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ANTHROPOMETRIC EFFECTS OF RECORDED CASES OF MISCEGENATION AMONG CERTAIN CAUCASIAN SUB-GROUPS

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The "Galilee Skull" discovered by Tiberias on the Sea of Galilee may link primitive man of the region of Asia Minor to Abraham, Isaac, and Jacob, who successively wandered over the Plains of Mesopotamia. With them begin the extensive migrations of the Jewish people.

The households of Abraham, Isaac, and Jacob constitute the initial stock of the Israelites. Famine drove them into Egypt, where they were permitted to settle in the province of Goshen. By 1600 B. C. the position of the Israelites deteriorated in Egypt. "Their religion may have been corrupt, but it stood out in favorable contrast to the fantastic polytheism of their masters." (Roth 1936). As a result of this Moses led the tribe from Egypt via the Red Sea to Palestine. This happened between 1400 and 1200 B. C. The following 1500 years of sojourn in Asia Minor produced among the Jewish people another Oriental Scripture, the Old Testament.

Continuing from Palestine certain groups of Jews migrated to Armenia and the Caucasus. Ripley (1899) reported records of their presence in this region one or two centuries before Christ. Their first appearance in south east Russia was in the eighth century after Christ. The Jews reached Ruthenia from the tenth to the eleventh century and arrived in Poland from the twelfth to the fourteenth century. A small secondary centre of Jewish aggregation appeared about Frankfort, this group having come via the Mediterranean, and the Rhone-Rhine Route (Fig. 1).

Germany became divided politically and Russia interdicted them after 1110 A. D. Owing to the fearful persecutions all over Europe attendant upon the Crusades the Jews continued migrant. The Polish kings desiring to encourage the growth of their city population offered the rights of citizenship to all who would come to Poland. From Frankfort an exodus in mass took place toward the end of the sixteenth century. Alarm then caused restrictive legislations in eastern Europe, and since the sixteenth century the Jews have concentrated in Poland and in the eastern and southern European states for several hundred years, (Ripley 1899).

From Spain many Jews went to North Africa, particularly to Morocco and Tripoli. Others migrated to the Balkans. Cecil Roth (1936) reports that in 1492 an edict was issued that all Jews should be driven from Spain. The same year the discovery of the New World opened another possibility of migration, namely toward America. However, Jewish immigration to America gained momentum only toward the end of the nineteenth century (Fig. 1).

Geographical distribution of the Jewish people of Europe and America during the nineteenth and twentieth centuries can be summarized briefly. Toward the end of the nineteenth century there were between eight and nine million Jews in the world. Of these six or seven million were in Europe, the remainder being sparsely scattered over the whole world. Fully one half of all these Jews resided in Russia, namely four to five million. Austria Hungary had two million. Germany and Roumania had six to seven hundred thousand each. The British Isles had only about one hundred thousand, and these were mostly in London. Scotland and Ireland had very few, the number being one thousand to fifteen hundred a piece. Holland harbored about one hundred thousand, and half of these were crowded in the Ghetto of Amsterdam. France had eighty thousand. Italy had perhaps



FIG. 1. Routes of Migrations of the Jewish people and their approximate dates.

fifteen thousand. Scandinavia had persistently excluded the Jews. Toward the east and south of Europe the number of Jews decreased, particularly in Egypt and Palestine which had been the ancient centres of dispersion.

The main "centre of gravity" of the Jewish people in Europe of 1890 was in western Russia and Poland. The numbers of Jewish people expressed as percentages of the total populations of the various countries were as follows: The highest percentage, approximately 15%, appeared in Poland and Grodno. Most of the west Russian provinces had from 4 to 13%, while Hungary, Frankfurt, and Holland showed 1 to 4%. Countries which were mainly agricultural such as Sweden and the Tyrol had less than 0.1%. These were the proportions of Jews in Europe toward the end of the nineteenth century.

In the American colonies the number of Jews amounted to two thousand by the time of the War of Independence. From 1881 to 1900 over six hundred thousand Jewish refugees from eastern Europe had landed in America. By 1904 the Jewish population of the country had risen to one and a half million and by 1930 this

figure was nearly trebled. At this latter date, 1930, the population of Jews throughout the world was approximately fifteen million (Roth 1936). By 1914 the Jewish population of America showed considerable grouping in the major cities.

The sojourn of European Jews during World War II, 1939 to 1945, has been recorded by the American Jewish Joint Distribution Committee of New York (1946). Almost six million Jews, it is stated, were wiped out in Europe during the six years of World War II. The Committee estimates that of every ten in Poland in 1939 only one remained alive in 1945. There were 3,250,000 Jews in Poland at the start of the War. At the end there were only 86,000. Many are found in Russia, Germany and Austria. Germany in 1939 had 240,000 Jews. The American, British, and French zones had a total of 72,000 Jews.

Estimates by the Joint Distribution Committee on the way Jewish populations dropped in the war years are as follows: In Belgium from 100,000, to 30,000; Czechoslovakia, 360,000 before Munich to 50,000; France, 300,000 to 180,000; Greece, 75,000 to 10,500; Holland 150,000 to 30,000; Latvia, 95,000 to 600; Lithuania, 155,000 to 20,000; Roumania, 850,000 to 335,000; Soviet Union, 3,020,000 to 2,000,000; Yugoslavia, 75,000 to 14,000.

In a few countries populations gained mainly as a result of the influx of refugees from war-torn areas. The number in England rose from 340,000 to 350,000; in Eirie, from 4,000 to 4,500; Italy, 51,000 to 52,000; Portugal, 3,500 to 4,000; Sweden, 7,500 to 22,000; Switzerland, 25,000 to 36,000. The Committee estimates roughly that 250,000 left the continent during the six years. Of these it says 112,000 went to the United States and Canada; 36,000 went to Latin America; 100,000 to Asia which includes Palestine, and 2,000 to Africa and Australia.

NATIONAL MISCIBILITY

The Jews are people without a country.¹ They wander, not gregariously in tribes, and often not even in families. They may scatter thousands of miles before striking root or becoming fecund. True, the Jews bunch together where ever possible, and this has often been necessary for self-preservation. Their enforced migrations and associations have changed them and their language. Forced of necessity to adopt the speech of their immediate neighbours they have evolved distinctive speech wherever they they congregate in large numbers. In Spain and the Balkan States they make use of the Spanish. In the interior of Morocco they speak Arabic, while in Russia and Poland a degenerate form of German has become Yiddish. Despite these difficulties they still constitute a distinctive social unit wherever they chance to be.

Furthermore in their migrations they have not suffered assimilation and absorption; on the contrary they have added greatly to their numbers by the absorptions of others in countries where Jews were alien. For instance in 1740 A. D. the Khan of the Khazars (who lived north of the Black Sea) was converted to the Hebrew faith, and subsequent mass conversions of these Alpine Asiatic-followers created a great admixture of the Jews, (Taylor 1938). To cite another similar instance one may mention the conversion of the Falashas of Arabia in Yemen.

In the early days of Judaism marriage with non-believers was not invalid, as it later became. Such irregular marriages with, and conversion of Christians are abundantly on record. Even despite prohibitive legislation, thousands of marriages with Christians are reported in Hungary in 1229.

Great importance was attached by the Jews to an early classification of themselves. The Polish types, an admixture of Hebrew, Hindu, and Khazar sources, still call themselves *Ashkenazim*, while the Spanish *Sephardim* alone were held to be truly Semitic. Which of these two was the primitive type of Palestine is a moot question, (Ripley 1899).

Thus the origin of the modern populations of the Jewish people is as diverse

¹Israel, as a country belonging to the Jews, has been recognized officially only since 1948.

as the types of the various peoples that have been assimilated. Pittard (1927) states that the Judaized people have come from every kind of ethnic stratum, such as the Palashas of Abyssinia, and the Germans of Germanic type; or the Tamils—Black Jews—of India, and the Khazars supposedly of Turki race.

VARIATIONS OF PHYSICAL CHARACTERISTICS AMONG JEWISH GROUPS FROM VARIOUS GEOGRAPHICAL REGIONS

Pittard (1927) states that at the present time there is no single Jewish community in the world which has been genetically isolated from admixture with Jews from other communities since the period of its first formation. For this reason we cannot assume that any one group of Oriental Jews is fully representative of the Palestinian Jews of the time of Christ. If, however, we study the Jews of the Mediterranean world both separately and as a group, we should be able to find the common racial denominators which will reveal to us the physical characteristics of their united ancient Jewish ancestors. Let us begin with the present-day Palestine, where, although representatives of every type of Jew have come together, there is a complete historical continuity of Jews from the time of Christ.

THE MODERN SAMARITANS OF PALESTINE

The modern Samaritans of Palestine who are generally supposed to represent the indigenous Palestinian strain more faithfully than any other, are tall with a mean stature of 173 cm. (Huxley H. M. 1916), and mesocephalic (C. I. 78) with heads similar in dimensions to both Yemenis and Mesopotamians. Their faces are moderately long (125 mm) and narrow, while their thin foreheads are of moderate breadth (103 mm). Their noses are leptorrhine (N. I. 66) and of moderate dimensions.

In pigmentation the Samaritans show more than the usual Mediterranean 25 percent of partial or incipient blondism. Only seven out of 35 had black or dark brown beards, the rest were brown, blond and red. In eye-color one-third were light or mixed; the rest were equally divided between dark brown and brown.

The general body of Oriental Jews, however, is less tall and less blond than these comparatively specialized and inbred Samaritans. Weissenberg (1915) in a general series of Palestine Jews found no blondism, and the short stature of 159 cm., combined with the mean cephalic index of 79.8 extremely narrow faces (128 mm), and a nasal index of 61. Convex noses of a type which he designated as "Semitic" are found in 78 percent of his series.

THE YEMENITE JEWS OF SOUTHERN ARABIA

The Yemenite Jews of southern Arabia form the only large colony of this people in Arabia. Here the city Jews of Sanaia are for the most part short slender people, light-skinned but purely brunet in hair and eye-color. The commonest shade of hair is black, and of the eyes dark brown. In stature and in cranial and facial dimensions they resemble the Palestinian Jews greatly, except that the brachycephalic element is almost entirely lacking: The mean cephalic index of the Yemenite is 74. Their faces are small with a total face height of under 120 mm., and a bizygomatic of 130 mm. In Weissenberg's series 60 percent had straight nasal profiles, and a few even concave.

There are two types of Jews among the Yemenite group. The more numerous is only moderately slender, often well muscled in the extremities. The face is short and of moderate breadth, the chin well developed, lips of medium thickness. The nasion depression is medium, and the browridge noticeable, but not heavy. The eyebrows are thick and convergent, the eyes deep set and the palpebral opening is sometimes narrow. The second, less numerous type is lighter in weight and slenderer with small hands and feet, an extremely narrow head, projecting occiput and a sweeping curve for the forehead in profile. The face is long and very narrow, the mandible slender, the lips thin, the nasal tip somewhat depressed, the nose

THE JEWS OF TURKESTAN AND AFGHANISTAN

The Jews of Turkestan and Afghanistan are fully brachycephalic, with a mean cephalic index of 85. They are of moderate stature, 166 cm., nearly the same as the Tajiks among whom they have lived for over a millenium. But they are narrower-shouldered than the Tajiks, shorter-trunked, and longer-legged; their bodily proportions preserve more of a Mediterranean racial character. Their heads are short, 180 mm., narrower than those of the Tajiks, with a mean breadth of 153 mm. Despite their brachycephalization they have preserved distinctive traits of face; their minimum frontal mean is 104 mm., their bizygomatic, 139 mm., and bigonial 104 mm. Thus they are narrower in all three dimensions than their non-Jewish neighbors, but a little wider in the essential facial diameters than the long-head Jews. Their interorbital (31.3 mm) and biorbital (90.9 mm) diamteres are narrower than those of other central Asiatic peoples; they have thus also preserved the original Jewish narrowness between the eyes. Their faces with a mean length of 125.4 mm. are two mm. longer than those of their neighbors; their noses with a mean length of 57 mm., are also two mm. longer. Their facial index of 90.5 is leptoprosopic, their nasal indexis 62, which is three to four points lower than those of the narrowest noses of the other peoples of Turkestan with whom they are in contact.

Metrically therefore, it would be wrong to infer from the cephalic index alone that the Jews of Bokhara, Turkestan, are simply Judaized Tajiks or Judaized Turkestan people in general. "What they actually are is brachycephalized Jews, who have preserved their Mediterranean facial characters almost intact." (Coon 1939). The agent of brachycephalization is the same Alpine element as exists among the Tajiks.

They are almost all brunet-white in skin color, lighter than the Tajiks; in eye color 57 percent are purely brunet and mostly light brown. Fifty percent have black head hair; forty percent have dark brown hair; and another ten percent brown to blond. In their general pigment character they are approximately the same as the mountain Tajiks, but lighter than those of the oases. They are as heavily bearded as the Tajiks and as abundantly supplied with body hair.

JEWS OF THE CAUCASUS

The Jews of the Caucasus are highly brachycephalic with cephalic indexes of 85 and 86. Their mean stature ranges from 163 to 166 cm., and their faces are broader than those of the Bokharan Jews. They are however, still extremely leptorrhine, and have straight or convex nasal profiles.

THE KARAITE JEWS OF THE CRIMEA

These Crimean Jews have a stature of 164.5 cm., their mean cephalic index is 85, and the nasal index is 60. Five percent are light in complexion. Karaites living outside the Crimea have failed to preserve their characteristic metrical position. Those who settled in the Egyptian Delta have a cephalic index of 74.6, while those of Lithuania have a cephalic index of 81, and a stature of 162 cm.; fifty five percent have fair skin color and an equal amount of mixed hues. Over forty percent have also brown or light brown hair color. Concave noses, the antithesis of a Jewish condition, are found among fifty percent while nasal convexity is almost entirely absent.

THE ASHKENAZIM JEWS

Ashkenazim Jews seem to show that characters such as stature may be environmentally and socially conditioned. In western Europe mean statures for regional groups vary from 162 cm. to 167 cm. In a rough way the stature level corresponds to that of the local Gentiles, but is one or two centimeters lower in each region. In Europe indoor workers have the smallest statures and professional men the tallest. In England where the Jews have enjoyed relatively favorable living

conditions the stature rises to high levels. Rapid size increase on American soil, in response to better living conditions, may be partly interpreted as a fulfilment of their genetic possibilities. Similarly inferior chest diameters of the East European Jews are seen to rise to non-Jewish standards in America.

Head form of the Ashkenazim is relatively constant. In Germany the mean cephalic index for Jews is about 81, rising to 83.5 in Baden and Galicia, and in Bukovina it attains 84, but elsewhere from Austria to the Ukraine and Lithuania it centres about the mean of 82. There appears to be slight tendency for the cephalic index to vary regionally as does that of the corresponding Gentiles. Generally in central and eastern Europe Jews are less brachycephalic than the Gentiles.

Pigmentation of the Jews shows constancy. Approximately fifty five percent are of dark hair and eye color combinations, and less than ten percent can be construed as blond. In countries where the Gentiles are predominantly blond, the Jews are relatively dark; and in countries such as Roumania, where the Gentiles are prevailingly brunet, the Jews are more blond than the Gentiles.

Convexity of nose, a popular diagnostic of Jews, is usually found in far fewer than fifty percent; straight noses are in all regional Jewish groups the commonest profile forms, while in southern Russia concave profiles are more frequent. Among Russian Jews it is not difficult to select individuals with large malars, broad snubbed noses, and high alveolar segments of the upper face, who are as nearly Mongoloid as many Volga Finns.

Among German Jews may be found individuals who are to all purposes Nordic, and others who belong to the Borreby race, which is the most numerous single type among Gentiles in Germany. Alpine Jews are commoner than the incidence of Alpines in central and eastern Europe would perhaps warrant, and some of their Alpinism must have been derived from their sojourn in France and in the Rhineland before their march eastward across central Europe. On historical grounds it is very likely that the ancestors of the Ashkenazims mixed more with the Gentiles in western Europe, before the time of the first Crusades than their more recent forebears have in Slavic countries. The heavy beard growth, the abundance of body hair, and the wavy hair form of many brachycephalic Jews imply a French or German Alpine infusion.

The Jewish people as a whole represent a blend of several or many of the racial types discussed which in a subtle manner gives them the Jewish appearance.

The central European Jews have lived in central Europe since the beginning of the period when the Germans and Slavs began to grow brachycephalic. Their recent racial history has run parallel in time to that of their Gentile neighbors, in comparison with whom they must have remained relatively constant. The modifications which the Jews have undergone in one generation in America are as great in some respects as those which have affected their ancestors in twenty. (Boas 1913 Morant and Samson 1936).

SUMMARY

A study of the main physical characteristics of the indigenous stocks of various regions and the corresponding characteristics of the Jews that have lived among them in these regions indicates that the Jews are of heterogeneous types each of which conforms to a greater or smaller extent to the indigenous physical types. The following examples can be located with greater clarity by observing Fig. 2.

1. The stature, cephalic index, and abundance of body hair among the Jews of the Turkestan runs almost parallel to the same characteristics which are common to the indigenous Tajiks.
2. The strong brachycephalization and medium stature of the Jews of the Caucasus is almost the same as that of the Tatars who are at home in this region.
3. The heavy hooked nose of the Jews of Asia Minor or Turkey has its equal among the Armenians.

4. The dolichocephalic condition of the Jews of Egypt is very similar to that of the native Egyptians and Beduins.
5. The frequency of fair skin and head hair among the Jews of Lithuania is not surprising among the Lithuanians.
6. The dark complexion and straight nose among the Jews of Arabia as well as their cephalic index of 75, is common among the Arabs. In the southern part of Arabia at Aden the Arabs consider the native Jews as part of themselves.
7. The high percentage of concave noses among the Jews of Lithuania and southern Russia is not a Jewish characteristic among Jews of the homeland, but it is a characteristic of the Russians.
8. In England the stature of the Jews has surpassed that of almost any other group of Jews elsewhere.
9. In America the cephalic index of the Jews has been proved to undergo changes which help to understand the possibility of similar changes in other geographical regions.

What may the causes be that bring about these differences among the Jews? An explanation that would not violate the present knowledge of Genetics is that the indigenous peoples that have become assimilated by the Jews in various geographical regions have contributed their genes to the present inherent Jewish genetic make-up. That assimilation of even large numbers has occurred is undeniable. Another explanation that gains support in recent researches (Boas and Weidenreich) is that of persistent regional modifications due to improved conditions in occupation, nutrition, and climate. If perceptible changes in physical stature and cephalic index are evident as a result of a few generations under new conditions two hundred to a thousand years must surely leave their mark.

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