ferghana (36), Ura-Tuba (51), and Mountaineers (78); Jews (101); Arabs (280); and Iranians (264). The data were sent to Harvard for analysis and while the results remain unpublished I am not at liberty to quote from them. However, it seems important to record the fact that these anthropometric studies will be available in due course of time.

With regard to Anatolia, anthropometric data for the eastern portion are not available, hence, with the exception of a few figures quoted in the tables of statistical comparative data, reference to this important region has been omitted. Furthermore, Krogman's publication (1937) of cranial types from Alişar Hüyük deals primarily with the ancient peoples of Anatolia. Shevket Aziz Kansu, Professor of Anthropology at the University of Ankara, and his students have begun to make an anthropometric survey of Anatolia so that within the next few years we can look forward with confidence to information from Turkey.

The peoples of the Caucasus have been studied by numerous Russian and Soviet anthropologists but there still remain many important lacunae. In 1934 I measured 50 Yezidis in Tblisi (formerly Tiflis) and 107 men and 50 women of Northern Ossetia in Ordzhonikidze (formerly Vladikavkaz). In the report on these two small groups some comparative material from the general Caucasus region will be included. In this publication there is, therefore, no need to go into further details regarding the physical characters of the inhabitants. Extracts from Danilov (pp. 94-108) include some comparative figures for several groups in the Caucasus. Under the section dealing with the Jews of Isfahan (pp. 289-315) statistical data on Jews of the Caucasus (pp. 316-330) have been added for comparative purposes.

We have now made a rapid survey of the peoples adjacent to Iran and there remains but to call attention to the waves of migration and the hordes of invaders, who have swept down upon the Iranian Plateau from the highlands of Central Asia.

Chinese contributions to the history of civilization in ancient Iran as referred to by Laufer, Hadi Hasan, and Read have been quoted in Chapter III.

When satisfactory anthropometric surveys between the Mediterranean and India, and in Central Asia have been completed it will be possible then, and only then, to decide the true relationship between these subdivisions of the eastern extension of the Mediterranean race and in turn their individual or combined relationships to the ancient and modern inhabitants of Europe, Africa, and Asia.

The modern inhabitants of the Iranian Plateau lie almost midway between the maximum breadth of the Mediterranean belt which extends from Morocco eastward to the Pacific Ocean.

As a result of our anthropometric survey of Iran we have been able to distinguish a new, fundamental division of the White race which we have called the Iranian Plateau race (see p. 534). This new racial type, now for the first time, takes its place beside the long-accepted Nordic, Mediterranean, and Alpine races.

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In conclusion, the ancient *Homo Iranicus*, the anthropological enigma "Q," was related closely, perhaps even a full brother, to the original *Homo sapiens*, who developed physically and culturally somewhere within that area designated broadly as Southwestern Asia, the nursery of our direct ancestors, and it may well be that in due time we can with justification paraphrase the quotation, "Fair Iran, thou nursery of Man."





