ROYAL ASIATIC SOCIETY

(NORTH CHINA BRANCH)

EXTRA VOL. II

ANTHROPOLOGY OF NORTHERN CHINA

BY

S. M. SHIROKOGOROFF

Anthropologist of the Museum of Ethnography and Anthropology of the Russian Academy of Sciences at Petrograd

1968

ANTHROPOLOGICAL PUBLICATIONS

Oosterhout N.B. The Netherlands

SHANGHAI
1923
Photomechanic reprint

Exclusive distributor in the U.S.A., its possessions and territories, and Canada and Mexico:

HUMANITIES PRESS Inc.
303 Park Avenue South
New York, N.Y. 10010

Printed in The Netherlands

PREFACE

The present study is the fruit of the author's investigations in Siberia, Mongolia and Northern China made in 1912, 1913, 1915-7 and 1918 under the auspices of the Russian Academy of Sciences at Petrograd and the Russian Committee for Investigations in Central and Eastern Asia. During these investigations the author was always assisted by his wife Mrs. Shirokogoroff, who was charged with ethnographical observations of the life of women and with geographical description. The author, during his archeological excavations on the banks of the Amur River, was also assisted by the curator of the Museum at Blagoveschensk, M. K. Tolmacheff, and the non-professional archeologists Messrs. Guroff and Fedoroff.

Some ethnographical and geographical materials have been published already in Russian, but the major part is only in manuscript. In 1919 there were published an "Essay on the General Theory of Shamanism among the Tungus" (Vladivostok. 1919) the conclusion of which is now published in Vol. LIV of the Journal of N. C. B. R. A. S. and "North-Western Manchuria. A geographical Description based on the Materials of the Expedition" (Vladivostok. 1919). "The Social Organization of the Manchus. The Clan Organization," is now published by the N. C. B. R. A. S. The author has also under preparation the following: "The Ethnography of the Reindeer Tungus of Transkaikalia," "Anthropology of the Nomad Tungus of Transbaikalia," "The Tungus Folk-lore, Vol. I. The Tungus Proper. Texts, Translations and Notes," "The Tungus Folk-lore, Vol. II. The Manchus. Nisan Saman. Text and Translation of a Shamanist Manchu Manuscript." Besides the above mentioned works many data concerning the anthropological, linguistical, ethnographical and archaeological observations have not yet been dealt with. The author has not been able to publish all these works because of the political troubles in Russia and does not expect to be able to publish them soon in the Russian language. The present study does not exhaust all the anthropological materials collected. The author also limited his work to the anthropometrical data on the Chinese only and now publishes some other material as illustrating the principal subject,—the Chinese people. On account of the technical difficulties the individual data concerning the Chinese could not be published in the present study. The author hopes to publish them in his further publications on the Anthropology of this part of Asia. Furthermore, the principal purpose of the present study is to offer a summary description of the physical characteristics of the Chinese and to discover the constituent types. This study, therefore, cannot be considered as a final investigation of the Anthropology of the Northern Chinese—it attempts only to outline further investigations. The author also hopes that anthropological investigation in Central and Southern China, made according to the programme elaborated by the International Commission in Geneva in 1912, is well under way. The author has already started the measurements of Chinese from the Central Provinces, and Prof. D. H. Kulp, of the Columbia University, collaborating with the author, has already effected the measurements

of over 200 Chinese from Southern China. It is also hoped that the author's attempt to propagate the anthropological study of the Chinese will have promising results.

It must also be noted, that the conditions for working out anthropological materials in China are very unfavorable because of the lack of necessary libraries. The author could not find in Shanghai even very popular books on anthropology and was deprived of the possibility of illustrating his deductions by the evidence of other anthropologists. In spite of these conditions he decided to publish this work, postponing for later publication discussion of the theories of the origin of the Chinese and other ethnical groups which have been proposed by other authors. The present works deals with anthropometrical material while the other authors have used for their generalization and deductions, linguistical, ethnographical and very scanty osteological material which would not bear comparison with measurements taken on the living persons.

The taking of anthropometrical measurements, working out and writing of a study do not exhaust all the conditions of complation of an anthropological research. The publishing of such works is also a necessary condition of a favourable end of anthropological investigations. The history of these investigations abounds in examples when the works have been accomplished, but not published, and in this way lost for science. Another impediment that must be overcome by the author, is the putting of his writing into correct English. The North China Branch of the Royal Asiatic Society helped the author to carry out his works to this end. The author is extremely indebted to the Rev. Mr. Evan Morgan, who proposed the author's work to the Council for publication, to Prof. Kulp, who helped the author to put his first essays into correct English, to the Committee composed of Mr. Abraham, Dr. Chatley and Mr. Stark-Toller, who have been charged by the Council of N. C. B. R. A. S. with the publishing and correcting.

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CONTENTS

CHAPTER I

INTRODUCTION

§1. Method of anthropometry. §2. Methods of analysis. §3. General description of the geographical conditions. §4. Ethnical movements. §5. Anthropological investigations.

§1. Method of Anthropometry.

The anthropological subjects measured consist of Chinese (396 males), Manchus (81 males and 50 females), Koreans (142 males), Dahurs (49 males), Tungus of Urulga[1] (65 males and 16 females), Tungus of Barguzin and Nerchinsk[2] (85 males and 26 females), Tungus of Amurland[3] (27 males and 34 females) and Tungus amalgamated with the Russians (16 males). Besides these series I have some measurements I cannot use for comparison because of the limited number of individuals.

In the present work my principal attention was devoted to the Chinese series; the other series mentioned above were taken only for comparison, therefore I shall omit the complete analysis of them. The Chinese series is composed of men from Shantung (185), Chihli (114) and Manchuria (96). The Korean series is composed of men from Northern Korea and the Maritime Province of Siberia. The Manchu and Dahur series are composed of men from the Aigun district of Hei-lung-kiang.

The measurements were taken with the instruments made by P. Hermann, Zurich, and consist of the anthropometer and two callipers. The points on the trunk and limbs as also those on the head and face were taken according to the list of measurements elaborated by the International Commission in Geneva in 1912.[4]

With the anthropometer the points were taken as follows: 1. Stature. 2. Height of the ear hole. 3. Height of the supra-sternal notch. 4. Height of the acromion. 5. Height of the upper edge of the head of the radius. 6. Height of the tip of the styloid process of the radius. 7. Height of the tip of the middle finger. 8. Height of the upper edge of the great trochanter. 9. Height of the knee-joint. 10. Height sitting.

With the callipers the points were taken as follows: 11. Maximum length of the head. 12. Maximum breadth of the head. 13. Minimum frontal breadth (diameter). 14. Physiognomical length of the face. 15. Anatomical length of the face. 16. Interzygomatic breadth. 17. Gonial breadth. 18. Internal interocular breadth. 19. External interocular breadth. 20. Height of the nose. 21. Breadth of the nose. 22. Greatest length of the ear. 23. Greatest breadth of the ear.

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1. Nomad Tungus who live near Chita, Transbaikalia.
2. Reindeer Tungus, who live within the Northern Transbaikalia.
3. Namely Tungus who live on the banks of the Amur River near Aigun of Hei-lung-kiang.
4. Revue Anthropologique, No. 7-8. Juillet-Août, 1913. p. 281 ff. This list is generally used in Russia. The list elaborated by the Commission in England does not differ from this except in the measurement of the physiognomical length of the face.

The stature was taken two times: the first time the individual measured was standing with his back to the instrument to take the stature as such; the second time he was standing at $\frac{3}{4}$ profile to the instrument to take the stature and immediately height of the ear hole (from the ground). It was thus possible to work out the height of the head by the subtraction of the height of the ear hole from the stature. Unfortunately the point of the lower end of the tibia was not taken because the anthropometer was always fixed on a plank so that it would have been necessary to change the position of the individual one time more. That was very inconvenient during the field work.[1]

The length of the upperarm was worked out by the subtraction of the height (from the ground) of the upper edge of the head of the radius from the height of the acromion. Other absolute measurements were worked out as above described (See the Roman numeration of the table below). The relative measurements were worked out by the division of a certain absolute measurement by the absolute measurement taken for comparison, and multiplied by 100 for example:

$$\text{Relative length of the arm} = \frac{\text{absol. length of the arm}}{\text{stature}} .100.$$

The characteristics was worked out as follows:

Measurements taken with the anthropometer.

Absolute measurements.

I. Stature (1) (Arabic see above).
II. Height of the head, (1—2).
III. Length „ „ upper arm, (4—5)
IV. „ „ „ forearm, (5—6).
V. „ „ „ hand, (6—7).
VI. „ „ „ arm (4—7).
VII. „ „ „ leg, (8).
VIII. „ „ „ thigh, (8—9).
IX. Height „ „ knee-joint, (9).
X. Length „ „ trunk, [10—(1—3)].

Relative measurements.

XI. Height of the head $= \frac{\text{I-II}}{\text{I}} .100.$

XII. Length „ „ arm $= \frac{\text{VI}}{\text{I}} .100.$

XIII. „ „ „ upperarm $= \frac{\text{III}}{\text{VI}} .100.$

XIV. „ „ „ forearm $= \frac{\text{IV}}{\text{VI}} .100.$

1. This measurement is not of great interest because of the insignificant variations of it among different ethnical units,—ethnoses. I use the term *ethnos* for the unit of ethnological investigation, i.e., tribes, nations, peoples and so on. The motives which led me to introduce this term have been presented in my work "Ethnos.—The General Principles of the Ethnical and Ethnographical Variations." (In Russian, Shanghai, 1923).

XV. Length of the hand $= \frac{\text{V}}{\text{VI}} 100.$

XVI. „ „ „ leg $= \frac{\text{VII}}{\text{I}} .100.$

XVII. „ „ „ trunk $= \frac{\text{X}}{\text{I}} .100.$

The measurements taken with the callipers:

Absolute measurements.

XVIII. Maximum length of the head, (11).
XIX. Maximum breadth of the head, (12).
XX. Minimum frontal breadth, (13)
XXI. Physiognomical length of the face, (14).
XXII. Anatomical length of the face, (15).
XXIII. Height of the forehead, (14—15)
XXIV. Intezygomatic breadth, (16).
XXV. Gonial breadth, (17).
XXVI. Internal interocular breadth, (18).
XXVII. External interocular breadth, (19).
XXVIII. Ocular length $= \frac{14—15.}{2}$
XXIX. Nasal length, (20).
XXX. Nasal breadth, (21).
XXXI. Length of the ear, (22).
XXXII. Breadth of the ear, (23).

Relative measurements (indices).

XXXIII. Cephalic index $= \frac{\text{XIX}}{\text{XVIII}} .100.$

XXXIV. Height of the head to the length of the head $= \frac{\text{II}}{\text{XVIII}} .100.$

XXXV. Height of the head to the breadth of the head $= \frac{\text{II}}{\text{XIX}} .100.$

XXXVI. Physiognomical facial index $= \frac{\text{XXIV}}{\text{XXI}} .100.$

XXXVII. Anatomical facial index $= \frac{\text{XXII}}{\text{XXIV}} .100.$

XXXVIII. Gonial index $= \frac{\text{XXV}}{\text{XXIV}} .100.$

XXXIX. Nasal index $= \frac{\text{XXX}}{\text{XXIX}} .100.$

XL. Auricular index $= \frac{\text{XXXII}}{\text{XXXI}} .100.$

XLI. Frontal index $= \frac{\text{XXIII}}{\text{XX}} .100.$

The facial index (XXXVII) is taken sometimes by anthropologists as $\frac{\text{length of the face}}{\text{interzygomatic breadth}} .100$, because the indices are always>100. It will be more illustrative and easier during the calculation to take this index, as I did above.

Of course, besides these measurements it is possible to take and work out some others, but as regards anthropological characteristics, the measurements taken by me will be sufficient for my purpose, namely to discover the anthropological typest hat composet he present Chinese. This list of measurements taken on living persons and the characteristics later worked out constitute my anthropological investigations of the Asiatic ethnoses.

§2. Methods of Analysis.

The arithmetical means, M and MM in my abbreviations, in all the cases have been tabulated and these data have been later elaborated by the method of interserial differences according to Dr. Molisson[1] and Prof. Y. W. Czekanowsky[2] combined by me[3] in a method which provides the means of the differences between MM of the series and simplifies the calculation of the coefficient of interserial differences. Since this method disclosed the fact that the Chinese are not homogeneous, I calculated the coefficients of correlation for the different measurements which had shown the significant differences of MM between the Chinese and those of the other series.

Besides this I have worked out for some measurements the following calculations, (1) standard deviation, (2) coefficient of variation and (3) probable errors of MM.

The method of correlation has helped me to discover the influence of the different anthropological types on the formation of the present Northern Chinese and to elucidate the results of the application of the method of interserial differences.

Though the number of observations, which for brevity I shall indicate as N, in my series is not quite sufficient for any final conclusion as to the components of the present Chinese, nevertheless, I have analysed all my materials with a view to finding new clues for further investigations; and I have attempted to apply new methods to this analysis of the Chinese series. The question of the necessary value of N which might warrant all the calculations is not yet resolved and this study, it may be, will offer new data relative to this problem. At the same time this study would close the hiatus of our knowledge on the anthropology of Northern China.

§3. General Description of the Geographical Conditions.

The part of Asia in which I have secured my anthropological series lies approximately between 35° and 55° of North Latitude and extends from Lake Baikal to the Pacific. It represents four different sets of geographical conditions, which I need to describe first as briefy as possible.

In this part of Asia we must distinguish the Northern region, which includes the part of Transbaikalia north of the Siberian Railroad Line, the northern part of Hulun-Buir

1. Korrespondenz-Blatt der Deutsch. Gesel. fuer Anthrop. Ethn. und Uhrgeschichte. No. 6/7. 1909, and No. 9/12, 1910.

2. Y. W. Czekanowsky "Zarys metod statistycznych wzastowaniu do antropologii," (In Polish). Warszawa, 1913.

3. The formula and explanation of this method were published in my work "The Problems of Anthropology in Siberia." (In Russian). Petrograd. 1915.

(Mongolia) and of the Tsitsihar district (Hei-lung-kiang), the land lying on the north and east of the Amur River, i.e., the Amur and partly Maritime Governments of Siberia, and northern districts of the Hei-lun-kiang and Kirin Provinces.

This spacious region is watered by the Amur River and some tributaries of the Lena River and is crossed by four systems of mountain chains running in a general direction from SW to NE.

The part lying within the limits of Hulun-Buir and North-Western Manchuria is a plateau, which I shall call the Manchurian Plateau. It is over 2500 feet above sea level and from it radiate in all directions the mountain chains,—Great and Little Khingan, Ilhuri-Alin, Albazin and Panga Mountains and so on.

Across the eastern part of this Plateau passes the Nonni River and the Sungari River forms the eastern limit of this highland. The northern part of this Plateau is crossed by the Amur River, which breaks through the mountain chains and forms a fertile valley 300-800 feet above sea level. This valley was densely populated during the stone Age.

The part of this region lying in the Transbaikal Government also forms a high plateau—the Plateau of the Vitim River (an affluent of the Lena River)—over 3000 feet above sea level, is subdivided by three water systems,—the Yenesi River basin, the Lena Rever basin and the Amur River basin,—and is bounded on the west by Lake Baikal and on the east by the valley of the Shilka River.[1]

The part of this region that lies within the limits of the Amur Government is traversed by the ranges of Yablonov Mountains and is crossed by affluents of the Amur River.

In all above mentioned subdivisions of this region except the valley of the Amur River the conditions of the meteorology, zoology and phytology are about the same. The summer is very short and cold,—the period of vegetation is from about June 1 to August 1; the winter is excessively cold and long. Therefore the ground during whole year is frozen and does not thaw even in the summer time. According to the geologists this region is now under conditions characteristic of a "dry glacial period." The mountains are covered with excellent forests of green trees and lichens, the best food for the domesticated reindeer. The narrow valleys are so marshy, that some places in this region in summer time are absolutely inaccessible to investigators. The

1. The Shilka River is the same river as the Amur River. The variations of the names are due to local tribal differences in geographical names. For example, the source of the Amur River within the limits of the Mongolian (Buriat) language is known as the Ingoda River, but within the limits of the Tungus tribes it is called the Shilka River or properly Shilkir. The name Amur arises from "Kara Mur" (the Black River) of the Dahurs who live on the middle course of this river. When the Russians came from Yakutsk (XVII century) into this part of the Amur River valley, they called it by a mutilated name, which was adapted to their own language from the Dahurian. The Manchu name—Sahalan Ula—and the Chinese name—Hei-lung-kiang—are translations of the Dahurian name—the Black River. The lower course of the Amur River among the Manchus is known as Sungari Ula, because they were living on the banks of the Sungari River before they came to know the middle and upper courses of the Amur River.

conditions are very favourable for wild animals; the region abounds in sable, squirrals, lynx, bears (three species), deer, wild goats, elks, reindeer and many other animals useful for the local hunting tribes. In Manchuria, especially east of the Nonni River, are some tigers and leopards.[1]

The region is populated by Tungus tribes speaking five different dialects and known under the names of Tungus, Orochons, Maneghirs, Birars and so on.[3]

The population in the forests can be estimated at 4000 to 5000 souls only. The common occupation of the Tungus is hunting and partly fishing. Reindee rare used as means of transportation and as a food reserve in time of famine. The Tungus of the Amur River banks, Manchuria and Mongolia have lost the reindeer and are now using horses. They are all organized in paterline clans, have no houses nor permanent residences and are a wandering people.

In this region the Russians, Chinese, Mongols and Manchus have spread along the big river valleys and present all possible types of economic and cultural life. Goldmining, hunting, more seldom agriculture and breeding of domestic animals are the pursuits of the new population of this region. The people in comparison with the population of other regions are very poor and do not number more than some hundreds of thousands.

The Mongols were the first to come into this region some hundreds years ago. After them, in XVII century, came the Russians and Manchus. The Chinese were the latest immigrants, coming in the second half of the last century.

The second region of this part of Asia lies south of the region already described and includes the eastern end of the great steppes of Central Asia. It forms an angle, the top of which is near the confluence of the Nonni and Sungari Rivers in Manchuria. It is crossed by the branches of the Manchurian and Vitim Plateaus and is watered by the systems of the Yeni ei and Amur Rivers. The western part of this region lies on the Mongolian Plateau,—over 2000 feet above sea level. It can be characterized as cold, very dry and almost treeless country. It is very rich in pasturage for cattle, horses and camels.

The population of this part consists of Mongols in the south and some Mongolized Tungus in the north,—the Tungus of Urulga, of the Aksha district (in Transbaikalia) and the Tungus on the frontier of Mongolia and Siberia in general. Near Manchuria the Dahurs and Solons (a Tungus group) occupy the eastern borders of this Plateau. The Russians

1. Some years ago in Transbaikalia, near Lake Baunt, the Tungus killed a tiger.

2. I omit the Russians, more or less numerous in the valleys of the Ingoda Rever, Shilka River, Amur River, Zeya River and so on, also the peculiar mixed Russian and Chinese population of the gold mines.

3. All these groups recognize their relationship and call themselves "evenki." The above mentioned names were uncritically adopted by writers in their ethnographical and geographical descriptions of this region. The name *Tungus* is a Yakut name for these ethnical groups; the name *Orochon*—from Manchu name *oroncun*, which means: "using the reindeer—" was probably adapted by the Evenki themselves; *Maneghir* is the name of an Evenki clan—*manegir; birar* can be translated from the Evenki "living on the banks of the river" (the Amur River) and is borrowed probably from the Manchu—officials. It is of the same origin as *lamat*,—"living on the coast of the sea." The mutilated names: kilin, chilin, kile, byraly, orochi, oroki have arisen from the linguistic mistakes of the Russian, Manchus, Chinese, and other neighbouring peoples.

took the best places for agriculture, but do not despise other trades,—hunting, breeding of cattle and so on. The Chinese colonization is just in its beginning so they are not yet numerous in this section. Their principal occupations are commerce, hunting and some agriculture.

The eastern part of this region lies east of the Great Khingan Mountains. It is lower and better for agriculture than the western section. It is populated by Manchus and later Chinese, who little by little squeeze out the original Manchu population. The Chinese colonization based on the occupation of the land for agriculture is very successful. The Russians colonies are only along the railway and have no permanent roots in this country.

The third region is formed of the Manchurian Provinces of Shengking (Mukden) and partly Kirin, also the provinces of Chihli and Shantung in China Proper. In this region I shall distinguish three principal subdivisions, viz., northern part, Chihli and Shantung.

The first subdivision is connected with the first region, the southern limit of which can be fixed not far from the Chinese Eastern Railway line. The southern limit of this subdivision is the coast of Gulf of Pechihli, the eastern limit—the Yalu River, or more exactly the forest region of the Kirin Province, and the western limit—the eastern limit of the Mongolian Plateau. This part of the region is noted for its very fertile soil; it has been populated since ancient times by agriculturists. The moderately developed forests, the system of big rivers, like the Sungari River, Nonni River and Yalu River, and the relatively mild climate form quite favourable conditions for cultural development.

The second subdivision of this region, the Province of Chihli, though very near to the cold Mongolian Plateau, presents the best conditions for agriculture in this third region, in some ways even better than Southern Manchuria.

The third subdivision of this region, the Province of Shantung, a mountainous peninsula with a salubrious climate, quite fertile soil and rich in mineral sources, presents the best imaginable state for the development of all kinds of economic and cultural activities. Its position near the sea facilitates social contacts and results in a population unusually active.

The population of this region is now almost exclusively Chinese. The northern part of it some centuries ago was occupied by Manchus, but the aggressive northward movement of Chinese created the mixed population of Manchus and Chinese. The provinces of Shantung and Chihli are real Chinese territory, but there are, as everywhere in China, Manchu colonies.

The fourth region of this part of Asia is the Korean Peninsula, isolated, mountainous and in some places good for agriculture and mining. Its moderate climate and long sea coast facilitate the development of its population. The climate and topography are always good for plantations of rice, the principal cereal of the Koreans. The isolated position of Korea presents some advantage to her population, who have occupied the country almost exclusively during the last two thousand years. The population of this region consists up to the present time mainly of Koreans. The Japanese colonization is very incomplete.

§4. Ethnical Movements.

The movement of the Chinese from west to east and their expansion from Central China to the north-east and south is the history of this part of Asia. On the other hand the opposition of the northern ethnical groups, the dispersion of these aborigenes and their respective decline represent the history of these groups.

According to the archeological and ethnographical evidences it might be supposed that this part of Asia some four or five thousand years ago was populated by Tungus, Turko-Mongols and Palaeoasiatic groups. The southern part of the second region and whole of the third region were occupied by the Tungus and Turko-Mongols, the ethnical differentiation of which must be referred to prehistoric times. The Tungus groups were probably living to the east and south-east of the Turko-Mongols. All the rest of this part was populated by Palaeoasiatic groups and in addition the whole of the Amur River basin was Palaeoasiatic area. The archeological evidences resulting from my excavations in 1916 and the archeological evidences from the Ussuri River basin, Sakhalien Island, Kamchatka and the lower course of the Amu: River, supply materials, which show that the cultural state of the population of these regions was similar. The people lived in underground houses, like some palaeoasiatic groups of the present time, they used the bow and arrows with heads of stone or bone, they practised at one time the ceramic arts and had domesticated animals,—the dog, the pig and, may be, the reindeer. The principal occupations of this population were fishing, hunting and also the searching for nutritive roots. They did not know iron and brass.[1]

The Tungus and Turko-Mongols of the Yellow River basin and Mongolia were in a stoneage culture, but the lack of archeological evidence does not allow me to describe the details of their culture. Meanwhile some ethnographical evidence leads me to suppose, that some ethnical groups used ceramic utensils and knew agriculture.

The original Chinese area at that time was confined to a territory west of these ethnical groups; the question of the original Chinese site, I leave open. For my present study it is not important to be precise as to whether they came from the far western region or were in this territory since the Old Stone Age.

The advances of the Chinese on the east along the yellow River, and from this valley, to the north-east and south, and the pushing back of the Tungus from their original territory eastward and northward were the first important changes preceding the final fixation of the ethnical elements. It can be supposed that the vanguard of the Tungus came through Manchuria to the banks of the Amur River in the second millenium B. C. or, may be, sooner and there pushed out the Palaeoasiatic ethnical groups. They adopted from the Northern Palaeoasiatics the reindeer, the sledge, some utensils and so on, and migrated northward and westward, into Siberia, then almost free from population. In this cold northern country they forgot the ceramic arts but conserved their open coat which is clearly of southern origin, the bow and arrow of the southern type

1. I think that brass may have been known in the southern part of this area beerof the Chinese entered.

and so on, Their activity led them into the open area of the present Siberia and they pushed the Plaeoasiatics to the borders of their former area. The Tungus folk-lore offers some evidence regarding these migrations from the south-east to the western region of their present territory. At the present time this territory lies from the Yenisei River up to the Pacific coast and from the Arctic Ocean down to Mongolia and Southern Manchuria.

The second group of Tungus stopped on the southern affluents of the Amur River. They adapted to their culture some palaeoasiatic elements and used underground houses at the time when the Chinese chronicles of the Han Dynasty were written. The breeding of the pig, hunting and fishing, and the culture of "five kinds of cereals" became their principal occupations. These Tungus, the ancestors of the Manchus, formed an independent state in the valley of the Sungari River and pushed out some Palaeoasiatics, who organized their own small state within the limits of the present Maritime Government and Northern Korea. Little by little these later Tungus spread their influence over the isolated Tungus and Palaeoasiatic groups and founded a power within the limits of Manchuria, the Ussuri River basin, and, perhaps, Korea Doubtless the Manchus fell under the influence of their neighbours,—the Mongols, Palaeoasiatics and the later Chinese immigrants. As regards the language, the Manchu, or southern branch of the Tungus linguistic family, in comparison with the proper Tungus, is much less developed from the point of view of grammar and is under the influence of other non-Tungus tongues.

The second important ethnical movement is connected with the success and failure of Turkic and Mongol ethnical groups. The first struggle between the Turko-Mongols and Chinese resulted in the failure of the Turks and this was the immediate cause of the Turkic-Mongol movement northward and westward, who then pushed out some Turkic and Tungus tribes. Those went northward and occupied the valley of the middle course of the Lena River. During this migration they lost the horse and, may be, cattle also but conserved the sheep. Then, in the centre of the Tungus area there is now living a tribe of southern nomadic origin speaking the Turkic dialect or to say better a dialect especially influenced by Turkic tongue—the Yakuts—who differ absolutely from surrounding peoples. The Manchus opposed the Mongol movement from which arose a series of wars. Since a lasting Mongol control of Manchuria was not secured by colonization, the Mongols have been losing their influence over the Manchus. In fact, the history of Manchuria consists in the alternate successes and failures of the struggles among the Mongols, Manchus, other Tungus groups and Palaeoasiatics.

Meanwhile the Chinese civilization, in the growth and spread of its influence over native tribes, created a strong power, which also took part in the racial and ethnical struggle. The control of Korea and Manchuria was the inevitable national objective of the Chinese policy. Many times they took the power but could not keep it and finally lost the control of their own country. Successively the Tungus and Mongol powers controlled China. Now, however, some of these tribes live peacefully together in Manchuria and Mongolia. For example, the Dahurs, who were probably the founders of the Liao Dynasty (in Manchuria, Mongolia and Northern China), are living now in small villages among the Chinese and Manchus in Manchuria and among the Mongols in Hulun-Buir.

In the XVII century there appeared a now ethnical factor in this part of Asia. The Russian invasion into the northern region caused great disturbance among the Dahurs who lived in the Aighun district after their political downfall in the XII century; and the Manchu Government was compelled to send military forces to the Amur River. This was not a purely military expedition, but an organized movement to colonize the region with the Manchus who were then organized on a military basis. Such was the accidental origin of the Manchu agricultural colony on the banks of the Amur River. The Russian invasion was not stopped but progressed slowly from Transbaikal into Amurland and Manchuria. In the XVIII century it spread over Transbaikalia, in the XIXth over Amurland and Ussuriland; and in the XXth century it spread over Manchuria and Mongolia. The Manchu Dynasty paid no heed to this migration and finally lost its influence over Northern China. Then because it has no roots in Southern China, it lost its power once insignificant European pressure was exerted.

In spite of this periodical failure of the Chinese to control Manchuria and Mongolia they spread their influence and became the masters of the ethnical situation among the populations of the northern region. By the end of the XIX century their colonies were so large that the Chinese did not need to marry the natives for lack of Chinese women. Meanwhile the Chinese of Manchuria have become so amalgamated with Manchus and other ethnical groups that now it is almost impossible to distinguish the Chinese elements In the Aighun district they were even incorporated in the Manchu military organization with all the special rights conferred thereupon. Thus the Manchus came to represent a very limited portion of the local population and little by little became only a small oasis among the Chinese immigrants.

At the present time the ethnographical distribution can be represented as follow:

The first region is occupied by the Tungus groups of the first Tungus migration except a limited area in the middle course of the Amur River, which is occupied by the Dahurs of uncertain origin but speaking now the Mongolian dialect, the Manchus and some Chinese. The country at the mouth of the Amur River is populated by the Palaeoasiatics —Gilyaks.

The second region is occupied by the Mongols and Mongolized Tungus in the western part and by the Mongolized Tungus and Manchus, also partly the Dahurs in the eastern part.

The third region is occupied by the Manchus and other Tungus groups of southern branch and the Chinese in the northern part and by Chinese in the southern part.

The fourth region is occupied exclusively by the Koreans, the probable descendants of palæoasiatic tribes, influenced by Tungus and Chinese.

Finally, the Russians movement in Manchuria met the Chinese migration and almost stopped it at the southern limit of the first region. Thus at the present time the influence of Chinese and Russian migrations is spreading over the insignificant native population, excepting the Koreans who are under the Japanese political and anthropological influence. The Russian migration is culturally effective because of its military forces and new technical

knowledge while the Chinese migration is effective because of its adaptability to the local conditions and its quantity.

The general movement of peoples may be thus summarized: First, the movement of the Chinese east, and northward provoked the first Tungus migration and the removal of the Palæoasiatics into Korea and the coasts of Asia. Second, the movement of the Chinese northward provoked the first migration of the Mongols westward, northward and eastward, causing the movement of the Huns into Europe, the migration of a Turkic group northward and a second migration of the Tungus (Manchus). Third, The slow spread of the Chinese was stopped by the later Russians but the sinification of the Manchus is almost accomplished by this time.

§5. Anthropological Investigations (on Living Subjects).

The anthropological investigations of the northern Chinese and other ethnical groups of Manchuria and Korea published up to the present time are so insignificant that they may be neglected. There are some materials on the Mongols (Buriats) and Mongolized Tungus of Transbaikal by Dr. Talko-Hryncewicz and some materials on the Tungus and Palaeoasiatics of Siberia by Mr. J. J. Mainoff and Dr. Yohelson-Brodsky.[1] Besides these materials, the major part of the anthropological investigations of Koreans[2] Gilyaks[3] Goldis[4] and Tungus of eastern part of my first region, as indicated above remain up to the present time unpublished. Some of them are known to me; some of them were elaborated under my direction. The Manchus, the Dahurs, the Tungus of Urulga and Barguzin and the Tungus of the Middle course of the Amur River had never been investigated previous to my expeditions.

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1. For the complete report of the investigations published and unpublished, vide §2, Note 3.

2. In 1915-17, Mr. Konrad of Petrograd University, collaborated with me in his anthropological studies and measured about 200 or more Koreans.

3. The measurements of Mr. L. J. Sternberg, Ethnographer of the Russian Academy of Sciences, and these of Mr. Vasilieff, of the Russian Museum in Petrograd.

4. The Goldis and other Tungus were measured by Mr. Sternberg, Mr. Vasilieff and in 1914 by Mr. Poniatowsky of the University of Krakow. Also Miss Afanasieff, who is Tungus herself, measured some tens of Tungus, but this material and ethnographical collections were burned by the bolsheviks in Nikolaevsk on the Amur River. Besides the above mentioned materials some measurements were made by Mr. Lopatin of Far-Eastern University and Colonel Arsenieff.

CHAPTER II

PHYSICAL CHARACTERS OF THE CHINESE GROUPS.

§§6-18. Absolute measurements. §19. Generalizations concerning the absolute measurements. §§20-29. Relative measurements (Indices). §30. Some notes on the descriptive characters. §31. Conclusions.

§6. Stature.

The stature of the Chinese varies from 1507 mm. to 1874 mm. The arithmetical mean, which I shall designate M or MM, of the stature is 1665. 7 mm. The following curve of dispersion taken with differential units of 10 mm. gives the graphic expression of variation of strture.

FIGURE 1. *See Page 18.*

TABLE I.

Stature Cms.	N	%	Stature Cms.	N	%	Stature Cms.	N	%
150	1	0.25	163	39	9.95	176	12	3.06
151	1	0.25	164	28	7.14	177	3	0.77
152	1	0.25	165	22	5.61	178	4	1.02
153	2	0.51	166	26	6.63	179	2	0.51
154	3	0.77	167	26	6.63	180	4	1.02
155	5	1,29	168	20	5.10	181	3	0.77
156	7	1.78	169	16	4.08	182	...	...
157	8	2.04	170	19	4.85	183	4	1.02
158	7	1.78	171	19	4.85	184	...	...
159	8	2.04	172	16	4.08	185	...	...
160	19	4.85	173	8	2.04	186	...	...
161	16	4.08	174	7	1.78	187	1	0.25
162	28	7.14	175	7	1.78	...	392	100.00

Thus the mode i.e. the largest number of cases in a range, falling on the range of 1630 mm. which is 375 mm. lower than M. It might be concluded that in the present series this stature is more common and the high M is due to a number of tall men, having a stature over 1750 mm.

The standard deviation, which characterizes the dispersion: $\sigma = 61.44$ and coefficient of variation $V = 3.67$.[1]

1. Some anthropologists suppose the standard deviation and coefficient of variation to be characteristics of the degree of the amalgamation. This must be so theoretically, but up to the present time the variations of the standard deviations and coefficients of variation of the amalgamated and pure populations are not known. Therefore I shall abstain from further deductions as to the meaning of these data, awaiting opportunity for special investigation into the matter.

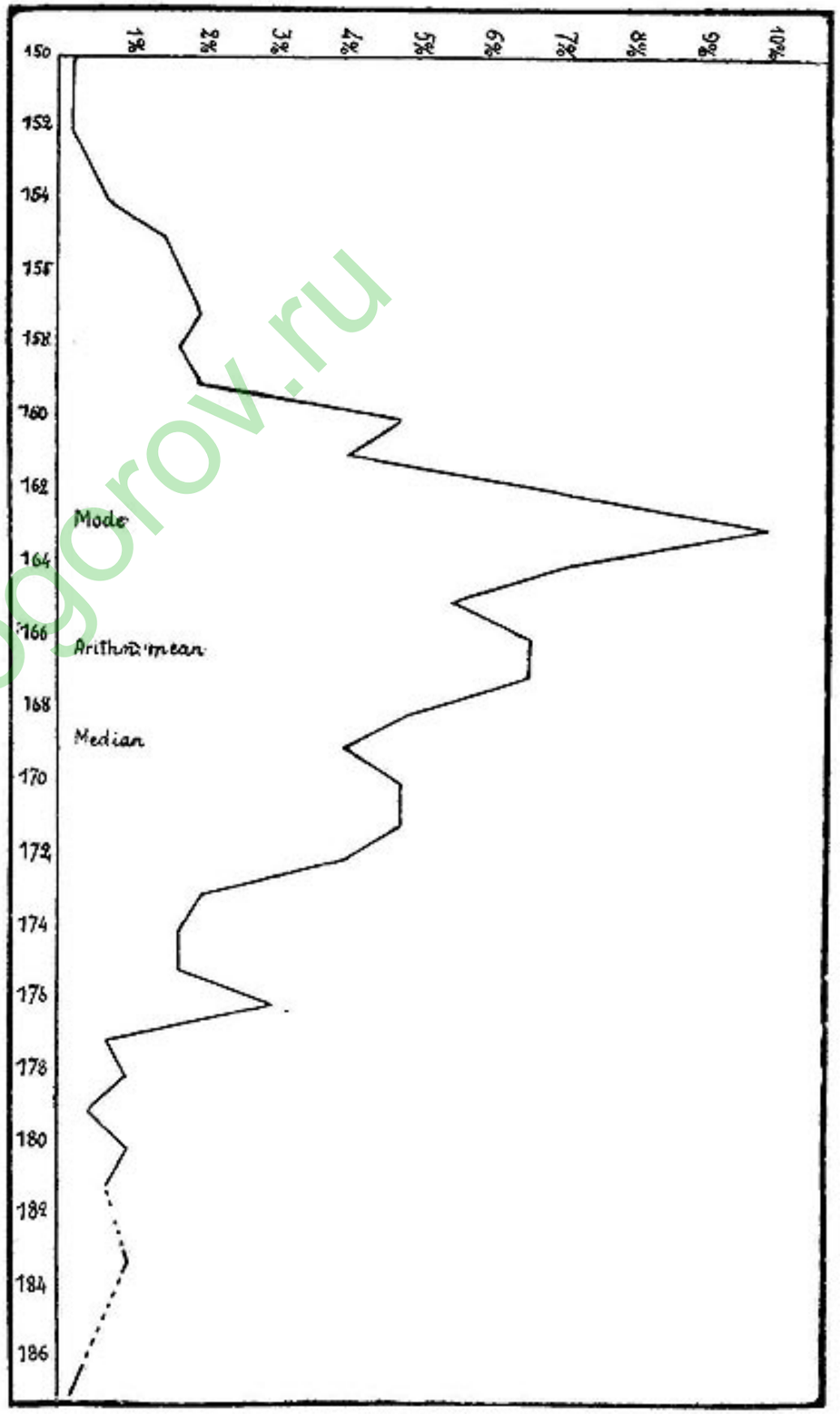


FIGURE 1.
STATURE.
Percentage of Dispersion.
(In centimeters.)

The variation of MM of the stature for the different series,—the Chinese of Shantung, Chihli and Manchuria, as well as the Manchus and Koreans, which I took for comparison,—is as follows:

TABLE II.

Groups	N	Max.	Min.	M	σ	V	E_m
Chinese of Shantung ...	185	1838	1537	1665.5	59.58	3 58	±3.00
Chinese of Chihli ...	114	1874	1565	1678.9	63 16	3 76	±3 84
Chinese of Manchuria ...	95	1815	1518	1[illegible]04	59 37	3 [illegible]0	±4.15
Total Chinese	394	1874	1 07	1[illegible]5 7	61 44	3 67	±2 [illegible]5
Manchus	81	1718	1513	163..9	51.04	3.11	±4.49
Koreans	142	1752	1569	16[illegible]8.8	47.71	2.93	±5 39

Note on the Table II.

In this table N means the number of cases; Max. and Min.—the extreme variations observed in these series; M—the arithmetical mean; σ—the standard deviation: V—the coefficient of variation; E_m—the probable error of M.

In this table it might be seen that M of the stature of the Chinese of Manchuria is lower than MM of the other Chinese groups: it lies between M of the Total Cainese and MM of the Manchus and Koreans. Whence it might be supposed that this phenomenon is due to the influence of the Manchus and Koreans over northern Chinese group. Their stature is always higher than that of other ethnical group of this part of Asia, which can be seen in the table below:

TABLE III.

Groups	M	σ	V
Mongols	1630	...	...
Tungus of Urulga	1620	59.36	3.660
Tungus of Barguzin ...	1591	53.72	3.376
Dahurs	1643	...	...

Note on the Table III.

The group of Mongols is not the Mongols Proper, but the northern branch, who live in Transbaikal and are known as Buriats. The anthropological data concerning this Mongol group I have taken from a study of Dr. Talko—Hryncewicz.

§7. Length of the Arm.

TABLE IV.

Groups	N	Max.	Min.	M
Chinese of Shantung ...	181	844	661	730.6
Chinese of Chihli ...	111	826	621	730.0
Chinese of Manchuria ...	92	808	641	724.8
Total Chinese	386	844	621	728.7
Manchus	76	822	622	706.7
Koreans	137	805	645	715.4

Note on the Table IV.

NN, in comparison with Table II, vary because some measurements I must exclude or do not take. I have excluded all which I could not read exactly and I have not measured the persons who have physical infirmities; I have also omitted some measurements, because of the technical difficulties, as for example very cold room where I was obliged to operate and so on.

This table indicates almost the same type of variations of MM as in the preceding table II, but among the Koreans the arm is relatively longer than among the Manchus. This is clearly exhibited in the table of the relative length of the arm. The variations of MM of the length of the arm among the Chinese groups are quite insignificant.

§8. Length of the Upperarm, Forearm and Hand.

TABLE V.

Groups	Upperarm				Forearm				Hand			
	N	Max.	Min.	M	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ..	181	395	269	310.6	182	262	192	236.8	181	221	160	189.5
Chinese of Chihli ...	108	349	275	307.4	104	266	196	236.2	104	253	151	186.5
Chinese of Manchuria.	87	345	266	308.2	87	267	197	235.2	87	227	158	183.5
Total Chinese ...	376	395	266	309.1	373	267	192	236.1	372	253	151	187.3
Manchus ...	75	366	254	294.4	75	288	185	231.0	75	222	558	181.4
Koreans ...	129	345	269	300.6	129	283	195	231.2	129	219	115	183.6

In this table may be seen the same type of variations of MM as in the preceding tables with the exception of MM of the upperarm which slightly differs from it. However, the differences or MM are in all the cases insignificant.

§9. Length ot the Leg and Thigh and Height of the Knee-joint.

TABLE VI.

Groups	Leg				Thigh				Height of knee joint			
	N	Max.	Min	M	N	Max.	Min.	M.	N	Max.	Min.	M
Chinese of Shantung..	185	970	760	854.0	184	474	313	390.3	184	540	394	463.9
Chinese of Chihli ..	112	980	777	862.0	112	484	327	389.3	112	541	417	471.6
Chinese of Manchuria.	94	942	747	842.9	94	449	303	383.1	94	548	393	459.4
Total Chinese ..	391	980	747	853.6	390	484	303	388.3	390	548	393	465.1
Manchus ..	55	916	783	832.0	54	432	333	374.7	54	507	410	456,3
Koreans ..	141	905	741	819.5	141	436	317	378.8	140	495	367	440.5

The differences of MM among the groups are very accentuated in the length of the leg and height of the knee-joint, whence it might be deduced that the length of the leg is due to the variations of the lower part of the leg. Furthermore, the height of the foot does not vary because of the anatomical construction of the leg, and the variations of the height of the knee-joint can be explained by the variability of the tibia. It is quite evident that the variations of MM have the same regularity as in Table II.

Thus in almost all the cases the length of the limbs correlates with the stature. From this standpoint the Chinese groups, the Manchus and the Koreans do not essentially differ. The further tables of the relative measurements will give the evidence of this.

§10. Length of the Trunk.

TABLE VII.

Groups	N	Max.	Min	M
Chinese of Shantung ...	178	652	488	563.5
Chinese of Chihli ...	110	631	510	572.9
Chinese of Manchuria ...	92	650	498	571.7
Total Chinese	380	652	488	568.2
Manchus	47	591	467	547.3
Koreans	140	625	485	553.5

The regularity of the variations of MM in the groups which was observed in the preceding exposition cannot be discovered for the length of the trunk. MM of the Chinese of Chihli and Manchuria are "opposite," relatively to M of Total Chinese, to M of Chinese of Shantung and to MM of the Manchus and Koreans. At the same time they are much lower tham M of Total Chinese. From Table II it is seen that MM of the stature of the same groups have another set of relations, but the variatians of MM of the trunk, though more significant than those of the stature, show a variation tn inverse order.

Conclusion. MM of the limbs correlates wtih the stature, the length of the leg is the principal cause of the variation of MM of the stature. The length of the trunk does not correlate with the stature.

§11. Length and Height of the Head.

TABLE VIII.

Groups	Length				Height			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	185	205	172	188.27	180	156	116	134.10
Chinese of Chihli ...	113	200	168	186.90	113	154	121	135.44
Chinese of Manchuria ...	96	203	163	183.57	94	149	120	133.64
Total Chinese	393	205	163	186.73	387	156	116	134.38
Manchus	81	194	170	181.94	76	153	119	132.64
Koreans	141	200	165	183.93	137	152	118	134.50

This table shows the differences of MM of the head-length to be very great. M of the head-length for Total Chinese is lower than M of Shantung Chinese but it is very close to M of Chihli Chinese and is higher than MM of the Manchus and Koreans.

M of Koreans is very close to M of Manchurian Chinese who, perhaps, were influenced by Koreans. The head-length correlates with the stature and the other measurements already listed excepting those of the trunk.

Among other ethnical groups of this part of Asia MM of the head-length vary considerably. For example, the Tungus of Barguzin,-the abbreviation for the Tungus of Barguzin and Nerchinsk Districts of the Transbaikal Governments-(M=194.18), the Tungus of the Yakutsk Government (M=192,—by Mr. J. J. Mainoff) have heads longer than the Chinese, but the Mongols (Buriats by Dr. Talko-Hryncewicz, M=187) and the Mongolized Tungus of Urulga (M=186.05) have about the same head-length as the Chinese.

The differences of MM of the height of the head among the Chinese show correlation between the height of the head and the stature but the Koreans exhibit some peculiar characteristics, their M of the height of the head is relatively greater than in the other groups. As regards the correlation of these measurements in general, the evidence concerning other ethnical groups proves that the height of the head sometimes can characterize an anthropological type. For example, the Mongols have very low head (M=127) and influence the Tungus of Urulga (M=134.6).[1] At the same time the Tungus of Barguzin in spite of their small stature (M=1598.4) have about the same height of the head as the Chinese (M=134.50). The Dahurs have the head relatively lower (M=133.20) than the Chinese.

1. A group of these Tungus has the height of the head still lower (M=126.9).

§12. Maximum Breadth of the Head.

TABLE IX.

Groups	N	Max.	Min.	M
Chinese of Shantung	184	162	135	147.68
Chinese of Chihli	113	161	138	149.21
Chinese of Manchuria ...	96	170	137	153.71
Total Chinese	393	170	135	149.55
Manchus	80	161	143	151.31
Koreans	141	166	143	153.72

This table shows the same regularity of the variations of MM of head-breadth, but in an inverse order. In this measurement the Chinese of Manchuria are very close to the Koreans. It is interesting also to note that the Mongols (M=160) and the Mongolized Tungus (M=157.58), as well as the Tungus of Barguzin (M=158.14) have broad heads similar to the Chinese of Manchuria. Hence might be supposed an influence of these groups over the northern Chinese. Though M of the head-breadth of the Manchus is lower than M of the Chinese of Manchuria the form of the head of the Manchus is the same, but the Manchus differ from this group of the Chinese by the smaller size of their heads in general. This gives some right to suppose that the Manchus are always very close to the other groups of this region. The Dahurs have the head-breadth (M=149.86) about the same as the Chinese of Chihli, but the form of the head is closer to that of Manchus.

§13. Maximum Interzygomatic Breadth and Minimum Frontal Breadth.

TABLE X.

Groups	Interzygomatic				Frontal			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung	184	153	125	140.77	184	119	95	104.81
Chinese of Chihli	113	155	126	140.13	114	119	92	104.49
Chinese of Manchuria	96	155	130	142.14	96	116	96	105.79
Total Chinese	393	155	125	141.09	394	119	92	104.96
Manchus	79	150	131	140.28	80	118	97	105.35
Koreans	141	157	130	143.76	141	120	95	106.30

The same regularity of the variations of MM can be observed in this table. This is quite natural, because these diameters must correlate with the head-breadth; but he variations are always less significant than in the case of the breadth of the head. The variations of MM of the frontal diameter are more insignificant than those of the

interzygomatic breadth. These diameters are more developed among the Chinese of Manchuria, which can be explained by the influence of their neighbours—the Koreans. But the Manchus have M lower than the Chinese of Manchuria; they have generally a head of smaller size. Other ethnical groups of this part of Asia have diameters higher than the Chinese. The Mongols (M=153), the Tungus of Urulga (M=146.8), the Tungus of Barguzin (M=147.72) have MM of interzygomatic breadth higher than the Koreans.[1] But the Dahurs are quite close (M=140.01) to the Manchus. MM of the frontal diameter show the same type of variations (the Mongols—M=112; the Tungus of Urulga,—M=108.4; the Tungus of Barguzin,—M=105.77; the Dahurs,—M=105.24). Thus MM of these diameters of the Chinese of Manchuria relatively to the Chinese of China Proper are higher. This is to be explained by the influence of the Koreans and other ethnical groups of this part of Asia.

§14. Gonial Breadth.

TABLE XI.

Groups	N	Max.	Min.	M
Chinese of Shantung	185	125	94	109.28
Chinese of Chihli	114	125	96	109.18
Chinese of Manchuria ...	96	122	95	109.56
Total Chinese	395	125	94	109.32
Manchus	80	130	97	110.47
Koreans	140	128	99	112.48

Here the insignificant variation of MM does not give any materials for comparison. MM of the gonial breadth of other ethnical groups exceed MM of the Chinese (the Tungus of Urulga—M=112.3; the Tungus of Barguzin—M=111.18; the Dahurs —M=110.53; and the Mongols—M=118.).

§15. Physiognomical and Anatomical Length of the Face and Height of the Forehead.

TABLE XII.

Groups	Physiognomical L.				Anatomical L.				Height of Forehead			
	N	Max.	Min.	M	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ..	184	215	169	191.64	184	134	98	117.72	183	93	59	47.07
Chinese of Chihli ...	112	212	173	192.76	113	135	105	117.78	112	88	58	76.09
Chinese of Manchuria.	96	219	176	191.41	96	132	106	117.85	96	90	58	73.68
Total Chinese ...	394	219	169	191.90	393	135	98	117.77	391	93	58	74.30
Manchus ...	79	202	170	188.29	80	132	104	117.67	80	82	56	70.17
Koreans ...	141	219	174	194.67	141	136	103	117.16	141	92	62	77.51

1. It is interesting to note that the half-bred (Tungus and Russians) have the interzygomatic diameter (M=141.5) and the frontal diameter (M=103.3) lower than the pure Tungus.

In this table may be observed very insignificant variations of MM of the physiognomical length of the face and no variations of MM of the anatomical length of the face, but very accentuated variations of the height of the forehead, correlating with the variations of the physiognomical length of the face, whence it may be concluded that the differences of the length of the face are due to the difference in the development of the foremost part of the crania. The influence of the Manchus over the Chinese of Manchuria, it seems to me, is higher than that of the Koreans. The following table will show the comparative materials for other ethnical groups.

TABLE XIII.

Groups	Physion. L.	Anatom. L.	Forehead
Tungus of Urulga ...	187.7	120.8	66.9
Tungus of Barguzin ...	189.05	116.44	72.61
Dahurs	193.37	118.06	75.45
Mongols	192.	...	...

From this table and Table XII it can be shown that the Tungus influenced the Manchus and these on the other hand influenced the Chinese, because MM of the Chinese of Manchuria are lower than MM of other Chinese groups. It is interesting to note that M of the Mongols is about the same as M of Chinese of Chihli, but lower than M of the Koreans.

§16. Length and Breadth of the Nose.

TABLE XIV.

Groups	Length				Breadth			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	183	50	34	41.57	185	47	29	37.12
Chinese of Chihli ...	113	51	36	41.73	113	42	32	37.31
Chinese of Manchuria ...	96	51	34	42.39	95	44	31	37.02
Total Chinese	391	51	34	41.81	393	47	29	37.14
Manchus	81	53	37	45.38	81	45	33	37.86
Koreans	141	54	31	40.79	141	43	31	37.33

This table shows the same type of variations of MM, but MM do not vary greatly. It might be noted that the Koreans have M of the length of the nose lower that the Chinese groups and the Manchus' M is higher than the highest M of the Chinese. The variations of MM of the breadth of the nose are quite insignificant. The table of the nasal index will better illustrate this character, therefore I shall now abstain from further deductions. The measurements taken with other ethnic group are as follows:

Groups	Length	Breadth
Tungus of Urulga ...	48.89	39.06
Tungus of Barguzin ...	45.50	39.29
Dahurs	42.65	36.04

§17. Length and Breadth of the Ear.

TABLE XV.

Groups	Length				Breadth			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	183	72	52	63.73	183	39	27	32.52
Chinese of Chihli ...	113	76	52	64.66	113	38	27	32.50
Chinese of Manchuria ...	96	78	54	63.64	96	40	28	32.74
Total Chinese	392	78	52	63.98	392	40	27	32.55
Manchus	81	77	54	64.95	81	40	25	33.15
Koreans	141	76	50	63.97	141	36	26	30.74

Very insignificant variations of MM do not permit of any reliable conclusions. Besides my own data there is no evidence for other ethnic groups, but the Dahurs, who have M of the length of the ear (M=66.76) higher than that of Chinese groups and M of the breadth of the ear very close (M=32.92) to M of the Chinese.

§18. External and Internal Interocular Breadtl and Ocular Length.

TABLE XVI.

Groups	Extern. interoc. Br.				Intern. interoc. Br.				Ocular L.			
	N	Max.	Min.	M	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	184	108	85	95.27	184	40	27	34.29	185	35.0	25.0	30.49
Chinese of Chihli ...	113	106	80	96.13	113	41	27	34.29	113	36.5	25.5	30.92
Chinese of Manchuria.	95	104	87	96.09	95	40	26	33.61	95	36.5	28.5	31.24
Total Chinese ...	392	108	80	95.70	392	41	26	34.12	393	39.5	25.0	30.79
Manchus ...	81	106	80	93.46	81	41	28	34.10	81	35.0	25.0	29.68
Koreans ...	142	105	82	95.29	142	43	28	33.94	142	34.5	27.0	30.67

This table shows certain peculiarities for the Chinese of Manchuria. They have MM of the external breadth and ocular length a little higher than those of other Chinese groups while the internal breadth is lower. This correlates with M of interzygomatic breadth and the narrow nose of this group. Other ethnic groups of this area show very broad variations as follows:

TABLE XVII.

Groups	Extern. interoc.	Intern. interoc.	Ocular
Tungus of Urulga ...	92.8	34.0	29.27
Tungus of Barguzin ...	99.38	36.95	31.09
Dahurs	91.43	32.78	29.33

§19. Generalizations Concerning the Absolute Measurements.

From the preceding exposition the following conclusions may be deduced.

1. The variations (the limits of the maximums and minimums) of the measurements among the Chinese generally are more significant than among the Koreans and Manchus. The coefficient of variation of the Chinese is higher than that of Manchus and Koreans. It would appear, therefore, that the Chinese are not homogeneous and that the Koreans are more homogeneous than Manchus.

2. The stature and head-breadth correlate with all other measurements except those of the nose and ear and the length of the face.

3. The Chinese of Manchuria on the basis of MM are closer to the Manchus and Koreans than to the other Chinese groups while MM of the Manchus in many cases are very close to MM of other ethnical groups of this area.

RELATIVE MEASUREMENTS.

§20. Length of the Arm.

TABLE XVIII.

Groups	N	Max.	Min.	M
Chinese of Shantung ...	181	49.01	39.06	43.83
Chinese of Chihli ...	111	48.26	39.69	43.52
Chinese of Manchuria ...	92	49.54	39.37	43.86
Total Chinese	384	49.54	39.06	43.75
Manchus	75	49.53	39.34	43.28
Koreans	134	48.43	40.47	43.94

This table shows such insignificant variations of MM that I have been led to appreciate relative homogeneity between the Chinese and other groups on the basis of the relative length of the arm. In fact, in the preceding subdivision of the present chapter, I drew conclusions based on the probable correlation of these measurements with stature.

This table confirms exactly those conclusions. However, this character, in comparison with other ethnical groups of this area, shows some difference of MM, as may be seen from the following data. The Mongols have M of the relative length of the arm higher —M=47.39 and other groups as follows: the Tungus of Urulga--M=45.38, the Tungus of Barguzin—M=44.59 and the Dahurs—M=43.75. Thus no Mongolian influence over the Chinese, Manchus or Korean can be observed from these data. In my study on the Anthropology of Nomad Tungus of Urulga I came to the conclusion that this group is influenced by the Mongols, who are characterized by a very high M of the relative length of the arm. Therefore, I concluded that the original length of the arm of the Tungus must be less than that of the Nomad Tungus of Urulga. This supposition has been confirmed by the later data,—the measurements of the Tungus of Barguzin.

§21. Length of the Upperarm, Forearm and Hand.

TABLE XIX.

Groups	Upperarm				Forearm				Hand			
	N	Max.	Min.	M	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ..	181	48.64	39.41	42.29	181	35.22	26.48	32.42	181	29.50	22.68	25.33
Chinese of Chihli ...	108	45.56	37.53	42.0	104	34.10	28.89	32.35	104	30.63	23.02	25.48
Chinese of Manchuria.	87	44.82	38.96	42.39	87	35.32	29.14	32.42	87	28.96	22.9[illegible]	25.31
Total Chinese ...	376	48.64	37.53	42.26	372	35.32	26.48	32.37	372	30.63	22.68	25.37
Manchus ...	75	46.35	38.42	41.62	75	37.73	27.87	32.68	75	29.92	22.80	25.75
Koreans ...	129	44.44	38.74	42.01	129	35.01	28.99	32.31	129	28.66	22.9[illegible]	25.67

This table shows some new data confirming the above supposition on the correlation of these measurements with the stature. It is interesting to note that Manchus have M of the upperarm a little lower than MM of the forearm and hand in comparison with MM of the Chinese. This phenomenon can be explained by the Tungus influence, as is seen in the table below:

Groups	Relat. length of upperarm
Mongols	43.59
Tungus of U ga ...	41.74
Tungus of Barguzin ...	41.49
Dahurs	41.82

The length of the upper arm of the Chinese is higher than that of Manchus and lower than that of Mongols.

§22. Length of the Leg and Trunk.

TABLE XX.

Groups	Leg				Trunk			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	185	57.87	46.68	51.30	178	38.47	28:62	33.86
Chinese of Chihli ...	112	55.51	47.73	51.36	110	37.55	29.88	34.11
Chinese of Manchuria ...	94	54.45	47.50	50.96	92	38.09	28.98	34.65
Total Chinese	391	57.87	46.68	51.24	380	38.47	28.62	34.12
Manchus	54	56.24	49.16	51.58	47	36.55	28.86	33.84
Koreans	141	53.41	46.16	50.30	140	37.77	29.94	33.98

This table shows very insignificant variations of MM. I have no data for comparison but the Dahurs, who have M of the leg (M=52.11) higher than the Chinese and M of trunk lower (M=32.99). Because of the lack of data I shall refrain from further generalizations.

Thus the Table XVIII, XIX and XX do not show any new facts which can disturb the preceding conclusions concerning the general type of the variations of MM for different groups and measurements. It might be noted that the relative measurements do not exhibit significant variations (the limits of the maximums and minimums); that MM are relatively stable, whence it may be supposed that the anthropological types, composing the ethnical groups of the present study, do not differ one from other in regard to these measurements; and that the non-Chinese groups,—the Mongols and Tungus,—differ essentially from the Chinese, Manchus and Koreans. Therefore, these measurements serve in a limited way as a method of differentiation of anthropological types.

§23. Cephalic Index.

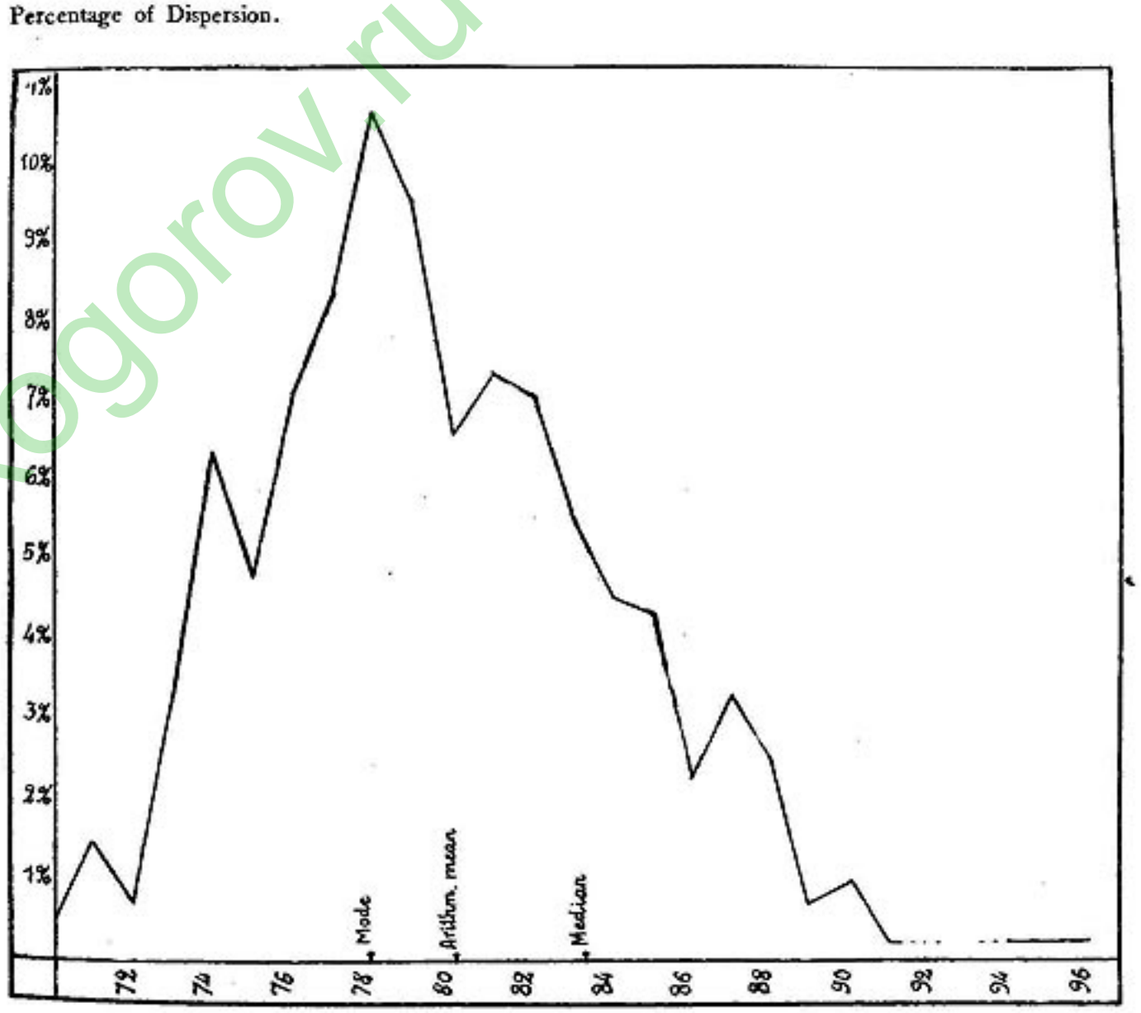
TABLE XXI.

Ceph. Index	N	%	Ceph. Index	N	%
70	2	0.51	84	18	4.59
71	6	1.53	85	17	4.34
72	3	0.77	86	9	2.30
73	13	3.32	87	13	3.32
74	25	6.38	88	10	2.55
75	19	4.85	89	3	0.77
76	28	7.14	90	4	1.02
77	33	8.42	91	1	0.25
78	42	10.71	92	...	...
79	38	9.69	93	...	...
80	26	6.63	94	1	0.25
81	29	7.40	95	1	0.25
82	28	7.14	96	1	0.25
83	22	5.61	...	392	100.00

The individual variations of the cephalic index are within the limits from 70.44 to 96.43. M of the cephalic index of Total Chinese=80.17. The following curve of the dispersion, taken with difference of one degree, gives a graphical expression of the variations of the cephalic index.

FIGURE II.

CEPHALIC INDEX.



The maximum of the cases falls on the range of 78 which is 2 degrees lower than M. The group of individuals who have low cephalic index in the present series is more significant, whence the incidental character of the group with high cephalic index can be deduced. The standard deviation, $\sigma=4.507$, and the coefficient of variation, $V=5.604$, are higher than in the case of the stature ($V=3.67$).

The variations of MM of the cephalic index will be as follows:

TABLE XXII.

Groups	N	Max.	Min.	M	σ	V
Chinese of Shantung ...	184	89.53	70.44	78.51	3.744	4.768
Chinese of Chihli	113	91.07	71.13	79.92	3.742	4.682
Chinese of Manchuria ...	96	96.43	73.98	83 64	4.489	5.366
Total Chinese	393	96.43	70.44	80.17	4.507	5.604
Manchus	80	89.94	76.12	83.52	2.652	3.056
Koreans	141	93.10	74.48	83.69	4.154	4.963

This table shows very great differences of MM between the Chinese of China proper, the Chinese of Manchuria and the Manchus and Koreans. The high cephalic index of the Chinese of Manchuria can be explained by the influence of their neighbours —the Manchus and Koreans. Taking into consideration the individual variations of the cephalic index amon g he Koreans, i.e., from 74.40 to 93.10, and of the Manchus, i.ef from 76.12 to 89.94 and of the Chinese of Manchuria, i.e. from 73.98 to 96.43, I consider the influence of the Koreans to be probably greater than that of the Manchus Some hint as to the amalgamated character of the Chinese of Manchuria can be seen from the standard deviation and the coefficient of variation of this Chinese group. This latter group has the highest standard deviation, which influenced the numerical value of the standard deviation of Total Chinese series. Further, the large variations of the individual cephalic indices among the Chinese of Shantung and Chihli show that these groups are not homogeneous at all. In the following exposition this supposition will be supported by other proofs,

The cephalic index of other ethnical groups of the area under consideration is very instructive and is as follow:

TABLE XXIII.

Groups	M	σ	V
Tungus of Urulga ...	84.93	3.925	4.621
Tungus of Barguzin ...	81.10	2.576	3.176
Mongols (Buriats) ...	85.66	...	...
Dahurs	81.41	...	...

The above table needs to be supplemented by further data. Some Mongols, as for example the Buriats of the Irkutsk Government, have a cephalic index higher than the Mongols measured by Dr. Talko-Hryncewicz. The Mongols of Mongolia Proper have

a cephalic index a little lower, but their neighbours, the Kirghiz, by their M are very close to the Mongols of Dr. Talko-Hryncewicz. The Gilyaks have M of the cephalic index about the same as the Tungus of Urulga.[1] Some Tungus groups have a cephalic index lower than the Tungus of Barguzin, for example, the Tungus of the Yakutsk Government and of the region of the Amur River.

Thus in this part of Asia all forms of the head are to be found The cephalic index of different ethnical groups varies from 78 (M of the Chinese of Shantung) to 88 (M of the Buriats of Irkutsk Government). By the side of the real brachicephals can be observed moderate dolichocephals,—for example, the Koreans and Chinese of Shantung. It seems to me that no regularity can be observed in the distribution of the cephalic index in the latter this part of Asia. Moderate brachicephaly alternates with moderate dolichocephaly, and alternates with super-brachicephaly. Therefore I think that a use of the pure geographical method cannot discover the real meaning of such characteristics among Asiatics.

§24. Indices of the Height of the Head on the Length and on the Breadth of the Head.

TABLE XXIV.

Groups	Height ÷ Length				Height ÷ Breadth			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	180	83.89	62.50	71.17	180	100.00	77.56	90.82
Chinese of Chihli	112	84.15	65.41	72.53	112	102.74	81.17	90.81
Chinese of Manchuria ...	94	82.25	65.76	72.93	94	98.01	75.93	87.16
Total Chinese	386	84.15	62.50	72.41	386	102.74	75.93	89.92
Manchus	76	83.15	63.33	72.86	76	98.71	78.48	87.43
Koreans	137	82.86	65.75	73.16	137	97.95	77.36	87.67

In this table can be observed insignificant variations of MM of the first index and more significant variations of MM of the second, which are always less variable than MM of the cephalic index. The explanation of this phenomenon is as follows: as already shown, the absolute measurements in general correlate with the stature, particularly, the height of the head correlates with the stature. At the same time, as I have shown, the variations of MM of the cephalic index are due to the variations of the anthropological types which are included in Chinese. Thus, on the one hand, the influence of the stature on the height of the head and, on the other hand, the influence of the anthropological types combine in these indices and confuse the results. The more significant variability of the second index is due to the more variable head-breadth (See §13). Nevertheless, from the above mentioned causes, the type of variations of MM is the same as in the preceding cases. The peculiar character of the Chinese of Manchuria may be explained by the influence of the Manchus and Koreans.

1. Accordnig to the data of Mr. L. J. Sternberg.

The evidence of other ethnical groups, as it might be seen from Table XXV, support the above supposition.

TABLE XXV.

Groups	Height ÷ Length	Height ÷ Breadth
Tungus of Urulga ...	72.59	85.19
Tungus of Barguzin ...	69.77	85.51
Mongols (Buriats) ...	67.91	79.38
Dahurs	72.37	88.73

It is very significant that the Tungus differ characteristically from other ethnical groups by their relatively long head. Therefore, it might be supposed that the variations of MM of the Chinese, Manchus and Koreans are due to the non-Tungus influence and probably to some aboriginals of Manchuria.

§25. Frontal Index.

FIGURE III. *See Page 29.*

TABLE XXVI.

Frontal Index	N	%	Frontal Index	N	%	Frontal Index	N	%
50	2	0.51	64	15	3.86	78	10	2.57
51	...	...	65	10	2.57	79	10	2.57
52	...	...	66	19	4.88	80	15	3.86
53	1	0.26	67	24	6.17	81	8	2.06
54	4	1.03	68	17	4.37	82	2	0.51
55	2	0.51	69	17	4.37	83	4	1.03
56	2	0.51	70	25	6.43	84	6	1.54
57	1	0.26	71	20	5.14	85	1	0.26
58	6	1.54	72	29	7.49	86	2	0.51
59	7	1.80	73	29	7.49	87	2	0.51
60	6	1.54	74	16	4.12	88	1	0.26
61	8	2.06	75	19	4.88	Total	387	100.00
62	17	4.37	76	14	3.60			
63	8	2.06	77	10	2.57			

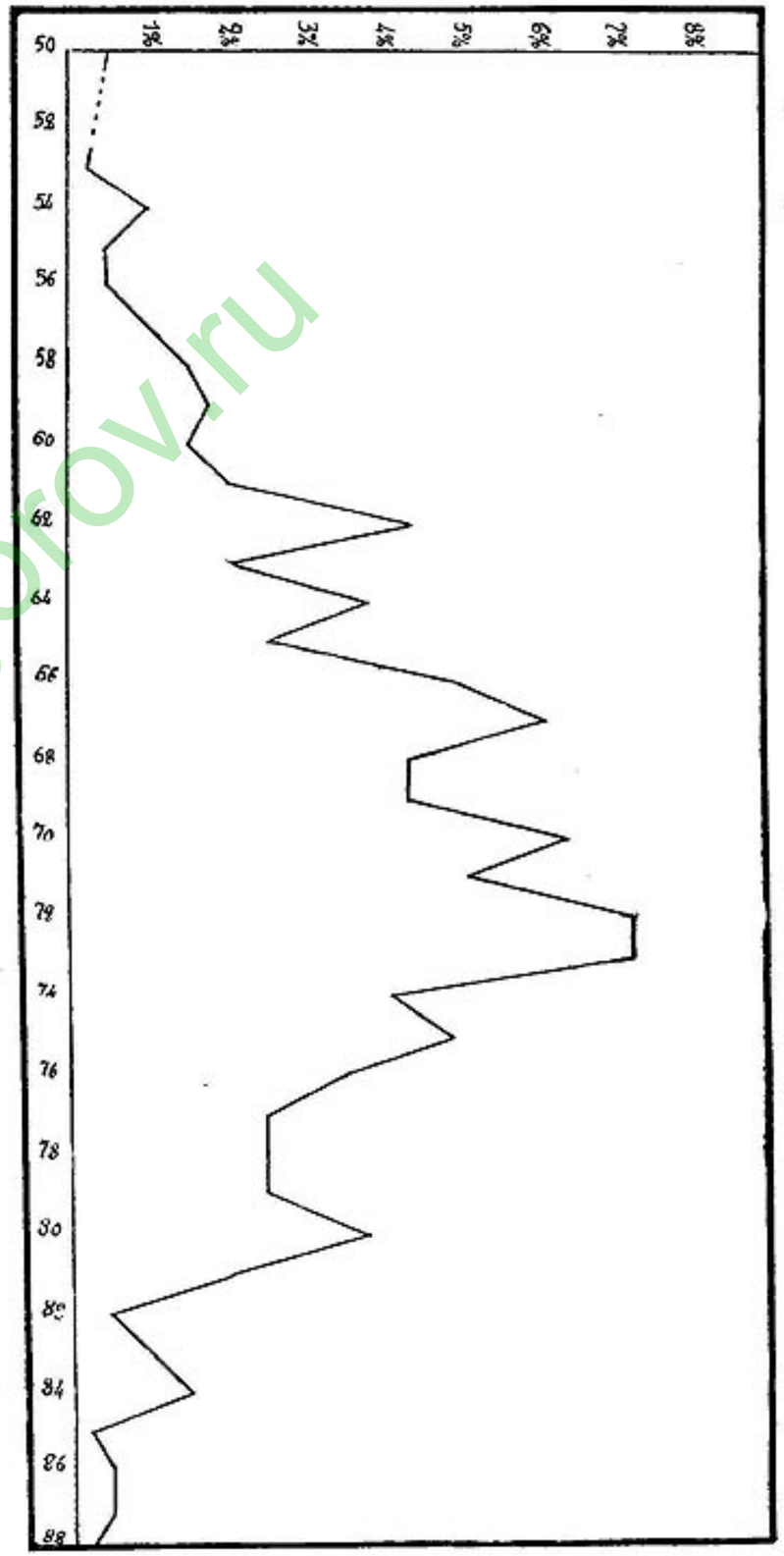


FIGURE III.
FRONTAL INDEX

TABLE XXVII.

Groups	N	Max.	Min.	M	σ	V
Chinese of Shantung ...	183	88.12	54.13	70.77	6.855	9.686
Chinese of Chihli	113	87.12	50.91	71.97	6.295	8.747
Chinese Manchuria ...	96	84.90	53.57	69.78	7.110	10.189
Total Chinese	392	88.12	50.91	70.62	6.948	9.83
Koreans	77	82.83	50.90	67.08	6.316	9.742
Manchus	140	91.67	57.41	72.87	6.742	9.252

This table shows that the standard deviations are very high, M of the Chinese of Manchuria is lower than that of other Chinese groups and it is closer to M of the Manchus. In §15 I have noted that the high M of the height of the forehead is characteristic of the Chinese of Chihli; in the present table it may be seen that this group has the highest M of the frontal index, which can be correlated with the height of the head, as can be seen from the Table XXVIII.

TABLE XXVIII.

Groups	Height Head	Height Forehead	Frontal Index
Chinese of Shantung ...	134.10	74.07	70.77
Chinese of Chihli ...	135.44	76.09	71.97
Chinese of Manchuria ...	133.64	73.68	69.78
Total Chinese	134.38	74.30	70.62
Manchus	132.64	70.17	67.08

The evidences from other ethnical groups of this area show some distinguishing characteristics of the Dahurs (M=79.43) and an explanation at the same time of the very low M of the Manchus which suggest the influence of the Tungus (the Tungus of Barguzin, M=68.11; the Tungus of Urulga, M=61.80).

§26. Facial Indices (Physiognomical and Anatomical).

TABLE XXIX.

Groups	Physiognomical				Anatomical			
	N	Max.	Min.	M	N	Max.	Min.	M
Chinese of Shantung ...	182	84.21	62.33	73.45	183	97.04	71.72	83.99
Chinese of Chihli ...	111	83.80	54.45	73.01	111	97.67	73.29	83.78
Chinese of Manchuria ...	96	86.11	63.79	74.16	96	95.56	70.47	82.96
Total Chinese	389	86.11	54.45	73.55	390	97.67	70.47	83.67
Manchus	78	84.71	66.83	74.57	79	95.56	74.31	83.87
Koreans	140	83.70	67.16	73.96	140	94.20	69.48	81.55

Though these indices do not show the significant differences of MM, nevertheless they do distinguish the particular character of the Chinese of Manchuria. This particularity may be explained by the influence of the Manchus and Koreans. In general the variations of MM of the facial indices do not show great differences.

The comparison with the characteristics of other ethnical groups do not furnish any useful data for the present study.

TABLE XXX.

Groups	Physiognomical	Anatomical
Tungus of Urulga ...	78.19	83.07
Tungus of Barguzin ...	78.77	78.90
Dahurs	72.40	84.38

In this table must be noted some peculiar character of the Dahurs who differ from other groups, also the peculiarity of the Tungus of Barguzin, who have the faces relatively more round but a low cephalic index.[1]

§27. Gonial Index.

TABLE XXXI.

Groups	N	Max.	Min.	M
Chinese of Shantung ...	184	85.82	64.83	77.87
Chinese of Chihli ...	113	88.03	68.57	77.54
Chinese of Manchuria ...	96	86.92	67.38	77.13
Total Chinese	393	88.03	64.83	77.59
Manchus	80	88.65	68.80	78.66
Koreans	139	88.32	67.57	78.10

This table shows very insignificant variations of MM among the Chinese groups. Therefore the gonial index cannot taken as the characteristic for differentiation of the anthropological elements composing the Chinese.

Among other ethnical groups MM of this index are more variable: M is relatively low among the Tungus of Barguzin (M=75.41) and high among the Dahurs (M=78.92). The Tungus of Urulga (M=76.71) and Mongols (M=77.12) show intermediate characters of this index. In my study on the Anthropology of the Tungus of Barguzin I have concluded that the low gonial index is characteristic for these Tungus.

1. Some anthropologists presume a correlation between the cephalic index and the facial index, but it does not follow from these data. This character is peculiar to the skulls of Cro-Magnon type; it was also observed among the Eskimos, Chukchis and so on.

§ 28. Nasal Index.

TABLE XXXII.

Groups	N	Max.	Min.	M	σ	V
Chinese of Shantung ...	183	118.18	69.05	89.86	10.263	11.421
Chinese of Chihli ...	113	110.80	70.83	90.02	9.191	12.005
Chinese of Manchuria ...	96	110.00	65.96	87.98	9.787	11.124
Total Chinese	392	118.18	65.96	89.45	8 86o	9.91
Manchus	81	102.63	62.92	83.02	8.12	9.79
Koreans	141	125.81	64.00	92.49	11.63	12.57

This table is interesting solely because of the very high deviation connected with the excessive variability of this index. The regularity of the variations of MM of different groups is also sufficiently marked. The amplitude of the individual variations of nasal index lies approximately within the extreme limits of variation observed up to the present time among all known ethnical groups.

TABLE XXXIII.

Nasal Index	N	N[1]	%
65 66	1 1	2	0.51
67 68	... ...	...	...
69 70	1 2	3	0.77
71 72	1 5	6	1.53
73 74	8 3	11	2.81
75 76	8 14	22	5.61
77 78	7 7	14	3.57
79 80	17 7	24	6.12
81 82	8 16	24	6.12
83 84	9 15	24	6.12
85 86	19 22	41	10.46
87 88	16 15	31	7.91
89 90	4 24	28	7.14
Carried Forward			

1. Two ranges together.

Nasal Index	N	N	%
Brought Forward 91 92	5 24	29	7.40
93 94	9 6	15	3.83
95 96	16 1	17	4.34
97 98	21 ...	21	5.36
99 100	... 30	30	7.65
101 102	... 19	19	4.85
103 104	... 1	1	0.25
105 106	15 ...	15	3.83
107 108	1 3	6	1.53
109 110	1 3	4	1.04
111 112	1 ...	1	0.25
113 114	2 ...	2	0.51
115 116	... ...	...	...
117 118	1 1	2	0.51
	392	392	100.00

FIGURE IV. *See Page 34.*

The peculiar character of the curve is due not only to the variability of this index, but also to the arithmetical results of calculation of these indices. In fact, the division of the breadth of the nose between 29 and 47 mm on the length between 34 and 51 mm does not give the index of 98, 99, 101, 103 and so on.

Some nasal indices pass beyond the limits of variation known up to the present time. The variability of these indices among the Manchus is much more moderate. The standard deviations and coefficients of variation are higher than in any other measurements. This evidence leads me to suppose that the present population of this area is composed of different types (from the point of view of nasal index) some of which are close to the limits of the possible variations of this measurement. At the same time it might be supposed that the type having very high nasal index is characteristically particular for the Koreans and Chinese of Shantung. Furthermore, the variations of MM differ greatly among the groups The differences between MM of the Manchus and Koreans is 9.42 and MM of the Chinese groups lie within these limits.

MM of the nasal index of other ethnical groups of this area show some interesting distinctions, as seen from the Table XXXIV.

FIGURE IV.

NASAL INDEX.

(One range—two units).

Percentage of Dispersion.

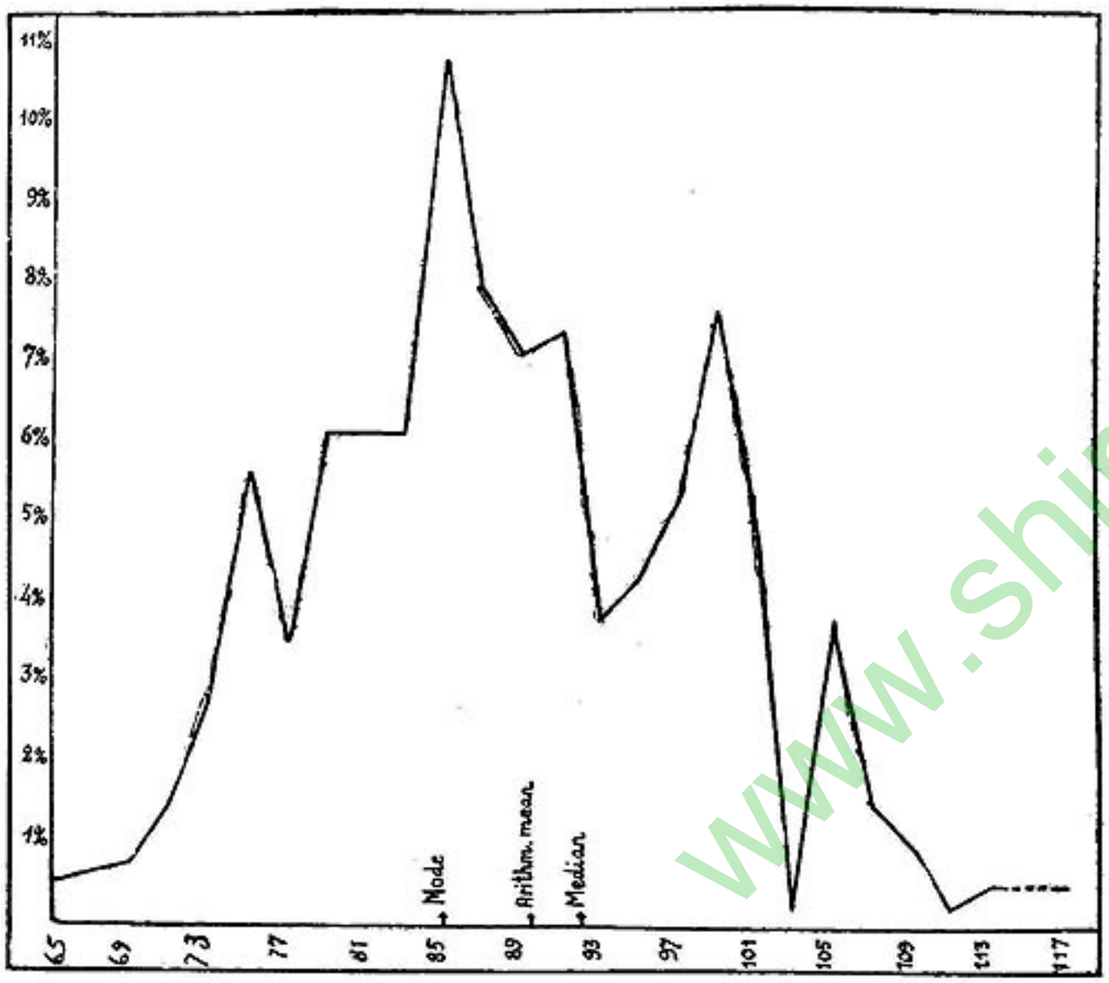


TABLE XXXIV.

Groups	Max.	Min.	M	σ	V
Tungus of Ugulga ...	90.70	64.00	79.32	6.96	8.77
Tungus of Barguzin ...	104.65	71.15	86.70	9.13	10.54
Dahurs	111.43	68.75	85.31	...	...

MM of these groups are lower that MM of the Chinese, but the variability of this measurement among the Tungus of Barguzin is as high as among the Chinese. Some evidences concerning the Mongols, who have relatively low nasal index, can explain the M of the nasal index of the Tungus of Urulga (Mongolized Tungus) and their relatively low Maximum (90.70), whereas M of the Coreans higher still (92.49). From this it may be concluded that the influence of the type with characteristically high nasal index over the Tungus is weak and practically absent over the Tungus of Urulga.

§29. Auricular Index.

TABLE XXXV.

Groups	N	Max.	Min.	M
Chinese of Shantung ...	183	60.00	41.43	51.02
Chinese of Chihli ...	113	61.67	41.43	50.34
Chinese of Manchuria ...	96	61.90	42.31	51.64
Total Chinese	392	61.90	41.43	50.97
Manchus	81	61.67	39.73	51.32
Koreans	141	62.50	37.84	48.26

In this table MM show very insignificant differences. M of the Chinese of Manchuria is the highest and very close to M of the Manchus. The lack of evidence from other groups but the Dahurs (M=50.15) prevents comparison. The comparative amplitude of individual variations of this index among the Koreans is worthy of note.

§30. Some Notes on the Colour of the Skin, Eyes, and Hair and Some Other Physical Peculiarities.

I did not need to note the colour of the eyes among the Chinese and Koreans because of the relative homogeneity. The eyes are always dark except for a few cases that indicated Tungus influence. Registration of the colour of hair was practically impossible because the Chinese generally shave the face and very often the head also. In the cases when observation was possible I have noted some cases of light colour of the beard and dark colour of the hair, while black hair is, it seems to me, more characteristic for Chinese and Koreans. As regards the colour of skin, I could not classify it because I had no scale at the time of my investigations. Some remarks which I shall give below, are based on subjects not measured, but my observations during the measurements do

not differ from the observations made later with the scale of skin colour.[1] The colour of skin on the body is generally lighter than that of the face and parts of body influenced by the air and sunlight. The natural colour is very often changed, because of the use of opium and morphine turning the skin to a yellowish and greenish shade. The general opinion on the yellow colour of the "yellow race" I cannot confirm by my personal observations. The colour of the skin varies from light brown, just like the skin colour of the population of Southern Europe, to light pinkish so characteristic for the population of Siberia as well as for the "white race" of Northern Europe. Light colour is not so common among the working people but the rich people of Peking, Mukden and so on are so characteristically "white," that the assertion of the "yellow race" must be rejected More than that, light brown skin colour is not observable among the Tungus, who are classified as of the "yellow race." The skin colour of the Korean is generally lighter than that of the Chinese.

The Chinese have no hair on the body and have very poor beards, though they have peculiar veneration for them. The Koreans have commonly beards of moderate development and sometimes the breast, arm and legs are also covered with long hair. It seems to me, that this peculiarity is more common among the Northern Koreans.[2] The colour of the hair of the Chinese of Manchuria is not so black; this might be explained by the influence of the Manchus among whom brown hair is very common. This phenomenon can by explained by the influence of the Tungus. Black hair can very seldom be observed among the Tungus. Among them, however, light brown and gray eyes are very common.

TABLE XXXVI.

Groups	Mong. eye	Absence of ear-lap	Forms of the nose				Tuberculus		Pentagonal form of scull.
			Straight	Aquiline	Concave	Flat[3]	Darwin.	Satyr.	
	%	%	%	%	%	%	N	N	N
Chinese of Shantung ...	11	37	40	21	39	30	1	...	3
Chinese of Chihli ...	21	33	29	33	38	34	2	...	2
Chinese of Manchuria..	16	30	34	36	30	34	...	...	3
Manchus ..	18	16	43	27	30	22	...	...	...
Koreans[4] ...	2	28	...	...	...	...	...	...	9

Considering this table to be clear enough I will abstain from unnecessary description of it. It must be noted that absence of the ear-lap is evidently more characteristic for the Chinese. The so called "Mongolian eye" (I have noted only very developed cases) is not characteristic for the Koreans, but it is more common among the Chinese of Chihli. This phenomenon is quite understandable because of the close vicinity of the

1. Scale of skin colour Prof. Luschan's made by Wanger.
2. This is characteristic for the Aino of the Sakhalien and Yeso Islands, also for some Gilyaks of the Amurland and Sahalien Island.
3. The percentage is taken from all forms of the nose (straight, aquiline and concuve).
4. The forms of the nose and tuberculi are not registered.

Mongols. The tuberculi Darwinii and Satyri are very rare. There must be also noted the very interesting pentagonal form of the skull. This form was observed among the Gilyaks, Eskimos and prehistoric skulls of Cro-Magnon type, also among the Mongols, living in the vicinity of Lake Baikal. This form is more common among the Koreans than among the Chinese. I have not yet measured the Chinese from Southern China, but I can say that this form is very common among the Chinese seen in Shanghai, meanwhile this form is exceptional in Northern China, only 2%. I think that the observation of this form and the study of the geographical distribution of it in Asia may be very fruitful for further deductions, There is another peculiarity, which can be especially noted. In the series of the Chinese that have been measured I have observed two cases of very peculiar prominence of the os occipitalis. Such a development of this prominence seemed to me to be of traumatic origin and I have not measured these individuals. My observations on the Southern Chinese in Shanghai have shown that among these populations this is a very characteristical and common peculiarity, which, I think can be connected with some anthropological group, probably of non-Chinese origin.

§31. Conclusions.

From the examination of the present chapter the following generalizations might be drawn.

1. The general conclusions concerning the absolute measurements can be applied to the relative measurements.

2. All relative measurements of the limbs and trunk show very moderate variability of MM and limited amplitude of the individual data.

3. The greatest part of the indices shows more intense variations of MM and large amplitude of the variations of the individual measurements.

4. The Koreans show that they are an amalgamated group. The influence of different anthropological types over the Chinese studied varies in different degree according to the general characteristics of these groups. Some influence of the local population over the Chinese of Manchuria can be discovered. At the same time the ethnical groups of Manchuria and their neighbours in Mongolia and Siberia are not homogenous, for they are amalgamated as are the Chinese themselves.

In the following chapters I shall try to discern some conclusion as to components of this amalgamated population; to show their present distribution on the territory; and to indicate the probable connection with certain ethnoses of this part of Asia. Further conclusions of the preceding exposition I shall give in the following chapters.

1. The Koreans do not shave their heads, and this form could not be observed so easily, as among the Chinese, who shave the head, so that the observation of the head forms on the Chinese is very easy.

CHAPTER III

COMPARISON OF THE CHINESE GROUPS BY THE METHOD OF THE INTESERIAL DIFFERENCES.

In the preceding chapter I gave a summary description of the different characteristics of the series and I concluded that the Chinese are not homogeneous. The Chinese of Manchuria in many characteristics are very close in their MM to these of the anthropological environment. In the present chapter I shall analyse the significance of the differences of MM and the relations between the groups.

§32. Description of the Method.

I have applied for this purpose the method of interserial differences that consists of the following calculation. I have worked out the relative values of the differences between MM of all measurements and groups according to the following formula:

$\delta = \frac{M_1 - M_2}{L} .100$, where δ is a relative difference expressed in percent; M_1 and M_2 are the arithmetical means of some measurement of the groups taken in comparison; L is the difference between the Maximum and Minimum of this measurement among the Chinese, i.e., Max.—Min.=L. I prefer to take the relative differences, because the absolute differences in some measurements may be very great and in others very insignificant, as for example, the stature and length of the ear.[1] All these data I put into a graph (See Figure V.) On this drawing the Maximums of all measurements lie in the upper part of the drawing and the Minimums in the lower, but the lines corresponding to Maximums and Minimums are not drawn. The middle line corresponds to MM of all measurements, relatively to which I put on the graph the points corresponding to the differences percent and join them with straight lines. Thus on the graph every group is represented by a crooked line, sometimes above the middle line of MM, some times below it.[2] The absolute and relative measurement are recorded to two charts.

1. Dr. Molison, Dr. Fischer (Die Rehoboter Bastard. Iena 1913.) and Prof. Czekanowsky take the absolute measurements.

2. If the differences between MM and medians are not very great the data can be put on the graph relative to the medians of all measurements. In the present case the differences between MM and medians are very high, as may be seen from Table XXXVI and Appendix Table IV. Therefore the relative position of the crooked lines would be confused, if I arranged them relative to the medians taken as a basis.

Finally I have calculated the coefficients of interserial differences according the formula: $\Delta = \frac{1}{N}\sum_1^n \delta$. Where Δ is coefficient, N is number of measurements and $\sum_1^n \delta$ is the sum of deviations of differences of MM of the measurements (from 1 to n). Thus the coefficient of interserial differences characterizes the degree of differences between two series represented by MM. The Tables of the Coefficients were arranged to show the relationship of groups.

I. ABSOLUTE MEASUREMENTS.

FIGURE V. *See Page 40.*

§33. Graphic Expression of the Differences.

On Figure V can be observed the disposition of the crooked lines representing the Chinese of Shantung, Chihli and Manchuria and the Manchus. The points corresponding to the relative places of MM of the Koreans are marked only by small circles and not joined together. At a glance it may be seen that the Shantung line is very close[1] to the middle line corresponding to Total Chinese series. Two of its deviations, namely the cases of the head-breadth and head-length are due to high M of the Chinese of Manchuria, in the first case, and to low M of the same group in the second one. The Chihli line is not so close to the middle line and its deviations in the case of stature, length of the leg and nterzygomatic breadth are due to the significant deviations of the line of the Chinese of Manchuria. Such a position of the line relative to the line of Total Chinese is natural, because these series compose the Total Chinese.

In most cases the line of Shantung is closer to the line of Chihli than to that of Manchuria. This last is generally opposed to that of other Chinese groups. In fact, in 21 measurements out of 25, it is opposed, and in four measurements only, namely, the breadth of the nose, the length of the upperarm, the length of the trunk and the external interocular breadth, the line of Manchuria lies between the lines of Shantung and Chihli and is closer to middle line. Hence it might be supposed that this group is composed of some anthropological elements different from the Chinese of China Proper.

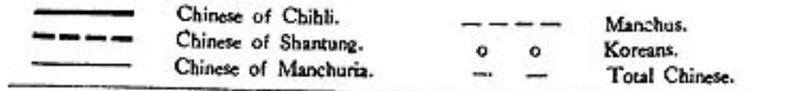
How can we explain this phenomenon? The line of the Manchus furnishes some explanation. In fact, the line of the Chinese of Manchuria seems to be traversed above and below by the line of the Manchus. In 17 measurements the line of the Manchus is separated from the Chinese lines by the line of the Chinese of Manchuria and in 5 instances only it is opposed to this line, viz, the length of the ear, breadth of the nose, interzygomatic breadth, length of the trunk and external interocular breadth. However, some explanation of these variations I have given in the preceding chapter.

In order to show the influence of the Manchus over the Chinese of Manchuria I have shaded the distance between the lines of these groups and between the other two groups. It is clear that the Chinese field in the greatest number of cases is separated from the other field.

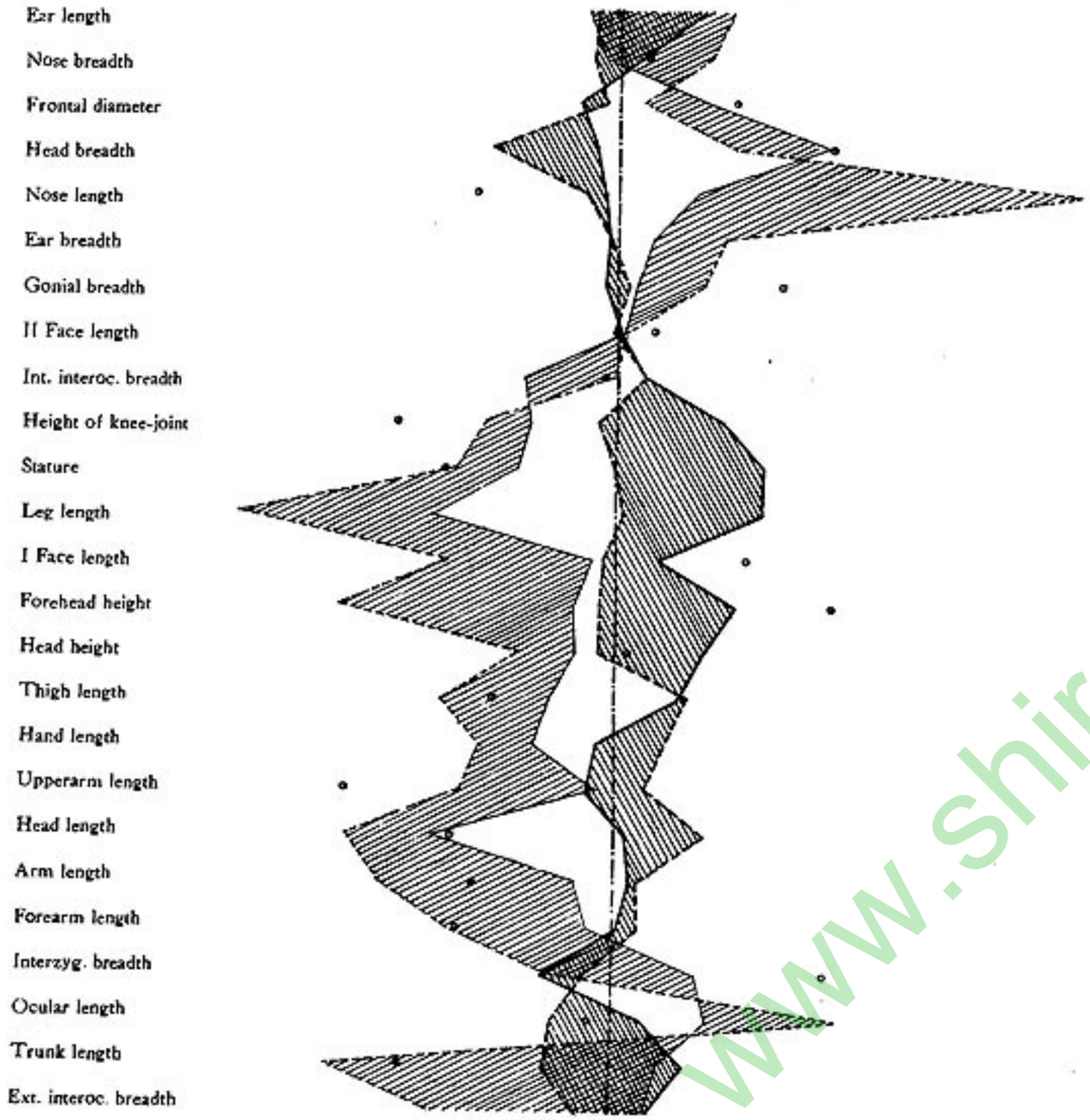
1. This phenomenon can be explained, of course, by that fact that the series of the Chinese of hantung included in the series of Total Chinese is more numerous than other series.

FIGURE V.

ABSOLUTE MEASUREMENTS.



Note. One millimeter = 0.16% of relative deviation.



It might also be noted that in many cases the Koreans are very close to the line of the Chinese of Manchuria and the deviations from it can be easily explained by Korean influence. Though the line (imaginary) of the Koreans in some cases crosses the Chinese and Manchurian fields, it is always closer to the Chinese of Manchuria than to the lines of the Chinese of China Proper.

Thus, the lines of the Chinese of China Proper lie at different distances from the middle line, though the Shantung line is closer. They are therefore more characteristic of the present Total Chinese series. The Chihli line is closer to the Shantung line and middle line. The line of the Chinese of Manchuria is opposed to the lines of the Chinese of China Proper. This might be explained by the influence of the Manchus and Koreans over the Chinese of Manchuria.

§34. Coefficients of Interserial Differences Related to MM of Total Chinese.

TABLE XXXVII.

Measurement	Chinese of: Total	S	C	Cm	Mn	K	μ	Max.	Min.	L	100/L
1. Length of ear	− 3.94	− 0.97	− 2.64	− 1.31	+ 3.75	− 0.04	65	78	52	26	3.861
2. Breadth of nose ...	− 4.78	− 0.11	+ 0.94	− 0.67	+ 4.00	+ 1.06	38	47	29	18	5.555
3. Frontal diameter ...	− 2.02	− 0.56	− 1.74	+ 3.07	+ 1.05	+ 4.96	105.5	119	92	27	3.704
4. Head-breadth	− 8.43	− 5.34	− 0.97	+ 9.03	+ 5.03	+ 9.06	152.5	170	135	35	2.857
5. Length of nose	− 4.12	− 1.41	− 0.59	+ 3.41	+ 20.11	− 6.00	42.5	51	34	17	5.882
6. Breadth of ear ...	− 7.34	− 0.33	− 0.39	+ 1.47	+ 4.63	− 13.98	33.5	40	27	13	7.722
7. Gonial breadth ...	− 0.58	+ 0.39	− 0.45	+ 0.77	+ 3.71	+ 6.97	195.5	125	94	31	3.226
8. Anat. L. of face ...	+ 3.43	− 0.14	+ 0.03	+ 0.22	− 0.27	− 1.65	116.5	135	98	37	2.703
9. Int. interoc. breadth	+ 4.14	+ 1.24	+ 1.24	+ 3.97	− 0.13	− 0.53	35.5	41	26	15	6.666
10. Height of knee-joint	− 3.48	− 0.77	+ 3.55	− 3.68	− 5.68	− 9.42	470.5	548	393	155	0.645
11. Stature	− 6.76	− 0.05	+ 6.32	− 4.17	− 6.76	− 7.33	1690.5	1874	1507	367	0.272
12. Length of leg	− 7.44	+ 0.30	+ 6.32	− 8.05	− 16.24	− 25.64	863.5	980	747	133	0.752
13. Phys. L. of face ...	− 4.20	− 0.52	+ 1.72	− 0.98	− 7.22	+ 5.54	194	219	169	50	2.000
14. Height of forehead...	− 3.43	− 0.66	+ 5.11	− 1.77	− 11.80	+ 9.17	75.5	93	58	35	2.857
15. Height of head	− 4.05	− 0.70	+ 2.65	− 1.85	− 4.25	+ 0.30	136	156	116	40	2.500
16. Length of thigh. ...	− 2.77	+ 1.10	+ 0.55	− 2.77	− 7.51	− 5.24	393.5	484	303	181	0.552
17. Length of hand. ...	− 14.41	+ 2.16	− 0.78	− 3.72	− 5.78	− 3.62	202	253	151	102	0.980
18. Length of upperarm.	− 16.58	+ 1.16	− 1.32	− 0.70	− 6.59	− 11.40	330.5	395	266	129	0.775
19. Head-length	+ 6.50	+ 3.67	+ 0.40	− 4.52	− 11.40	− 6.67	184	205	163	42	2.381
20. Length of arm... ...	− 1.70	+ 0.85	+ 0.58	− 1.75	− 9.86	− 5.96	732.5	844	621	223	0.448
21. Length of forearm ...	+ 8.94	+ 0.95	− 0.14	− 1.22	− 6.91	− 6.62	229.5	267	192	75	1.354
22. Interz. breadth	+ 3.63	− 1.07	− 3.20	+ 3.50	− 2.70	+ 8.90	140	155	125	30	3.333
23. Ocular length	+ 0.59	− 2.61	+ 1.13	+ 3.91	+ 9.66	− 1.04	30.75	36.5	25	11.5	8.700
24. Length of trunk. ...	− 1.10	− 2.87	+ 2.87	+ 2.13	− 12.75	− 9.03	570	652	488	164	0.610
25. Ext. interoc. breadth	+ 5.95	− 1.50	+ 1.50	+ 1.37	− 7.84	− 1.44	94	108	80	28	3.500
All positive deviations		11.82	37.69	28.88	51.94	45.69					
All negative deviations...		19.61	9.44	44.13	123.69	115.61					
All deviations...		31.33	47.13	73.01	175.63	161.57					
Coefficients		1.253	1.885	2.920	7.025	6.463					

Note on the Table.

The deviations of column I ate worked out by subtraction of M from μ. The deviations of II, III, IV, V and VI columns are calculated relatively to MM.

Abbreviations: S—Shantung, C—Chihli, Cm—Chinese of Manchuria, Mn—Manchus, K—Koreans; μ—median; Max. and Min.—Maximum and Minimum; L = Max.—Min.

The table of differences and coefficients gives exact expression to the relations that were observed in the preceding §33. In this table the differences are worked out as the differences of MM of all groups from MM of Total Chinese series. The numerical expression of these differences represented by the coefficients confirms the above deductions. The coefficients placed in the order of their increase show the degree of connection which exists between the groups. The closest to MM of Total Chinese is the groups of Shantung ($\Delta=1.253$); thereafter the group of Chihli ($\Delta=1.885$) and the group of Chinese of Manchuria ($\Delta=2.920$). The Koreans ($\Delta=6.463$) and the Manchus ($\Delta=7.025$) have significantly high coefficients.

§35. Differences Between the Groups.

The most striking evidence of the degree of differences is furnished by the table below :

TABLE XXXVIII.

Measurements	Chinese of Shantung				Chinese of Chihli			Chin. of Man.		Manchus
	C	Cm	Mn	K	Cm	Mn	K	Mn	K	K
1. Length of ear	+3.61	− 0.34	+ 3.72	− 0.93	+ 3.95	+ 1.11	− 2.68	+ 5.06	+ 1.27	− 3.79
2. Breadth of nose ...	+1.05	− 0.56	+ 4.11	+ 1.17	− 1.61	+ 3.06	+ 0.08	+ 4.67	+ 1.73	− 2.94
3. Frontal diameter ...	− 1.18	+ 3.63	+ 1.61	+ 5.52	− 4.87	+ 2.79	+ 6.70	− 2.02	+ 1.89	+ 3.91
4. Head-breadth	+4.37	+14.37	+10.37	+14.40	+10.00	+ 6.00	+10.03	− 4.00	+ 0.03	+ 4.03
5. Length of nose ...	+0.82	+ 4.82	+21.52	− 4.59	+ 4.00	+20.70	− 5.41	+16.70	−26.19	−26.11
6. Breadth of ear ...	− 0.06	+ 1.80	+ 4.96	−14.31	+ 1.86	+ 5.02	−14.37	+ 3.16	−15.45	−18.61
7. Gonial breadth ...	− 0.84	+ 0.38	+ 3.32	+ 6.58	+ 1.22	− 4.16	+ 7.42	+ 2.94	+ 6.20	+ 3.28
8. Anat. length of face.	+0.17	+ 0.36	− 0.13	− 1.51	+ 0.19	− 0.30	− 1.68	− 0.49	− 1.87	− 1.38
9. Int. interoc. breadth	0.00	− 5.21	− 1.37	− 1.77	− 5.21	− 1.37	− 1.77	+ 3.84	+ 3.44	− 6.40
10. Height of kneejoint..	+4.32	− 2.91	− 4.91	− 8.65	− 7.23	− 9.23	−12.97	− 2.00	− 5.74	− 3.74
11. Stature	+6.37	− 4.12	− 6.71	− 7.12	−10.49	−13.08	−13.65	− 2.59	− 3.16	− 0.57
12. Length of leg	+6.02	− 8.35	−16.54	−25.94	−14.37	−22.56	−31.96	− 8.19	−17.59	− 9.40
13. Phys. length of face.	+2.24	− 0.46	− 6.70	+ 6.06	− 2.70	− 8.94	+ 3.82	− 6.24	+ 6.52	+12.76
14. Height of forehead..	+5.77	− 1.11	−11.14	+ 9.83	− 6.88	−16.91	+ 4.06	−10.03	+ 7.40	+20.97
15. Height of head. ...	+3.35	− 1.15	− 3.55	+ 1.00	− 4.50	− 6.90	− 2.35	− 2.40	+ 2.15	+ 4.55
16. Length of thigh ...	− 0.55	− 3.87	− 8.61	− 6.34	− 3.32	− 8.04	− 5.79	− 4.74	− 2.47	+ 2.27
17. Length of hand. ...	− 2.94	− 5.88	− 7.94	− 5.78	− 2.94	− 5.00	− 2.84	− 2.06	− 0.10	− 2.16
18. Length of upperarm	− 2.48	− 1.86	− 7.75	−12.56	+ 0.62	− 5.27	−10.08	− 5.89	−10.70	− 4.81
19. Head-length	− 3.27	−11.19	−15.07	−10.34	− 7.92	−11.80	− 7.07	− 3.88	+ 0.85	+ 4.73
20. Length of arm.. ...	− 0.27	− 2.60	−10.71	− 6.81	− 2.33	−10.44	− 6.56	− 8.11	− 4.21	+ 3.90
21. Length of forearm ...	− 0.87	− 2.17	− 7.86	− 7.57	− 1.36	− 7.05	− 6.76	− 5.69	+ 5.40	+ 0.29
22. Interzyg. breadth ...	− 2.13	+ 4.57	− 1.63	+ 9.97	+ 6.70	+ 0.50	+12.10	− 6.20	+ 5.40	+11.60
23. Ocular length... ...	+ 3.94	+ 6.52	+12.27	+ 1.57	+ 2.78	+ 8.53	− 2.17	+ 5.75	− 4.95	+10.70
24. Length of trunk ...	+5.74	+ 5.00	− 9.88	− 6.16	− 0.74	−15.62	−11.90	−14.88	−11.16	+ 3.72
25. Ext. interoc. breadth	+3.00	+ 2.87	− 6.34	+ 0.06	− 0.13	− 9.34	− 2.94	− 9.21	− 2.81	+ 6.40
All Posit. deviations ...	50.57	44.32	61.88	57.09	36.13	51.87	44.21	42.12	36.98	84.57
All negat. deviations ...	14.53	51.78	126.84	119.45	71.73	151.84	142.95	98.62	88.10	88.45
All deviations	65.10	96.10	188.72	176.54	107.86	203.71	187.16	140.74	125.08	151.84
Coefficients	2.604	3.844	7.549	7.062	4.306	8.148	7.486	5.630	5.003	6.921

Note on the Table.

For example, M of the length of the ear of the Chinese of Shantung differs from M of the Chinese of Manchuria by—0.34. For abbreviations see Table XXXVI.

1. Coefficients Related to MM of the Chinese of Shantung.

In this table can be seen the preponderance of the negative differences for the Chinese of Manchuria, Manchus and Koreans as well as the positive preponderance for the Chinese of Chihli. Per cent the positive deviations will be as follows : the Chinese of Chihli—78%, the Chinese of Manchuria—46%, the Manchus—33%, the Koreans—32%. These figures illustrate the conclusion of the preceding chapter, where I have formulated the proposition that the proportions of the physical characters of the Manchus are generally smaller. This generalization can be now at this point applied to the Koreans and Chinese of Manchuria.

The coefficients of interserial differences have the same type of variations as was observed in Table XXXVII, but the differences are a little higher. The lowest difference is between the Chinese of Shantung and Chihli groups ($\Delta=2.604$), next to which one gets the coefficient of differences between the Chinese of Shantung and of Manchuria ($\Delta=3.844$). At the same time the coefficients of differences of the Manchus and Koreans ($\Delta=7.062$) are two times higher than that of the Chinese groups.

2. Coefficient Related to MM of the Chinese of Chihli.

In these columns it may be observed that the coefficients are generally higher than in the preceding. The Chinese of Chihli are more differentiated from other groups than the Chinese of Shantung. The highest coefficient belongs to the Manchus ($\Delta=8.148$). The Koreans are likewise significantly differentiated from the Chinese of Chihli ($\Delta=7.486$). It is clear that the positive deviations are smaller than in the preceding case, i.e. the Chinese of Shantung—22%, the Chinese of Manchuria—34%, the Manchus—25% and the Koreans—24%. Also, the preponderance of the positive deviations is characteristic for the Chinese of Chihli.

3. Coefficients Related to MM of the Chinese of Manchuria.

In the preceding cases the preponderance of the negative deviations was seen to be significant. In this table the Chinese of Manchuria occupy the middle place, as follows: negative deviations of the Chinese of Shantung—54%, of Chihli—66%, of the Manchus—30%, of the Koreans—29%.

It is very characteristic that this group is by its coefficients very close to the Manchus and Koreans and it occupies an intermediate position among other groups. This is clear from the following comparison ;

Coefficient of differences of Chinese of Shantung—3.844.
" " " " " " Chihli—4.306.
" " " " " " Manchus—5.630.
" " " " " " Koreans —5.003.

Hence it might be seen that the Chinese of Manchuria are closer to the Chinese of China Proper than the other ethnical groups of this area, but at the same time the Chinese of Manchuria are always closer to their neighbours than are other Chinese groups.

4. Coefficients Related to MM of the Manchus.

In the preceding the coefficients were related to the Chinese groups. It remains now to show only the coefficients of differences between the Manchus and Koreans.

This coefficient is much higher than for the Chinese of Manchuria, whence it might be supposed that the Koreans are closer to the Chinese of Manchuria than to the Manchus. There is no preponderance of either the negative or positive deviations.

§36. General Deductions from the Preceding Exposition.

TABLE XXXIX.

Coefficients of Interserial Differences.

	M	S	C	Cm	Mn	K
M	0	1.253	1.885	2.920	7.025	6.463
S	1.253	0	2.604	3.844	7.549	7.062
C	1.885	2.604	0	4.306	8.148	7.486
Cm	2.920	3.844	4.306	0	5.630	5.003
Mn	7.025	7.549	8.148	5.630	0	6.920
K	6.463	7.062	7.486	5.003	6.920	0

Abbreviations: M—Total Chinese; S—Shantung group; C—Chihli group; Cm—Chinese of Manchuria; Mn—Manchus; K—Koreans.

The following deductions can be drawn from the preceding §: as to absolute measurements,—

I. The Chinese are not homogeneous and must be divided into two main groups: the Chinese of China Proper and the Chinese of Manchuria.

2. The Chinese of Manchuria are probably influenced by the Manchus and Koreans, from whom they do not differ so significantly as from other Chinese groups.

3. The differences between the Chinese of Manchuria and the Koreans is less than that between the Chinese of Manchuria and the Manchus.

4. The difference between the Koreans and other Chinese groups is almost equal to the difference between the Koreans and Manchus.

5. The Chinese of China Proper show some variations among themselves and differ from the Manchus more significantly than from the Koreans.

II. RELATIVE MEASUREMENTS.

FIGURE VI. *See Page 45.*

§37. Graphic Expression of the Differences.

On this figure the crooked lines represent the same groups as in the Figure V. At a glance it can be seen that the disposition of the lines shows the same regularity as in the case of the absolute measurements.

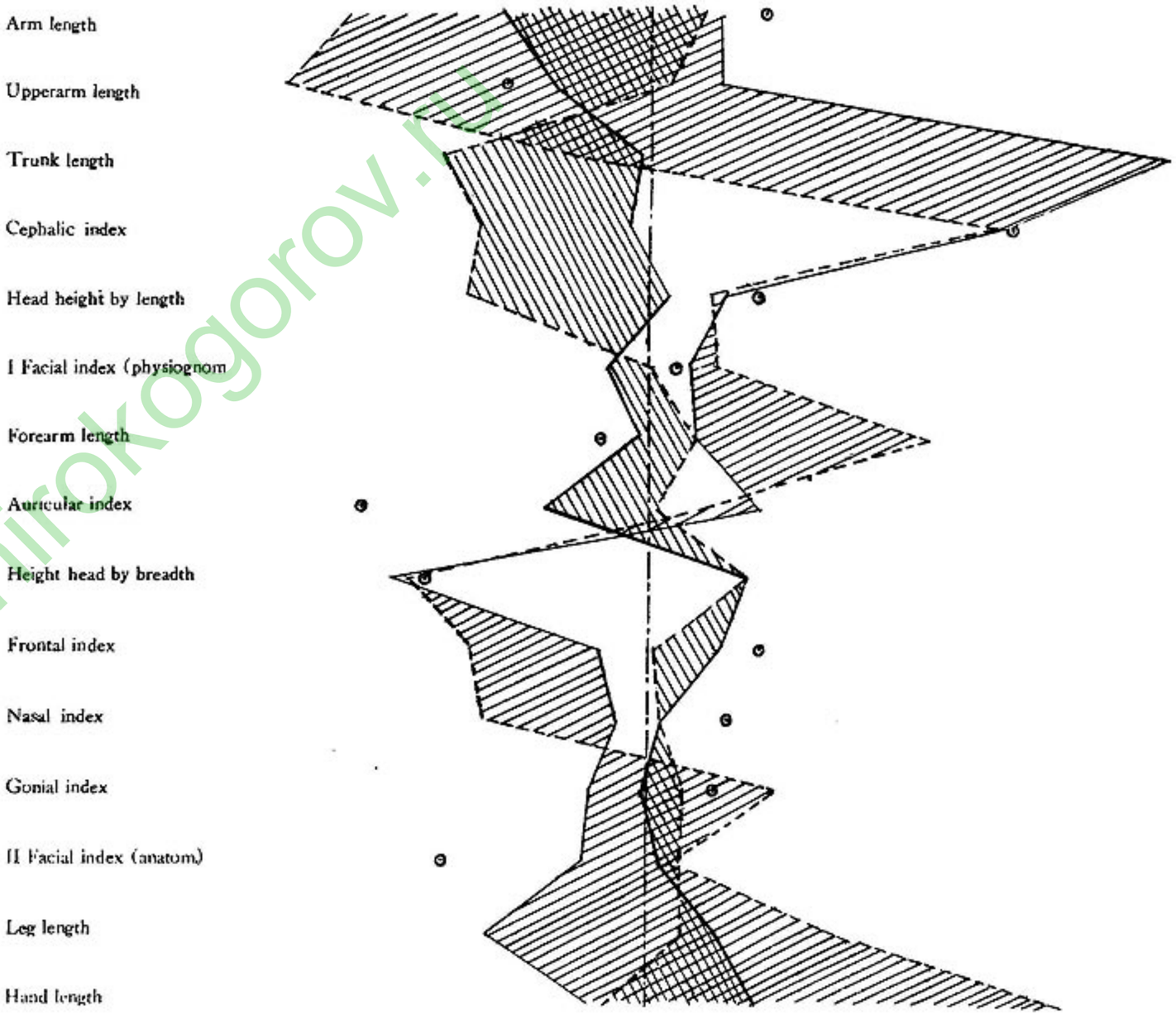
The crooked line of Chihli in this case is closer to the middle line of Total Chinese. In the Figure V the line of Shantung is closer to the middle line, but the distances between them are more significant. The deviations in the case of the relative length of the trunk, cephalic index, relative height of the head on head-length and head-breadth are due to the deviations of the line of the Chinese of Manchuria. To the same cause are due the deviations of the line of the Chinese of Chihli in the cases of the auricular index and relative

FIGURE VI.

RELATIVE MEASUREMENTS.

Chinese of Chihli. — — — — Manchus.
Chinese of Shantung. o o Koreans.
Chinese of Manchuaia. — — Total Chinese.

Note. One millimeter = 0.25% of relative deviation.



height of the head on the head-length and head-breadth. In the great number of cases the line of Shantung is closer to the line of Chihli than to that of the Chinese of Manchuria. Also the line of Chihli is closer to the line of Shantung than to that of the Chinese of Manchuria.

The line of Shantung in 10 cases is opposed to the line of the Chinese of Manchuria and the line of Chihli is in 13 cases opposed to it. In all the cases the line of the Chinese of Manchuria is opposed to one of the lines of China Proper groups, whence may be drawn the same conclusion as in §32, namely, that the group of the Chinese of Manchuria is composed of other anthropological elements than is the case with the Chinese of China Proper.

The explanation of this phenomenon can be illustrated by the disposition on the field of the lines of the Manchus and Koreans (the last one is not drawn and the relative places of MM are marked by circles). In fact, the line of the Chinese of Manchuria only in four cases out of 15 is opposed to the line of the Manchus (and Koreans): in 2 cases the disposition of it can be easily explained by the influence of their neighbours. Some original characters are shown by the Chinese of Manchuria in the relative length of the upperarm and trunk, also the gonial index, which are relatively higher than those of other groups. The differences between MM of the Chinese of Shantung and Manchuria in the case of the length of the upperarm and of the hand are very insignificant and do not go over 0.90 The relative length of the trunk shows some peculiar character among the Chinese of Manchuria, which can be explained by the influence of the Koreans, who have a very short leg. As regards the gonial index, it must be remembered that the absolute gonial breadth does not very significantly among the groups, but the interzygomatic breadth correlating with the head-breadth,as was stated before, was probably influenced by the Koreans and Manchus. Therefore the gonial index shows the above-mentioned peculiarity among the Chinese of Manchuria.

The lines of Chinese groups thus lie at different distances relative the middle line of MM of Total Chinese series. The Chihli line is closer to this than others; so this group must be considereda s more characteristic for the Chinese of this area. The lines of Shantung and Chihli together are opposed to the line of the Chinese of Manchuria. This phenomenon can be explained by the influence of the Manchus and Koreans over this Chinese group. Thus the above conclusions do not differ significantly from those of §33.

§38. Coefficients Related to MM of Total Chinese Series.

The conclusions of the preceding section can be confirmed by these data (See Table XL page 47). If the coefficients are placed in the order of their increase there may be seen the degree of connection between the groups. The closest to Total Chinese are the Chinese of Chihli with their low coefficient of differences ($\Delta=1.421$), next are the Chinese of Shantung ($\Delta=1.679$) and Chinese of Manchuria, the coefficient of which ($\Delta=3.621$) is a little higher than in the case of the absolute measurements, but the coefficients of the Manchus ($\Delta=5.365$) and Koreans ($\Delta=5.052$) are lower.

I shall omit the comparison of the positive and negative deviations because these differences are related to the relative measurements. For example the positive deviation of the physiognomical facial index correlates, of course, with the negative deviations of the anatomical facial index and so on.

TABLE XL.

Indices	Chinese: Total	S	C	Cm	Mn	K	μ	Max.	Min.	L	100/L
1. Length of arm ...	− 5.25	+0.76	−2.19	+ 1.05	− 4.48	+ 1.81	44.30	49.54	39.06	10.48	9.542
2. Length of upperarm.	− 7.38	+0.27	− 1.53	+ 1.17	− 5.76	− 2.25	43.08	48.64	37.53	11.11	9.000
3. Length of trunk ...	+ 5.89	− 2.94	− 0.10	+ 7.38	− 2.84	− 1.42	33.54	38.47	28.62	9.85	10.152
4. Cephalic	−12.56	− 6.39	− 0.92	+13.35	+12.89	+13.54	83.43	96.43	70.44	25.99	3.848
5. I height head	− 4.20	− 5.73	+0.55	+ 2.40	+ 2.08	+ 3.46	73.32	84.15	62.50	21.65	4.619
6. Phys. facial	+10.33	− 0.32	− 1.71	+ 1.93	+ 3.22	+ 1.30	70.28	86.11	54.45	31.66	3.159
7. Length of forearm...	+16.63	+0.56	− 0.12	+ 0.56	+ 3.51	− 0.68	30.90	35.32	26.48	8.84	11.312
8. Auricular	− 3.37	+0.24	− 3.08	+ 3.27	+ 1.71	− 8.55	51.66	61.90	41.43	20.47	4.885
9. II height head... ...	+ 2.20	+3.36	+3.32	−10.29	− 9.10	− 8.77	89.33	102.74	75.93	26.81	3.730
10. Frontal	+ 2.98	+0.40	+3.63	− 2.26	− 9.41	+ 6.05	69.51	88.11	50.91	37.21	2.687
11. Nasal...	− 5.02	+0.79	+1.09	− 2.82	−12.31	+ 5.82	92.07	118.18	65.96	52.22	1.915
12. Gonial	+ 4.50	+1.21	− 0.22	− 1.98	+ 4.61	+ 2.20	76.43	83.03	64.83	23.20	4.310
13. Anat. facial	− 1.47	+1.18	+0.40	− 2.61	+ 0.74	− 7.79	84.07	97.67	70.47	27.20	3.678
14. Length of leg	− 9.20	+0.54	+1.07	− 2.50	+ 3.04	− 8.57	52.72	57.87	46.68	11.19	8.928
15. Length of hand. ...	+16.10	− 0.50	+1.38	− 0.75	+ 4.78	+ 3.77	26.55	30.63	22.68	7.95	12.578
All posit. deviations.		9.31	11.44	31.11	36.58	37.95					
All negat. deviations		15.88	9.87	23.21	43.90	37.83					
All deviations...		25.19	21.31	54.32	80.48	75.78					
Coefficients		1.679	1.421	3.621	5.365	5.052					

§39. Differences Between the Groups.

TABLE XLI.

Indices	Chinese of Shantung: C	Cm	Mn	K	Chinese of Chihli: Cm	Mn	K	Chin. of Man.: Mn	K	Manchus: K
1. Length of arm ...	−2.95	+ 0.29	− 5.24	+ 1.05	− 3.24	− 2.29	+ 0.76	− 5.53	+ 0.76	+ 6.29
2. Length of upperarm.	−1.80	+ 0.90	− 6.03	− 2.52	+ 2.70	− 4.23	− 0.72	− 7.93	− 3.41	+ 3.51
3. Length of trunk ...	+2.84	+10.32	+ 0.10	+ 1.52	+ 7.48	− 2.74	− 1.32	−10.22	− 8.80	+ 1.42
4. Cephalic	+5.47	+19.74	+19.28	+19.93	+14.27	+13.81	+14.46	− 0.46	+ 0.19	+ 0.65
5. I height head	+6.28	+ 8.13	+ 7.81	+ 9.19	+ 1.85	+ 1.53	+ 2.91	− 0.32	+ 1.06	+ 1.38
6. Phys. facial	−1.39	+ 2.25	+ 3.54	+ 1.62	+ 3.64	+ 4.93	+ 3.01	+ 1.22	− 0.63	− 1.92
7. Length of forearm...	−0.68	0.00	+ 2.96	− 1.24	+ 0.68	+ 3.63	− 0.56	+ 2.96	− 1.24	− 4.19
8. Auricular	−3.32	+ 3.03	+ 1.47	− 8.59	+ 6.35	+ 4.79	− 5.27	− 1.56	−11.62	−10.06
9. II height head ...	−0.04	−13.65	−12.46	−12.13	−13.61	−12.42	−12.09	+ 1.19	+ 1.52	+ 0.33
10. Frontal	+3.23	− 2.66	− 9.81	+ 5.65	− 5.89	−13.04	+ 2.42	− 7.15	+ 8.31	+15.46
11. Nasal	+0.30	− 3.61	−13 10	+ 5.03	− 3.91	−13.40	+ 4.73	− 9.49	+ 8.64	+18.13
12. Gonial	−1.43	− 3.19	+ 3.40	+ 0.99	− 1.76	+ 4.83	+ 2.42	+ 6.59	+ 4.18	− 2.41
13. Anat. facial	−0.78	− 3.79	− 0.44	− 8.97	− 3.01	− 0.34	− 8.19	+ 3.35	− 5.18	− 8.53
14. Length of leg... ...	+0.53	− 3.04	+ 2.50	− 9.11	− 3.57	+ 1.97	− 9.64	+ 5.54	+ 6.07	−11.61
15. Length of hand ...	+1.88	− 0.25	+ 5.28	+ 4.27	− 2.13	+ 3.40	+ 2.39	− 5.53	+ 4.52	− 1.01
All posit. deviat.	20.53	44.66	47.08	49.25	40.21	39.23	33.10	20.85	29.18	47.17
All negat. deviat.	12.39	30.19	46.34	42.56	33.88	48.12	37.79	48.19	36.95	39.73
All deviations	32.92	74.85	93.42	91.81	74.09	87.35	70.89	69.04	66.13	86.90
Coefficient	2.195	4.990	6.228	6.121	4.939	5.813	4.724	4.603	4.409	5.793

Abbreviations: I height head—the relative height of the head to length of the head.
II height head—the relative height of the head to breadth of the head.

The coefficient of differences between the Shantung group (Δ=2.195) is lower than that in the case of the absolute measurements (Δ=2.601). But the coefficient of differences between the Shantung group and Chinese of Manchuria (Δ=4.990) is higher than that in the case of the absolute measurement (Δ=3.844). The difference between the Chinese of Shantung and the Manchus and between them and the Koreans is higher than the difference between the Chinese groups; but it is not so accentuated as in the case of the absolute measurements.

The differences between the Chinese of Chihli and the other groups show some peculiarity. The coefficient of differences between this group and the Koreans (Δ=4.724) is lower than the coefficient of difference between this group and the Chinese of Manchuria (Δ=4.939). Also the coefficient of differences between the Chinese of Manchuria and Koreans (Δ=4.409) is lower than that between the Chinese of Manchuria and other Chinese groups.

It is very significant that the coefficient of differences between the Manchus and Koreans, on the one hand, and between the Manchus and Chinese of Chibli, on the other hand, are almost equal but much lower than in the case of the absolute measurements.

The above description of the interserial relations may better be seen from the Table below:

TABLE XLII.

	M	S	C	Cm	Mn	K
M	...	1.679	1.421	3.621	5.365	5.052
S	1.679	...	2.195	4.990	6.228	6.121
C	1.421	2.195	...	4.939	5.813	4.724
Cm	3.621	4.990	4.939	...	4.603	4.409
Mn	5.365	6.228	5.813	4.603	...	5.793
K	5.052	6.121	4.724	4.409	5.793	...

From this table and summary exposition there may be drawn deductions absolutely similar to those of §36. Thus the relative measurements show the same type of variations as the absolute measurements.

§40. General Conclusions.

On the basis of the conclusions in the preceding section I have calculated the coefficients of interserial differences for absolute and relative measurements together, as is shown in the following Table:

TABLE XLIII.

	M	S	C	Cm	Mn	K
M	...	1.413	1.711	3.183	6.403	5.757
S	1.413	...	2.450	4.274	7.053	6.709
C	1.711	2.450	...	4.549	7.276	6.451
Cm	3.183	4.276	4.549	...	5.249	4.780
Mn	6.403	7.053	7.276	5.249	...	6.498
K	5.757	6.709	6.451	4.780	6.498	...

In this table it is seen that:

(1) The coefficients of the Chinese of China Proper are always very low relatively to other ethnical groups;

(2) The Chinese of Manchuria differ from other Chinese groups as well as from the Manchus and Koreans;

(3) The Manchus are closer to the Chinese of Manchuria than to the Koreans;

(4) The Chinese of China Proper, though they show some differences among themselves, can be considered as an anthropological group differentiated from the Manchus and Koreans.

Taking into considerations these deductions I suppose that the Koreans and Manchus have influenced the Chinese of Manchuria; the influence of the Koreans over the Manchus can be considered as insignificant, and the direct influence of the Manchus and Koreans over the Chinese of China Proper as almost nil. Of course, the degree of the influence cannot be stated with precision.

The migrations of the original anthropological elements located now more or less extensively over this territory and their amalagamation characterize both the present and the past time. In chapter II it was shown that in regard to several characteristics the Chinese of China Proper cannot be considered as a homogeneous group; and the coefficient of differences together with the standard deviations (and the coefficients of variation) show that this population is highly amalgamated: even so, they differ from the populations of Manchuria and Korea.

CHAPTER IV

THE COMPONENTS OF THE AMALGAMATED GROUPS.

§41. Method of Correlation. §42. Correlation of the Cephalic Index with the Stature. §43. Correlation of the Cephalic Index with the Nasal Index. §44. Correlation of the Stature with the Nasal Index. §45. Correlation of the Cephalic Index with the Frontal Index. §46. Nasal Index as a Character of Differentiation. §47. Other Indices and Measurement Correlated.

§41. Method of Correlation.

In the present chapter I shall apply the method of correlation to discover the anthropological elements of the groups of the present study The description of this method can be found in the new manuals of statistics and especially in the publications of Prof. K. Pearson.[1] Therefore, I shall omit the description of this method and limit myself to presenting the field of correlation with all calculations of the moments and the coefficient of correlation for only two measurements.

This method is not yet adopted by all anthropologists, though it gives very fruitful results; its use is, however found in English, Russian and German anthropological studies. I have applied this method in my study on the anthropology of the Tungus of Urulga and Barguzin; also to the anthropological materials collected by Mr. L. J. Sternberg in the Amurland and Mr. B. E. Petrie in Irkutsk Gov.

It will be seen that the coefficients of correlation in some cases are absolutely insignificant and the dispersion of the individuals on the field of correlation quite confused. This is natural for such an amalgamated population as the Chinese. But at the same time the analysis of the dispersion of individuals on the fields of correlation may furnish some very important facts concerning the distribution of the anthropological types among different groups. Therefore, even in the cases where the coefficients of correlation would be quite insignificant for further deductions based on the numerical value of the coefficients this method can still be fruitfully applied.

§42. Correlation of the Cephalic Index with the Stature.

(See Table A).

The positive sign of the coefficient, though it is relatively low ($r=-0.125$; $E_r=\pm0.024$), shows that a high stature correlates with a low cephalic index and a low stature correlates with a high cephalic index. But taking into consideration the very low numerical value of the coefficient, the above conclusion can be considered but a suggestion. It may be noted that this conclusion in general corresponds to my conclusions in the preceding chapters.

1. Prof. K. Pearson, *"The Grammar of Science,"* the series *"Biometrica"* and so on.

From the field of correlation it can be seen that the insignificant numerical value of the coefficient can be explained by the presence of a group of individuals of small stature and relatively low cephalic index within the lower-left positive square. This group is composed of 127 individuals, i.e., 32% of the whole Series, and definitely influences the coefficient. Another group of high stature, over 1750, and low cephalic index (about 75) appears very distinctly within the lower-right negative square. Finally, within the upper-left negative square a group of moderate stature (about 1630) and a relatively high cephalic index (about 85) can be observed.

This consideration together with the low coefficient of correlation confirms my supposition as to the amalgamated character of the Chinese. Therefore I shall now analyze the territorial groups separately.

(See Table B).

The coefficient of correlation is so low ($r=-0.070$; $E_r=\pm0.035$) that it practically has no significance, because of the high probable error. But it is significant that a group of individuals of moderate stature with cephalic index about 85 cannot be found in this field and a group of high stature (about 1690) with a high cephalic index (over 83) is distinguishable within the upper-right positive square. The group of the lower-left as well as in the last mentioned field is very numerous. This fact probably causes a decrease of the coefficient that nevertheless is preceded by negative sign. The summary observation of the distribution of individuals in the field shows that the Chinese of Shantung are an amalgamation of different types.

(See Table C).

Very significant are the results of the correlation of the cephalic index with stature of the Chinese of Chihli. The coefficient of correlation, though of very insignificant numerical value ($r=+0.086$; $E=\pm0.041$) has the positive sign that shows that this group is composed of other types than the Chinese of Chihli. In fact, the high stature in this case correlates with the high cephalic index and the low stature correlates with the low cephalic index, just opposite to the results of the preceding Table B. Nevertheless in the field of the Chinese of Chihli a group of individuals of high stature with very low cephalic index can also be observed. This group doubtless influenced the decrease of the coefficient of correlation. Two groups, i.e., a group of high stature with high cephalic index and another one of low stature with low cephalic index, which was noted on the Table B, can be distinguished on this field. But the group of moderate stature with high cephalic index is almost absent. The Chinese of Chihli thus are an amalgamation of different types.

(See Table D).

The coefficient of correlation in this case is very insignificant, but the negative sign shows that this group is composed of different types. Also the high stature correlates with the low cephalic index and the low stature correlates with the high cephalic index. On the field of correlation the dispersion of the individuals shows a picture different from the preceding ones, because the disposition of the squares in this case is oriented to a cephalic index which is much higher, i.e., 83 instead of 80, and a lower stature, i.e., 1650

TABLE A.

Cephalic Index and Stature.

—— Chinese ; – – – – Manchus ; —·—·—· Koreans.

$v = -0{,}27041$; $v^2 = -28.66348$; $\Sigma e = -106$; $\sigma_x = 4.507$;

$v_1 = +0{,}11735$; $v_1^2 = +5.39810$; $\Sigma e_1 = +46$; $\sigma_y = 6.144$;

$\Sigma ee_1 = -1348$; $N = 392$; $r = -0{,}124$, $E_r = \pm 0.024$;

$M_{\text{Ceph. I.}} = 80.17$; $M_{\text{Stat.}} = 166.57$.

Note :

$$v = \frac{\Sigma e}{N}; \quad v^2 = \frac{\Sigma e^2}{N}; \quad v_1 = \frac{\Sigma e_1}{N}; \quad v_1 = \frac{\Sigma e_1^2}{N};$$

$$\sigma_x = \sqrt{\Sigma e^2 - v^2}; \quad \sigma_y = \sqrt{\Sigma e_1^2 - v_1^2}; \quad r = \frac{\Sigma ee_1}{N\sigma_x\sigma_y}; \quad E_r = 0.67449\frac{1-r^2}{\sqrt{N}}.$$

Calculation of Σee_1

Upper right square (positive).

+1(2+4+3+8+7+8+13+17)	=	62
2(2+6+5+18+9+11)	=	102
3(2+6+12+6+10)	=	108
4(2+2+3+10+6+7+10)	=	120
5(1+2+4+10+12+7)	=	180
6(1+3)	=	24
7(3+6+16+20)	=	315
8(3+2+4+5)	=	112
10(9)	=	90
11(5)	=	55
14(7)	=	98
	=	+1266

Upper left square (positive).

+1(1+10+12+12+10+18+7+8+11+12)	=	101
2(3+21+8+10+12+7+16+10)	=	174
3(3+24+5+12+10+13+14)	=	243
4(2+3+12+12+5+6+9)	=	196
5(2+8+6+10+11)	=	185
6(2+8+9+8+7+10)	=	264
7(6+4+5+18)	=	231
8(3+5)	=	64
9(6)	=	54
10(3)	=	30
	=	+1542

Upper left square (negative).

−1(1+3+10+6+5+6+7+16+12+13)	=	78
2(2+4+15+15+12+7+18)	=	146
3(1+2+6+10+7+9+12)	=	141
4(1+6+7+11)	=	100
5(2+9+8+10+10)	=	200
6(1+2+3+5+6+11+16)	=	264
7(1+3+4+12+8+15)	=	301
8(2+8+5)	=	120
9(4+3)	=	63
10(4+9+10)	=	230
15(6)	=	90
16(6)	=	96
	=	−1829

Lower right square (negative).

−1(1+4+6+8+15+6+8+20)	=	78
2(2+4+3+8+10+12+14+30+12 +28+15+21)	=	318
3(4+6+8+12+9+11+12)	=	186
4(2+6+15+12+24+14+15+17)	=	420
5(1+2+3+12+5+9+10)	=	210
6(2+2+3+14+8+20+34)	=	498
7(1+4+16+11+15)	=	329
8(5)	=	40
9(6+3+13)	=	198
10(5)	=	50
	=	−2327

$\Sigma ee_1 = (+1266) + (1542) + (-1829) + (-2327) = -1348.$

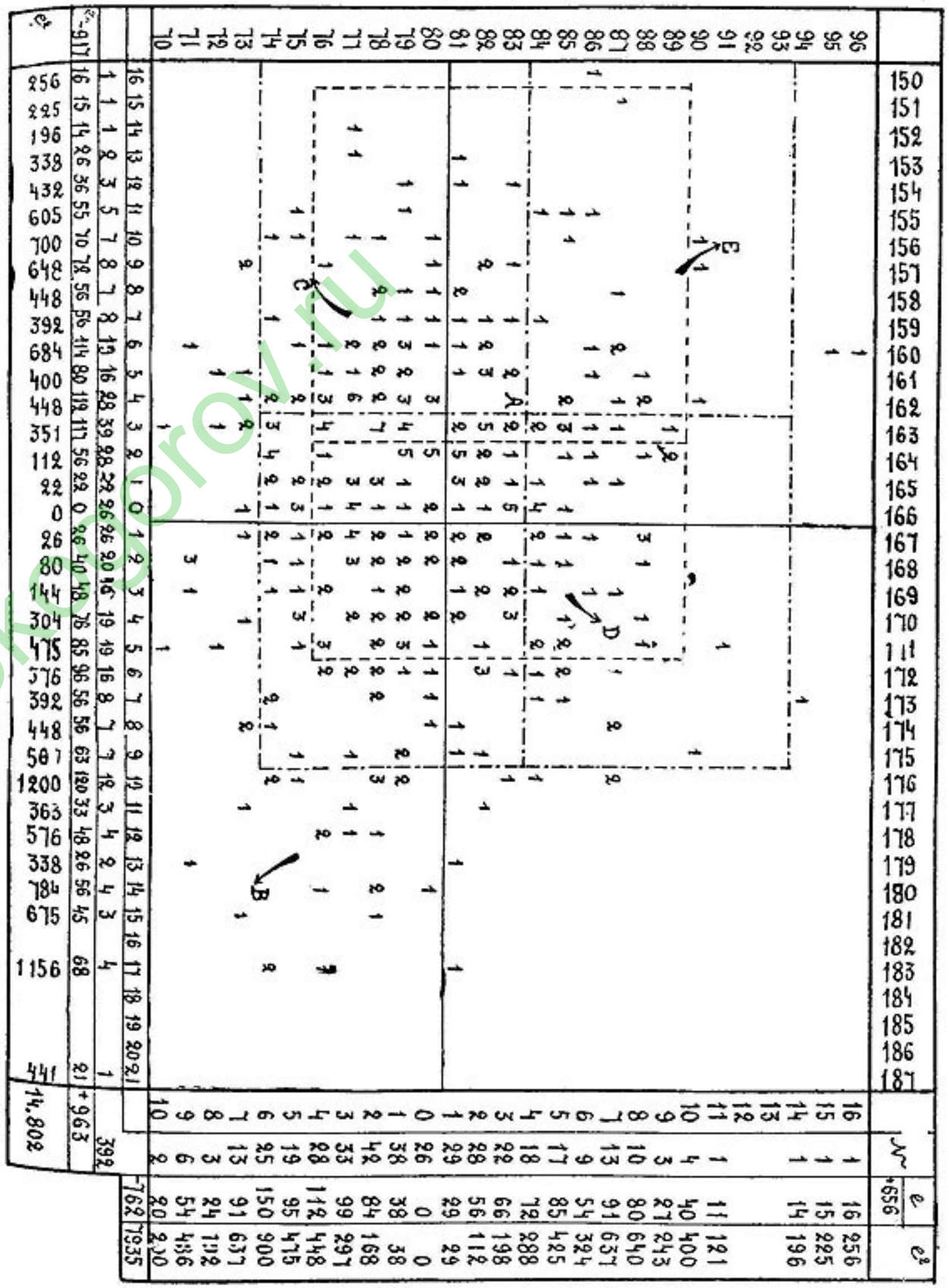


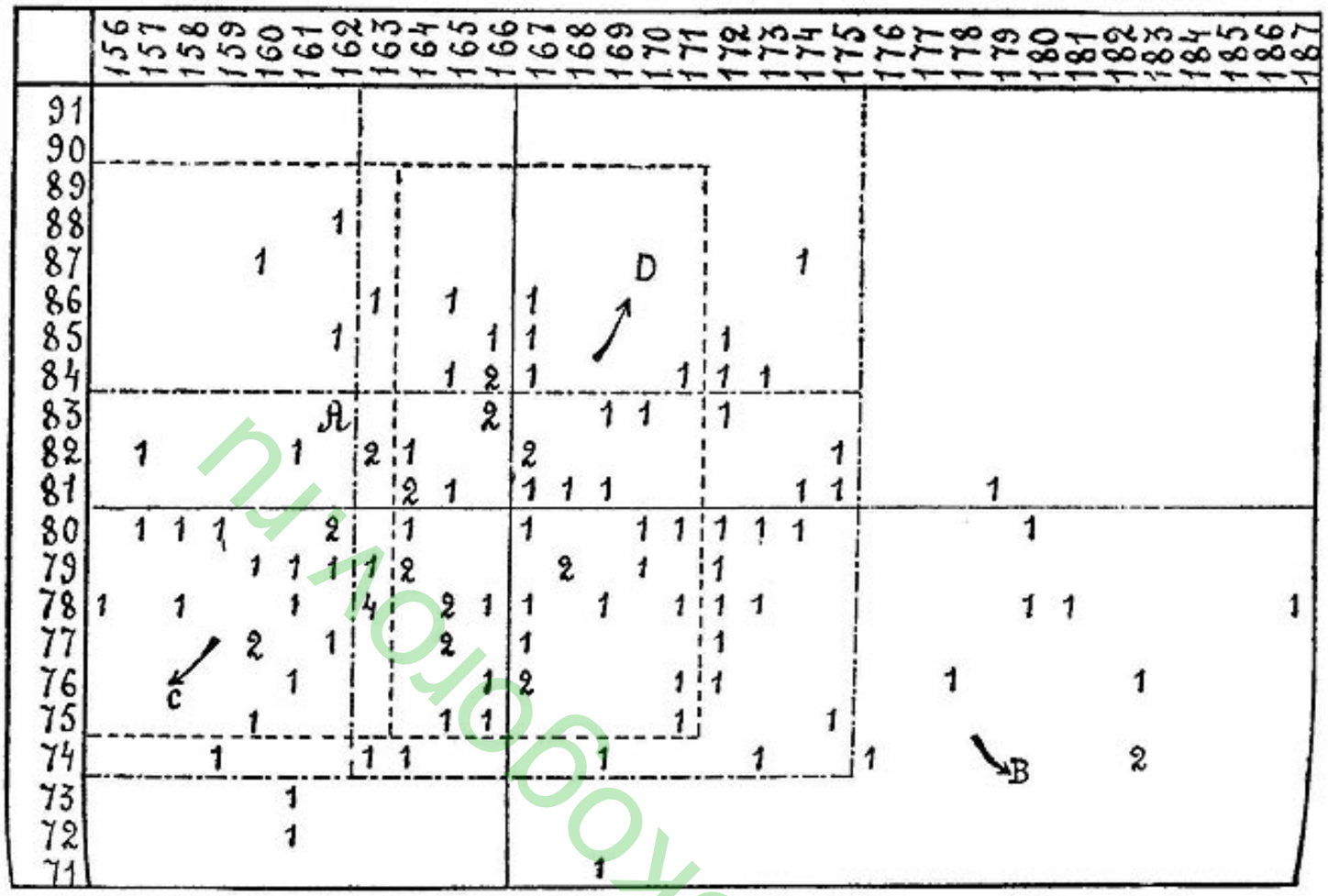
TABLE C

CHINESE OF CH'IHLI

Cephalic Index and Stature

$N=113$; $\Sigma ee_1=+265$; $\sigma_x=3.742$; $\sigma_y=6.316$;

$M_{Ceph.\ I.}=79.92$; $M_{Stat.}=167.89$; $r=+0.086$; $E_r=\pm 0.041$.



CHINESE OF SHANTUNG

Cephalic Index and Stature

$N=184$; $\Sigma ee_1=-287$; $\sigma_x=3.744$; $\sigma_y=5.958$;

$M_{Ceph.\ I.}=78.51$; $M_{Stat.}=166.55$; $r=-0.070$; $E_r=\pm 0.035$.

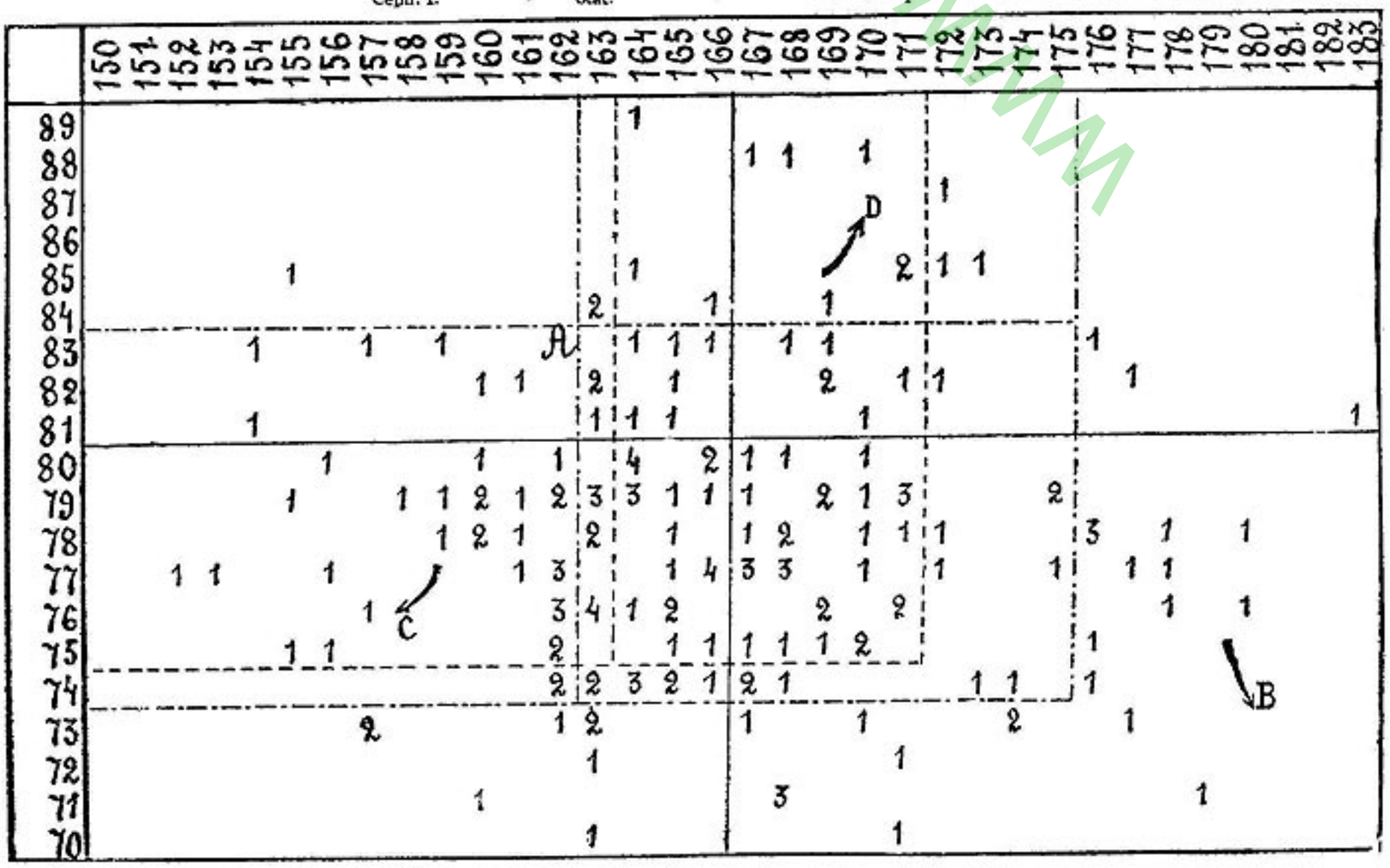


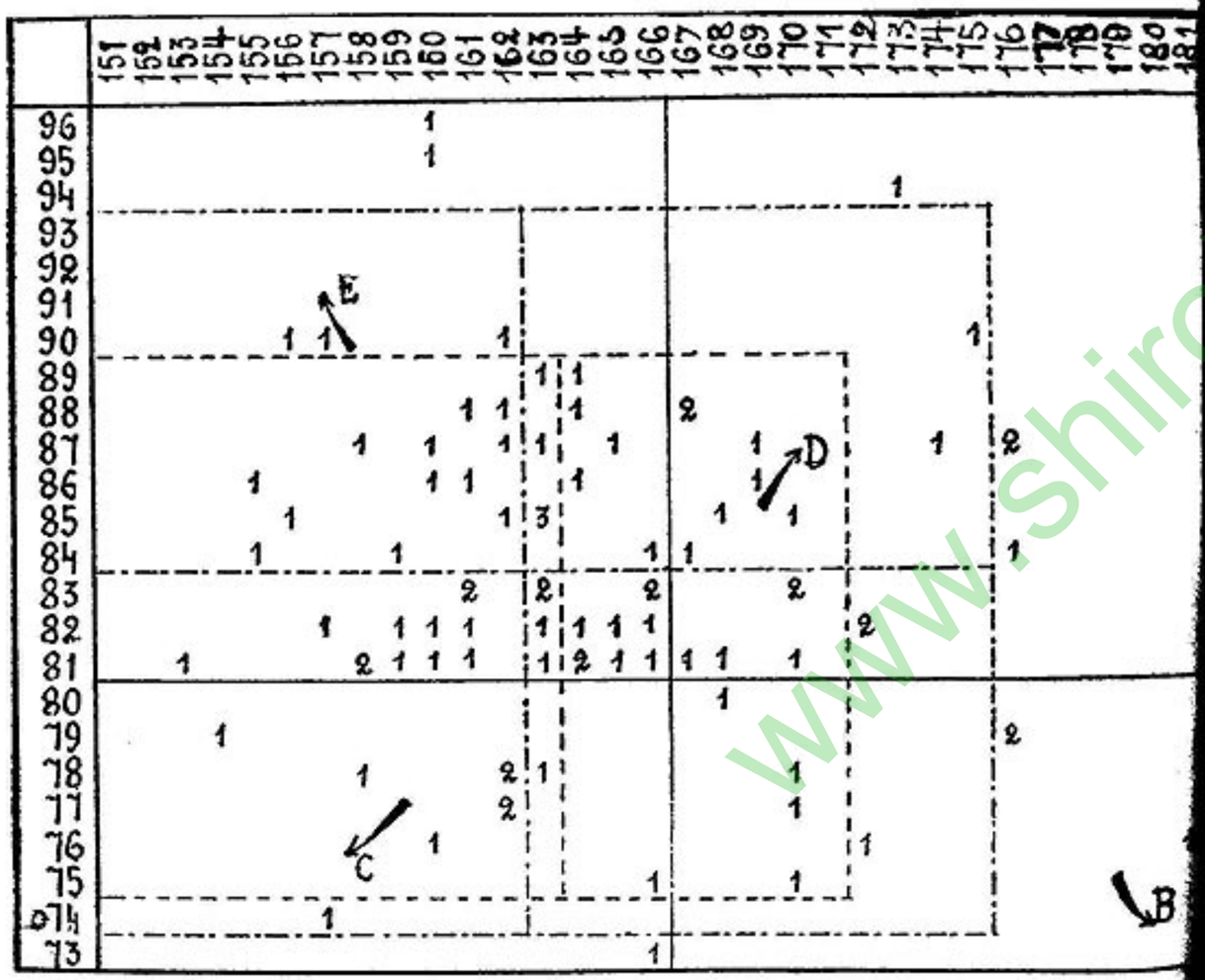
TABLE D

CHINESE OF MANCHURIA

CEPHALIC INDEX AND STATURE

N=95; $\Sigma ee_1 = -190$; $\sigma_x = 4.489$; $\sigma_y = 5.937$;

$M_{Ceph.\ I.} = 83.64$; $M_{Stat.} = 165.04$; $r = -0.075$; $E_r \pm = 0.048$.



instead of 1660. Therefore, the meanings of the coefficient in all these cases are different. In this field can be seen other components of the complex. The groups of the lower squares, so characteristic for the Chinese of Chihli and Shantung, are represented very poorly, but the main mass of this group is composed of individuals of moderate stature with cephalic index about 83 and of the type of high stature with high cephalic index. Some traces of the types of low stature with high cephalic index influenced probably the negative meaning of the coefficient.

After this brief exposition it is clear that this Chinese group is a complex of types, in common with other Chinese groups. The presence of the individuals within the upper-left negative square discloses another anthropological element almost absent among Chinese of China Proper.

As shown, MM of the stature and cephalic index of the Chinese of Shantung and Chihli are very close, but the observation of the fields of correlation and the different signs of the coefficients show that these groups are composed of different anthropological types. Among the first group a type of moderate stature with high cephalic index and another one of high stature with low cephalic index I shall provisionally designate as A and B. Other types observed among this group influenced the decrease of the numerical value of the coefficient and confused the distribution of the individuals in the field of correlation.

The group of Chihli is composed of two fundamental types mentioned above as the elements confusing the distribution of the types A and B in the preceding field. The fundamental types of the Chinese of Chihli will be as follows: one type can be characterized by a high stature (about 1690) and high cephalic index (over 85) that I shall designate by D and another one of small stature with low cephalic index, that I shall designate by C. The type C is largely represented among the Chinese of Shantung; the type A is very poorly represented among the Chinese of Chihli.

The group of Chinese of Manchuria is quite different from other Chinese groups by MM of the stature and cephalic index, and in its field of correlation does not include extreme representatives of the types B and C.[1] The characteristic type of this group of the left upper square corresponds exactly to the type A,—the major part of the individuals in the centre of field do not differ very much from the normal variations of the characteristics of the type A. The type D has its representative among this group. Some representatives of the types B and C influenced the removal of the ranges with ± 0 of deviation to the right and down.

The results of the preceding analysis can be shown in the following Table:

Groups of Chinese	Fundamental types	Incidental types	Trace of types
Shantung	A and B	C and D	...
Chihli	C and D	B	...
Manchuria	A	D	C and B

1. An individual of 1810 stature and 76 ceph. index can be excluded from the series because his stature is so high and exceptional in this series, that it differs from the maximum limit (1760) of the series by 50, i.e., almost equivalent to σ of the series.

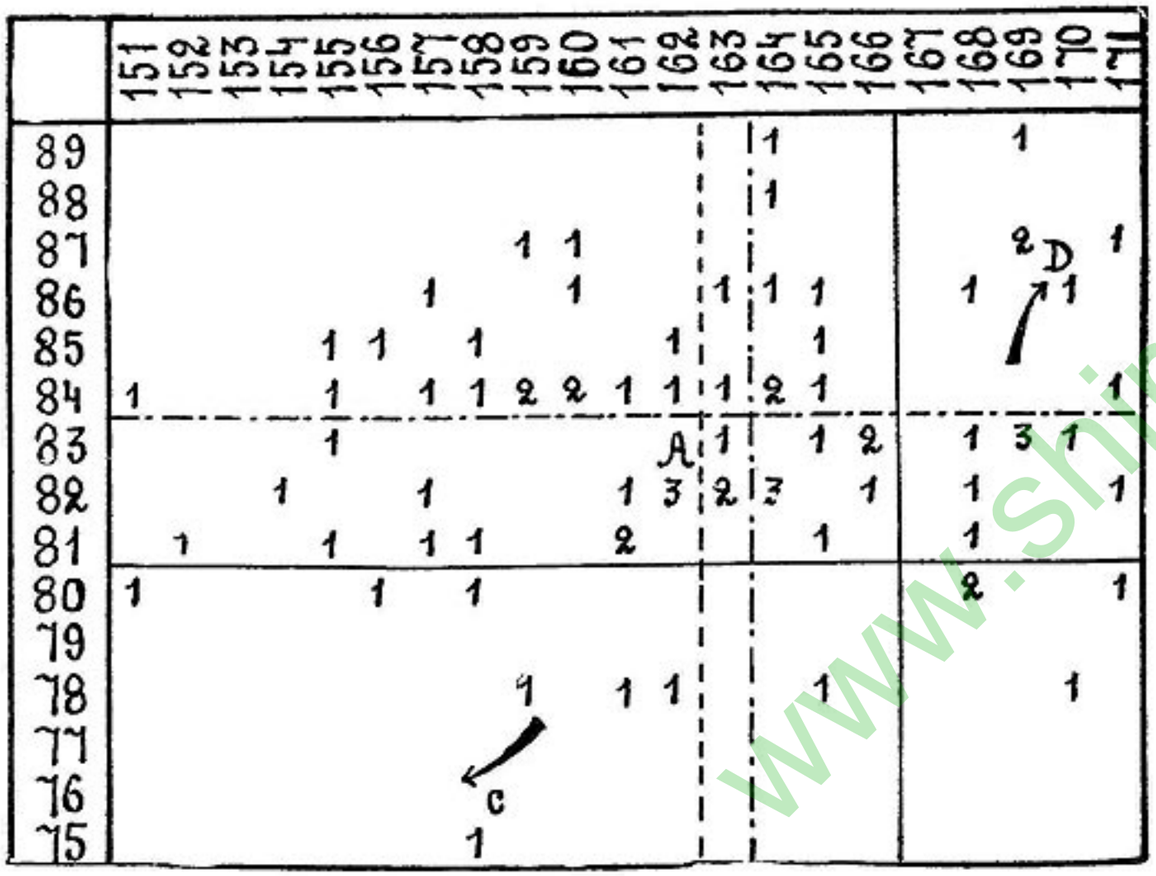
TABLE E

MANCHUS

CEPHALIC INDEX AND STATURE.

N = 80; $\Sigma cc_1 = +137$ $\sigma_x = 2.652$; $\sigma_y = 5.104$;

$M_{Ceph.\ 1} = 83.25$; $M_{Stat.} = 163.09$; $r = +0.127$; $E_r = \pm 0.052$.



It might be explained now why the coefficient of correlation of Table A is so insignificant in its numerical value. The group of Shantung and Chihli neutralized themselves in the common field. Simply the presence of the Chihli group, the major part of individuals of which lie within the upper left negative square (relatively to the field of Shantung group), caused the negative sign of correlation with some numerical value.

In the preceding chapter it was shown that the Chinese group of Manchuria is influenced by their neighbours,—the Manchus and Koreans. Therefore I shall now analyse these series with a view to discover their components.

(See Table E).

From this Table it can be seen at a glance that the Manchus are more homogenous than the Chinse groups. The standard deviations of this group are, relatively to those of the Chinese groups, lower ($\sigma_x = 2.652$ and $\sigma_y = 5.104$). The positive sign of the coefficient of correlation, though not very high ($r = +0.127$; $E_r = \pm 0.052$), shows that the high stature, corresponding to the moderate stature of the Chinese, correlates with the high cephalic index, and the low stature, about 1570, correlates with the low cephalic index, corresponding to the moderate cephalic index of the Chinese. In the Manchu field is no space for the type B and A also very limited space for the type C.

The better to show relations between the ethnical groups I have superimposed the fields of correlation and marked with lines the limits of the field and the ranges with ± 0 of deviations; I also marked approximately with letters and arrows the places of the hypothetical types.

The right lower square of the Manchus field, containing the Chinese crossing of ranges with ± 0 of deviation, including a relatively large number of individuals (31%) cannot annul the positive sign of the coefficient of correlation. But the main Manchu type corresponds to the type A of the Chinese. Among the Manchus can also be observed the type D, which is the cause of the positive sign of the coefficient. Some trace of the type C can be distinguished in this field too.

(See Table F).

The most interesting phenomena may be observed in the field of correlation of the Koreans. As in the preceding case the Koreans have a low standard deviation of Stature ($\sigma = 4.771$), but a relatively high standard deviation of the cephalic index ($\sigma = 4.154$). The coefficient of correlation ($r = +0.029$) has practically no value. In this field can be seen the following types: The main mass of the Koreans, as in the case of the Manchus, lies within the upper left square of the Chinese field, the types D and C are also numerous, but the Korean field contains no space for the type B. At the same time a new type appears within the upper left square, which can be characterized by a moderate or even low, stature, and a very high cephalic index (about 89). This type I shall designate by E. Some trace of this type can be seen among the Chinese of Manchuria too.

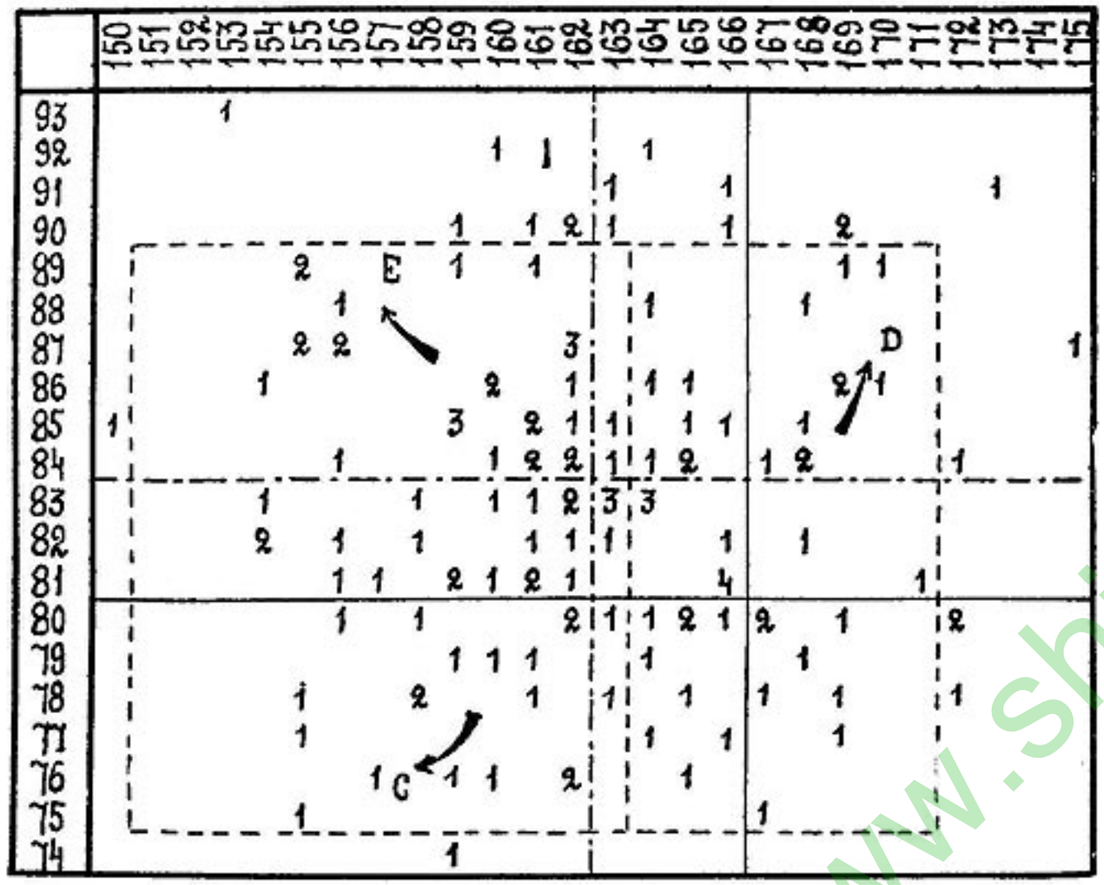
TABLE F

KOREANS

Cephalic Index and Stature.

N=142; Σee_1=+84; σ_x=4.154; σ_y=4.771;

$M_{Ceph.\ I.}$=83.69; $M_{Stat.}$=162.88; r=+0.029; E_r=±0.039.



The results of this analysis can be shown more clearly in the following Table:—

Groups	Fundamental type	Incidental type	Trace of type	Approximate characteristics of the types		
				Types	Stature	Ceph. index
Chinese of Shantung	A and B	C and D	...	A	1620	83
Chinese of Chihli ...	C ahd D	B	...	B	1750	75
Chinese of Manchuria	A	D	C, B and E.	C	1590	77
Manchus	A	C and D	...	D	1690	85
Koreans	A and E	C	D	E	1570*	89

*Or, may be, 1600.

In this Table it may be seen that:

(1). the type B is characteristic for the Chinese of China Proper;

(2). the type D is very common among all groups—it is fundamental for the Chinese of Chihli, incidental among others, except the Koreans among whom it is seen only as a trace.

(3. The type E is characteristic for the Koreans only and shows some traces among the Chinese of Manchuria.

(4). The type A is fundamental for all except the Chinese of Chihli.

(5). The type C is fundamental for the Chinese of Chihli but it is common also among the other groups.

It seems to me, that the type A is the result of the amalgamation of other types as for example, the types B and E, or C and D. This type is very numerous among the Chinese groups and, maybe, became so stable as now to influence other ethnical groups. I cannot build up all the particularities of the process of formation of these groups, but some general lines can be traced

The following deductions may be drawn from the foregoing exposition:—

The type B may be considered as a Chinese type, i. e. more characteristic for the population of China Proper and Manchuria who speak at the present time Chinese and are connected with the Chinese ethnographical complex.

The type D is common for almost all groups.

The type C is common for all groups.

The type E is characteristic of the Koreans only.

Thus the Chinese of Manchuria and the Manchus are the amalgamations of different types and I shall try to discover where they can be found outside of these groups. The types B and E are already known. It remains to establish the ethnical connections of the types C and D. From this standpoint my study of the anthropology of the Tungus of Transbaikalia is very instructive. There may be distinguished two types among the Tungus of Urulga[1]

1. The standard deviation of the stature is very close to that of the Chinese (σ=59.36; V=3.660); the standard deviation of the cephalic index is also close to that of the Chinese (σ=3.925; V=4.621), MM of the stature are lower (M=1621) and M of the cephalic index higher (M=84.93) than those of the Chinese.

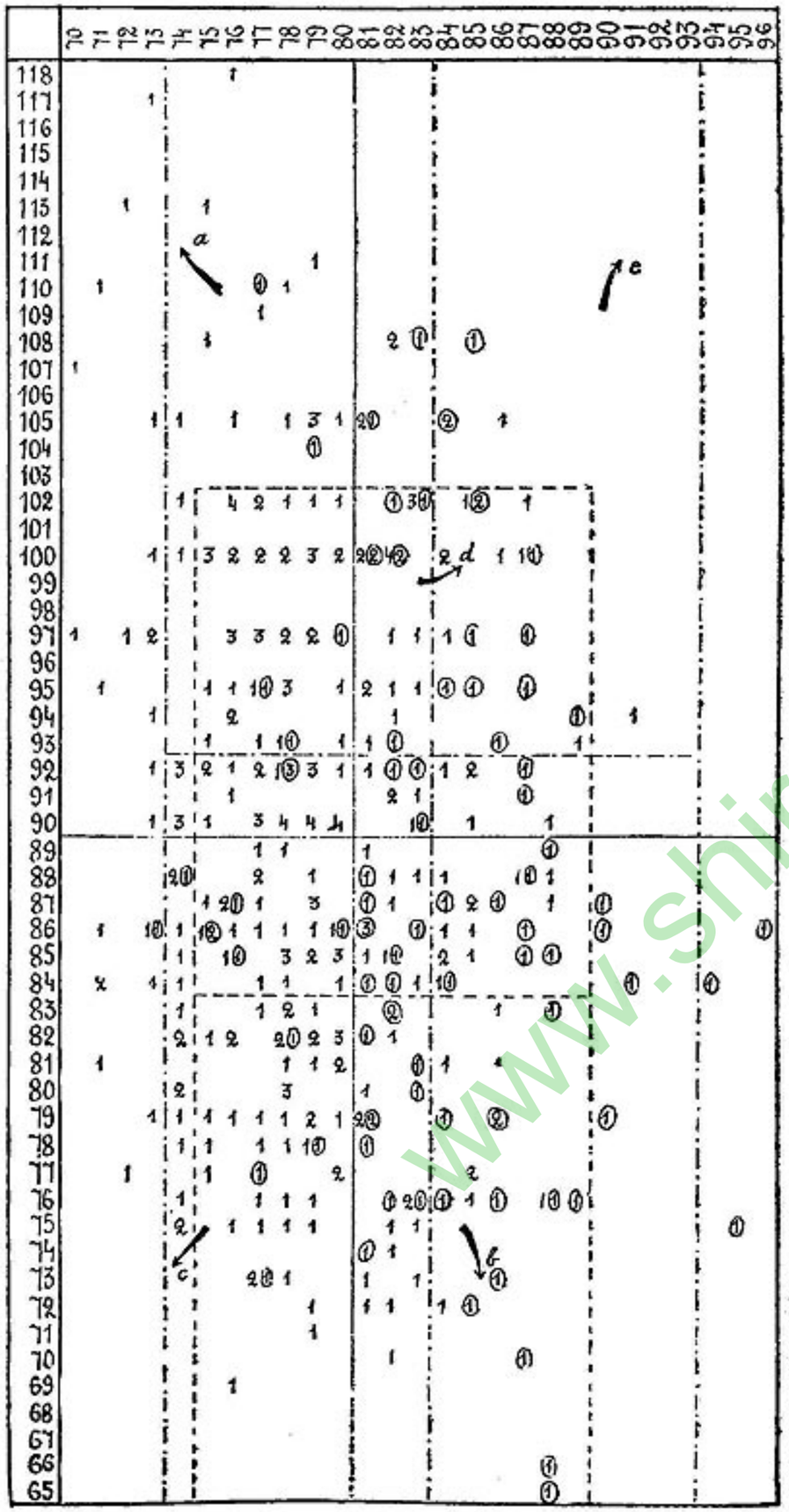
TABLE G

NASAL INDEX AND CEPHALIC INDEX

(FIGURES IN CIRCLE: CHINESE OF MANCHURIA)

$N = 388$; $\Sigma ce_1 = -2319$; $\sigma_x = 8.86$; $\sigma_y = 2.652$;

$M_{Nas.I.} = 89.45$; $M_{Ceph.I.} = 80.17$; $r = -0.254$; $E_r = \pm 0.023$.



and among some of the Tungus of Barguzin. The main mass of the Tungus of Urulga are composed of the type A, but the positive sign of the coefficient of correlation ($r = +0.15$) shows that this group is composed of types about similar to the types C and D.

I have taken in this study the type D to be of Mongol origin (Buriats) and the type C as a unsolved problem. I have found traces of this type among many ethnical groups in Siberia, as for example the Soiots of Northern Mongolia and the Northern Tungus.[1]

In my series of the Tungus of Barguzin[2] the coefficient of correlation ($r = +0.15$) shows only traces of the type D and includes as component the type C (stature—about 1570, ceph. index—77). As in other cases the main mass of this group is an amalgamation of types.

Finally in the materials concerning the Gilyaks[3] and other ethnical groups of the Amurland, the influence of the type C is clear enough to be recognized: but the type E among Gilyaks is so pronounced that its influence results in producing a negative sign of the correlation, i.e., the low stature correlates with the high cephalic index and the high stature correlates with the low cephalic index.

This evidence cannot be explained without the supposition of an ancient origin for the type C, that intermingled more or less sparsely among almost all ethnical groups investigated up to the present time in the territory of Asia. This type is very common among the Tungus and may be considered as fundamental among the Chinese.

As regards the type D, I have already noted its Mongol (Buriats) origin. But some investigation of the Mongolian groups shows a preponderance of the moderate cephalic index and other features that suggest doubt, so that I cannot claim the type D as a positively Mongol type. It might therefore be supposed with a high degree of probability that the Mongols of to-day are amalgamated as well as other ethnical groups. At least they cannot be considered as a homogeneous unit. I hope that further analysis of the Mongol materials will clear up this problem.

§43. Correlation of the Cephalic Index and Nasal Index.

(See Table G).

The coefficient of correlation ($r = -0.254$; $E_r = \pm 0.023$) shows that among the Chinese a low cephalic index correlates with a high nasal index and a high cephalic index correlates with low cephalic index. But the presence of a numerous group within the lower left square and the relatively low numerical value of the coefficient show that the Chnese from this standpoint are an amalgamation. The analysis of the dispersion of the individuals on the field of correlation can furnish some explanation of these phenomena. The lower right square is occupied generally by the Chinese of Manchuria—48 individuals of this group (51%) out of a total of 89; at the same time only 12% of the Chinese of Shantung and 16% of the Chinese of Chihli lie within this square. Furthermore the

1. After the materials of Mr. J. J. Mainoff.
2. M of the stature 1591; M of the ceph. index 82.10.
3. Unpublished materials of Mr. Sternberg.

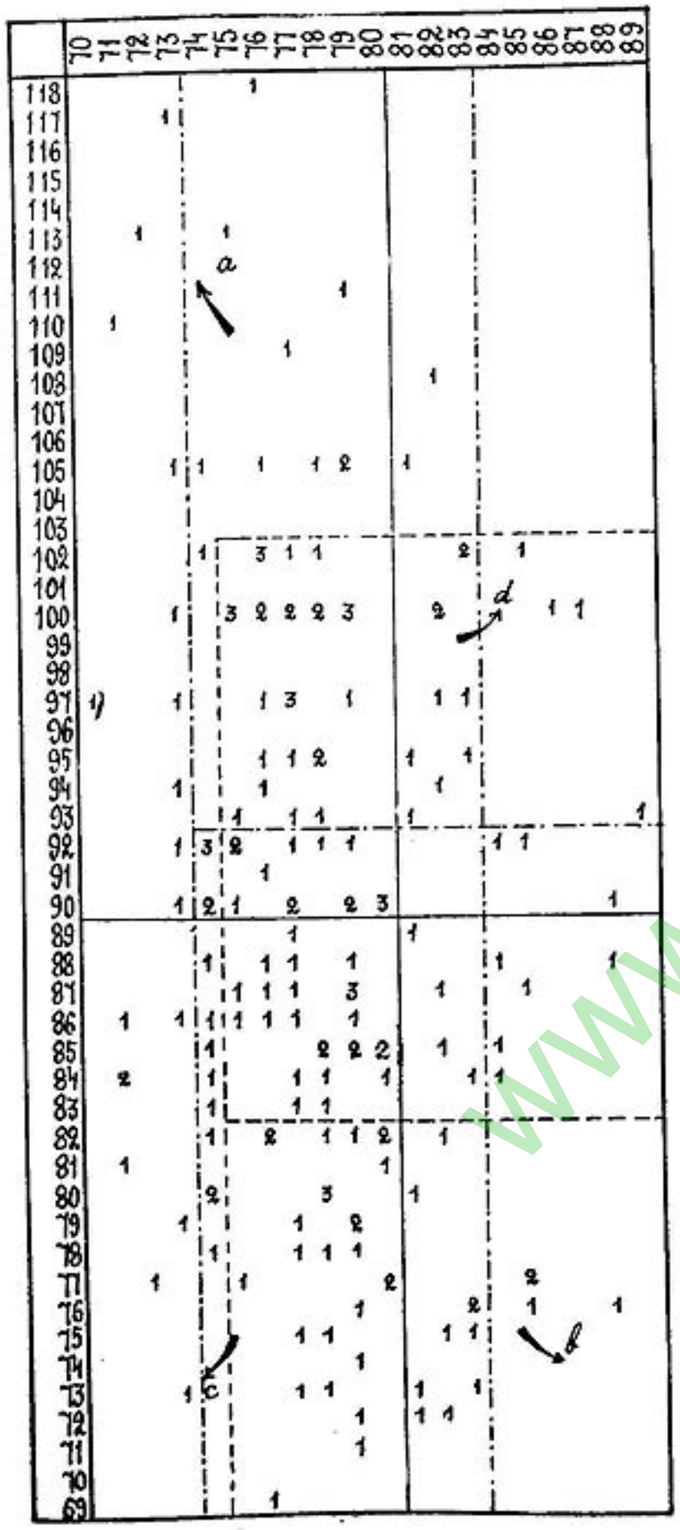
TABLE H

CHINESE OF SHANTUNG

NASAL INDEX AND CEPHALIC INDEX

$N=182$; $\Sigma ee_1=-1138$; $\sigma_x=-0.263$; $\sigma_y=3.744$;

$M_{Nas.\ I.}=89.86$; $M_{Ceph.\ I.}=78\ 51$; $r=-0.163$; $E_r=\pm 0.034$.



upper right square is not characteristic for the Chinese of Shantung (Table H) only 8% of which are within this square. This square is more characteristic for the Chinese of Chihli (19%) and it is characteristic for the Chinese of Manchuria (25%). Thus the right lower square is characteristic for the Chinese of Manchuria and was the probable cause of the negative sign of the coefficient of correlation. The presence of a numerous group within the lower left square influenced, of course, the decrease of the numerical value of the coefficient of correlation.

Within the lower right square may be distinguished a group of individuals with cephalic index about 85 and nasal index about 75. The extreme variations of this type occupy the extreme ranges of the field. Within the upper left square may be distinguished another group with very high nasal index (over 100) and low cephalic index (about 75) The extreme variations of this group occupy the extreme ranges of the square. Within the lower left square, the most numerous group of the Chinese series, can be seen a group with low cephalic index (75) and low nasal index (75). The fourth square has its characteristic group with high cephalic index (about 85) and high nasal index (about 100). This last group is not very influential among the Chinese. The above analysis and very high standard deviations (Ceph. index $\sigma=5.604$; Nasal index $\sigma=8.86$), as I have noted before, show that the Chinese are a complex of anthropological types and are amalgamated in a high degree. Therefore, I shall analyse the Chinese groups separately with a view to discover the dispersion of the components among the groups.

(See Table H).

The negative sign of the coefficient of correlation ($r=-0.163$; $E_r=\pm 0.034$) shows that the dispersion of the individuals, though the range of ± 0 of deviation is removed to the left is nevertheless it similar to that of Table G. But in the field of the Chinese of Shantung the types I noted before are more clearly seen. Within the lower left positive square and upper right positive square are found the numerous groups which influenced the decrease of the negative coefficient of correlation. Therefore the types located within the upper left and lower right negative squares can be considered as the fundamental types of the Chinese of Shantung while the types of the other two squares are incidental types of this group. The type of the lower left square is developed almost in the same degree as the fundamental types.

(See Table I).

The coefficient of correlation ($r=+0.111$; $E_r=+0.045$) has the positive sign, which is contradictory to the results of the correlation of the Table G, but at the same time explains why the numerical value of the coefficient of the Table G is relatively low. In fact, the Chinese of Chihli, being relatively close to the Chinese of Shantung by MM of these characters, are evidently composed of different types, as was observed in the case of the correlation of cephalic index with stature. Thus it includes the fundamental types: one with high cephalic index (about 85) and high nasal index (about 100) and another one with low cephalic index (75) and low nasal index (75). The low coefficient of this group can be explained by the presence of a group with low cephalic index and high nasal index.

TABLE I

CHINESE OF CHIHLI

Nasal Index and Cephalic Index

N=112; Σee_1 = +418; σ_x=9.191; σ_y=3.742;

$M_{Nas.\ I.}$ =90.02; $M_{Ceph.\ I.}$ =79.92; r=+0.111; E_r±0.045.

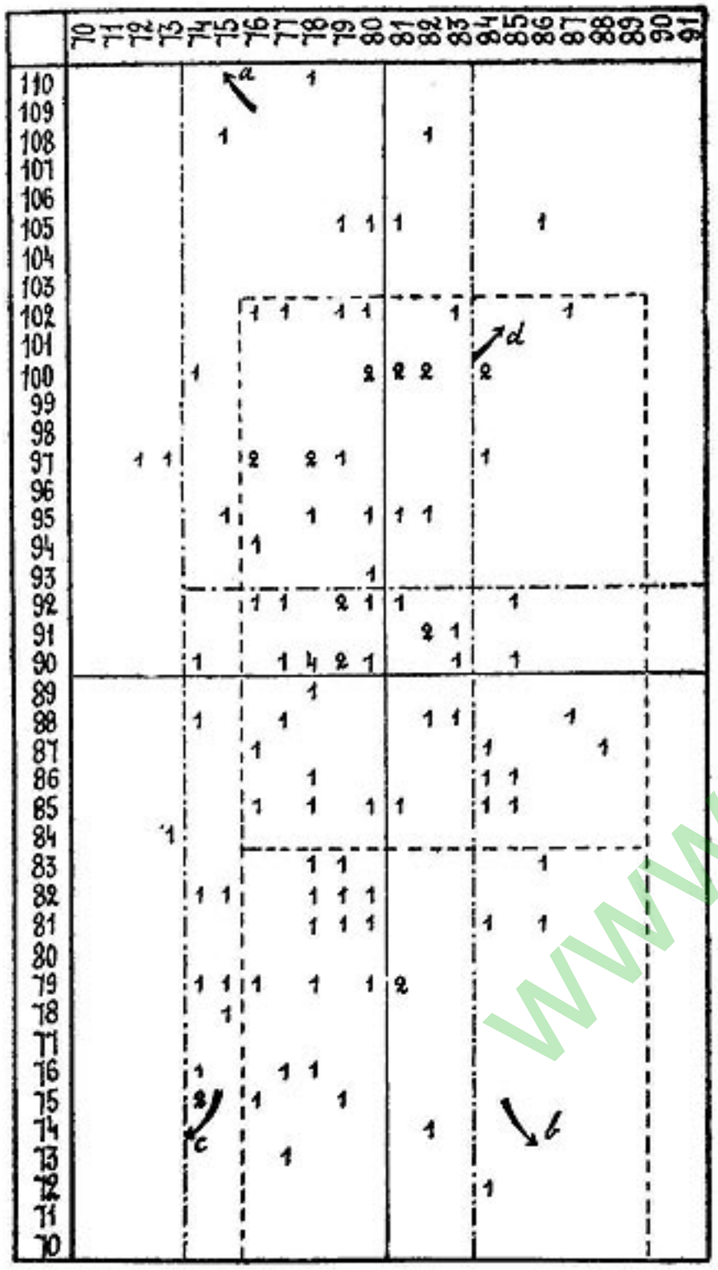


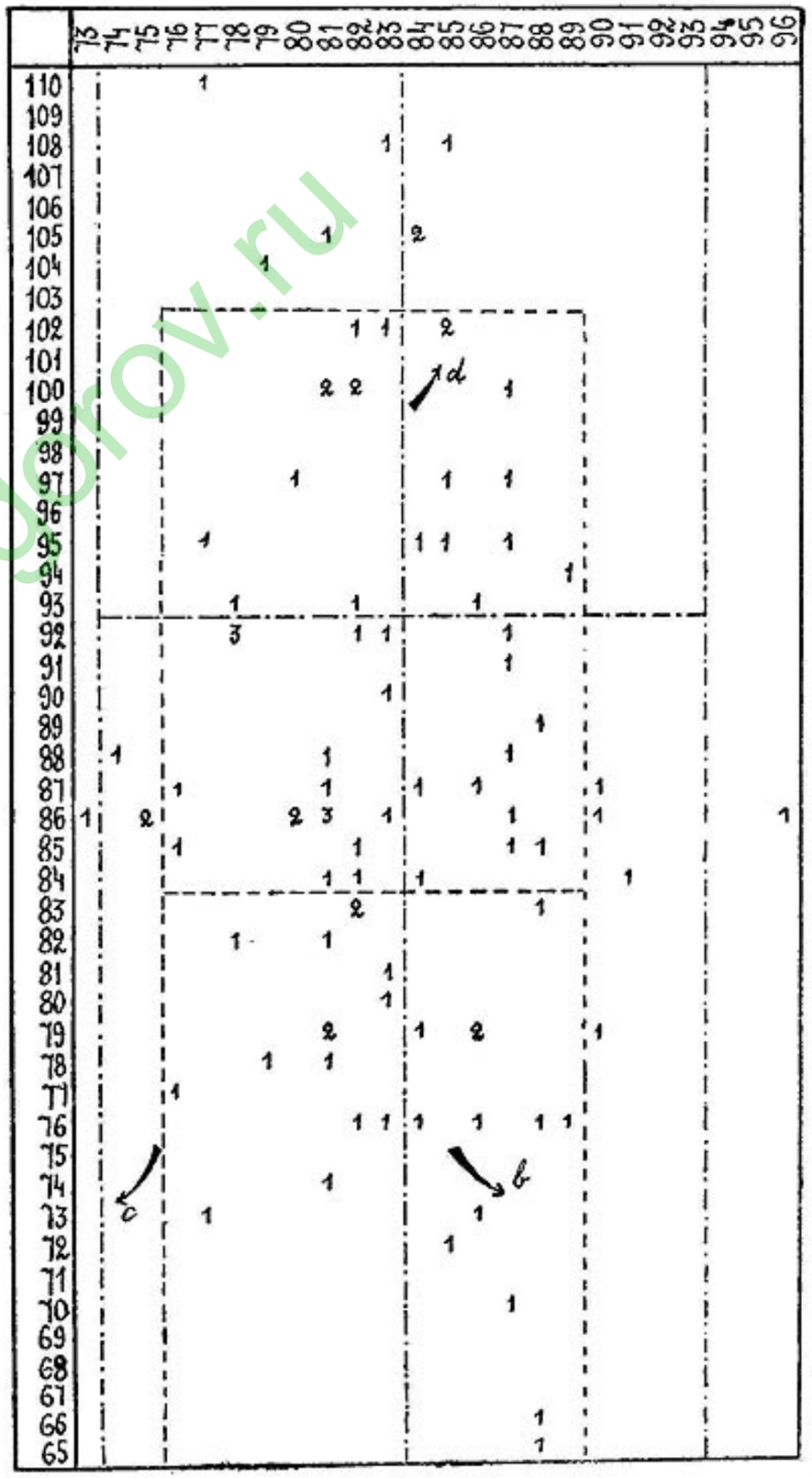
TABLE J

CHINESE OF MANCHURIA

Nasal Index and Cephalic Index

N=94; Σee_1 =−711; σ_x=9.787; σ_y=4,489;

$M_{Nas.\ I.}$ =87,98; $M_{Ceph.\ I.}$ =83.64; r=−0.172; E_r=±0.047.



(See Table J).

The coefficient of correlation (r = —0.172) conserves the negative sign, but the relative meaning of this correlation must be corrected by the removal of the ranges with ±0 of deviation to the right and down. Thus the group of the upper left square is not the same as that in the preceding Tables,—it is composed of the individual cases which lie within the upper right square of the preceding Tables. At the same time this field does not leave space for the individuals located within the left upper square of the preceding Tables. The group of the upper left square can be considered as a product of the amalgamation of the types mentioned above and some type located within the lower half of the field. Also the group of the lower left square removes from right to left and decreases the coefficient of correlation. The group with a high cephalic index and low nasal index is very numerous and can be considered as the characteristic type of this series. It might also be seen that in this field there appears a new group, which lies beyond the limit of the cephalic index of the preceding fields. This group can be characterized by very high cephalic index and relatively moderate nasal index and influenced the negative sign of the coefficient of correlation . Though the coefficient is relatively high it vould be higher if the lower left square had not a trace of the type characteristic for the Chinese of Chihli.

The types characteristic for the Chinese will be as follows:

(1). The type with high cephalic index and high nasal index that I shall designate provisionally by—*d;*

(2). The type with low cephalic index and low nasal index—*c;*

(3). The type with low cephalic index and high nasal index—*a;*

(4). The type with high cephalic index and low nasal index—*b;*

(5). The type with high cephalic index and moderate nasal index—*f;*

The results of the analysis can be shown in the following Table:

Chinese groups	Fundamental types	Incidental types
Shantung	*a* and *b*	*c* and *d*
Chihli	*c* and *d*	*a* and *b*
Manchuria	*b*, *d* and *f*	*a*

As may be seen from the preceding exposition, the amalgamation of the Chinese from the point of view of the nasal index is so significant, that I shali analyze other eries of the present study, hoping to find the ethnical equivalent to them.

(See Table K).

The meaning of the coefficient of correlation (r = +0.127; E_r = ±0.052) must be corrected by the considerations of the relative, in comparison with the Chinese fields. removal of the ranges with ±0 of deviation. In this field may be seen a group of indi viduals located within the upper left square just near the Chinese range-crossing. This group can be related to the amalgamated type of the Chinese. The type *d* may be observed within the upper half of the field.

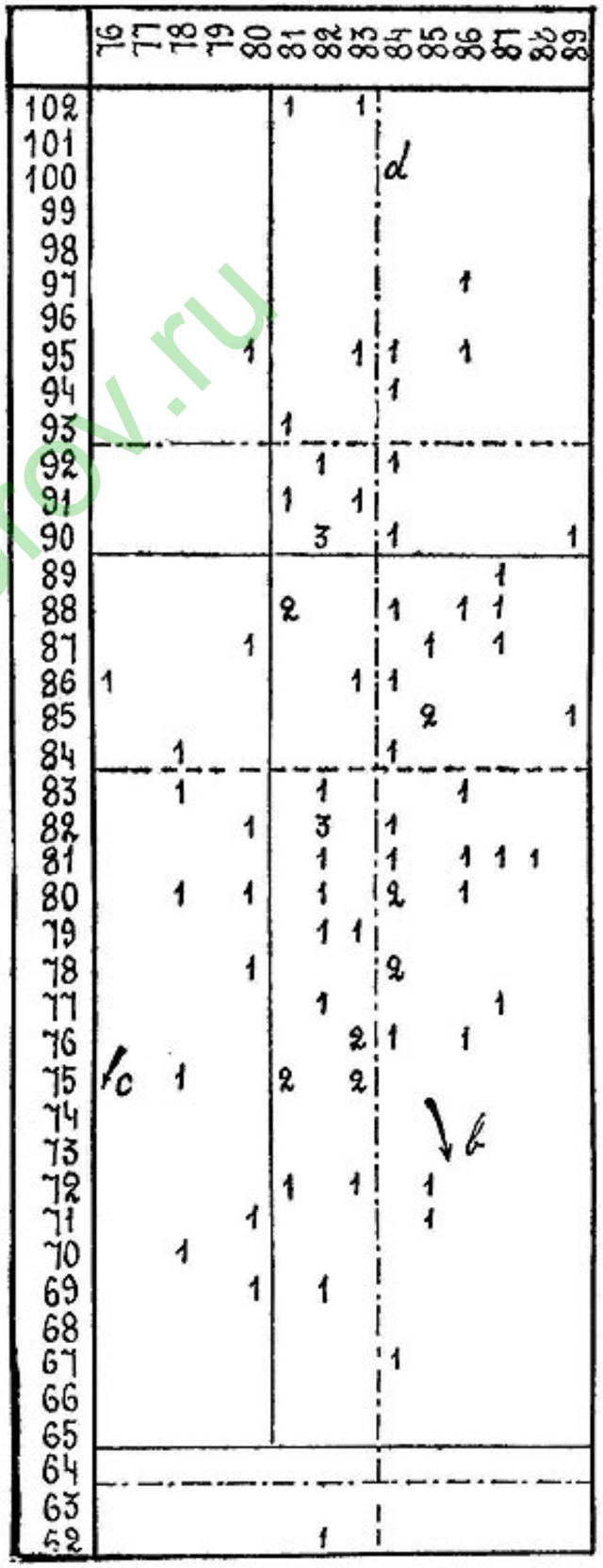
TABLE K.

MANCHUS

NASAL INDEX AND CEPHALIC INDEX

N = 80 ; Σec_1 = +218 ; σ_x = 8,12 ; σ_y = 2.652

$M_{Nas.\ I.}$ = 83.02 ; $M_{Ceph.\ I.}$ = 83.52 ; r = +0.127 ; E_r = ±0.052.



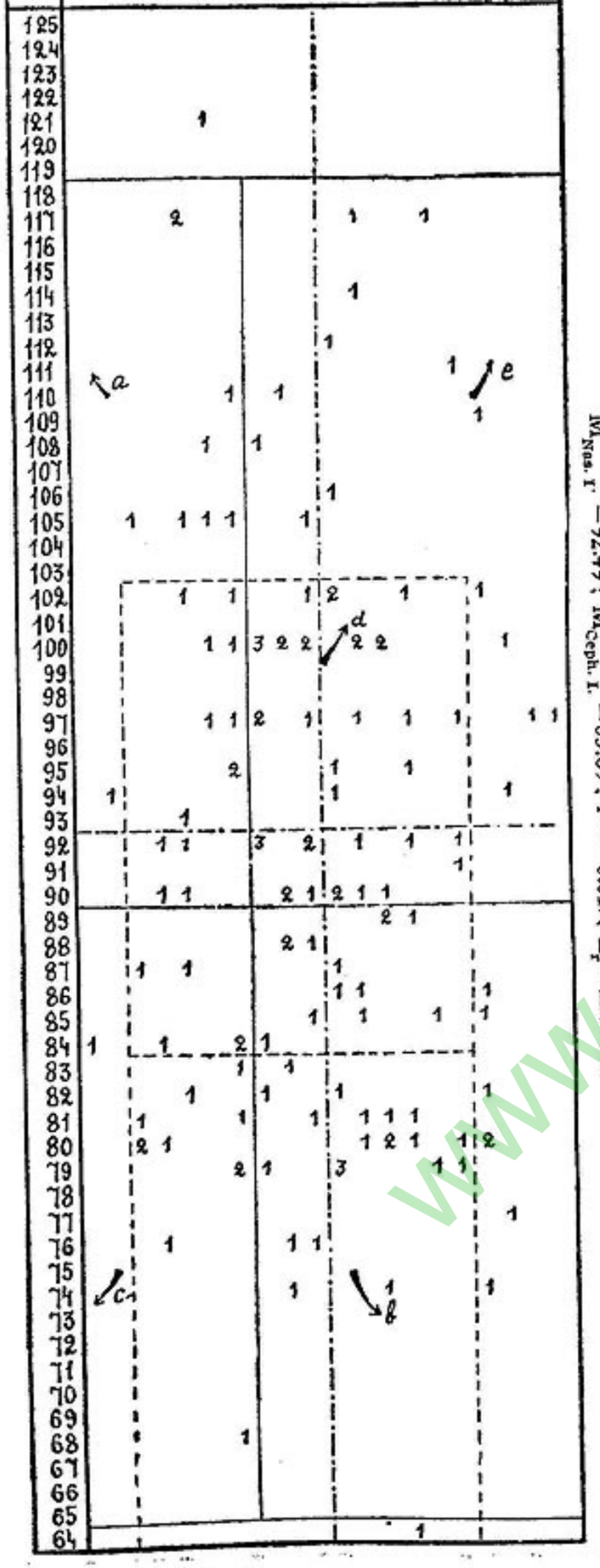


TABLE L

KOREANS

NASAL INDEX AND CEPHALIC INDEX

N=141 ; $\Sigma ee_1 = -356$; $\sigma_x = 11.626$; $\sigma_y = 4.154$; $M_{Nas.I.} = 92.49$; $M_{Ceph.I.} = 83.69$; $r = -0.017$; $E_r = \pm 0.040$.

The type *b* of the Chinese series is represented by a large group that lies within the lower half of the field. Some individual cases which can be related to the type *c* are located within the lower left square, but this type cannot be represented so largely as in the field of the Chinese, because the Manchu field does not leave space for the extreme variations of this type. The superimposing of the fields,—the Manchu with the Chinese,—shows that the major part of the Manchus lie within the lower right square of the Chinese field. Therefore, the type *b* must be considered as the fundamental type of the Manchus and the types *d* and *c*, the positive sign of the coefficient notwith standing, may be considered as incidental.[1] Also it is interesting, that the Manchu field does not leave space for the extreme variations of the types *d* and *c*, or any place for the type *a;* the Chinese upper left square in the Manchu field is empty.

(See Table L).

This table is very instructive and it may elucidate my Chinese data. Though the coefficient of correlation ($r = -0.017$; $E_r = \pm 0.040$) is practically of no significance, the dispersion of the individuals in the field is very characteristic[2] and shows the influence of different groups which I have disclosed in the preceding tables. Because of the excessive dispersion of the individuals (standard deviation of the nasal index $\sigma = 11.626$) a new type *e* with very high nasal index and high cephalic index is found. The removal of the ranges with ± 0 of deviation comparatively to the Chinese field on right and down, gives another meaning to the coefficient. The type *d* in this field is within the upper right and upper left squares, just as was observed in the case of the Manchus. At the same time within the upper left square may be observed some trace of the Chinese of the type *a*. The type *f* that was observed in the field of the Chinese of Manchuria is represented in this field and perhaps reinforced by the type *b*. Also the type *c* reduces the negative coefficient of correlation. The field within the upper right square outside of the field of the Total Chinese and Manchus may be considered as characteristic for the Koreans. It can be characterized by very high cephalic index and very high nasal index. Thus the Koreans can be characterized as a group composed of the types known among the Chinese and the type *e* characteristic for the Koreans only. But the types *b* and *c* must be considered as traces and the types *d* and *e* as incidental though the type *e* is a characteristic type for the Koreans only.

About 50 % of the Koreans are within the upper right square of the Chinese and especially of the Chinese of China Proper. This explains the presence of this type among the Chinese through the influence of the Koreans, or, rather, the influence of the anthropological types composing the Korean complex.

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1. Maybe it will better to consider the main mass of the Manchus as an amalgamation of the type *b* with the type *d*.

2. The same result can be seen in the Table of correlation of the stature with the cephalic index.

The preceding analysis can be exposed in the following Table:

Groups of	Fundamental type	Incidental type	Traces of type
Shantung	*a* and *b*	*c* and *d*	...
Chihli	*c* and *d*	*a* and *b*	...
Manchuria..	*b*, *d* and *f*	*a*	...
Manchus	*b* and *d*	*c*	...
Koreans	*d* and *f*	*e* and *b*	*c* and *a*

The type f can be considered as a result of amalgamation of the types b and e, therefore this Table can be simplified, as follows:

Groups	Fundamental types	Incidental types	Traces of types	Approximate characteristics of the types		
				ype	Ceph. ind.	Nas. ind.
Shantung	*a* and *b*	*c* and *d*	...	*a*	75	110
Chihli	*c* and *d*	*a* and *b*	...	*b*	84	75
Manchuria ...	*b* and *d*	*a* and *e*	...	*c*	75	75
Manchus	*b* and *d*	*c*	...	*d*	84	100
Koreans	*d* and *e*	*b*	*c* and *a*	*e*	90	110

The ethnical distribution of these types will be exposed after the analysis of the correlations of the stature with nasal index.

§44. Correlation of the Stature with Nasal Index.

(See Table M).

The coefficient of correlation is so low ($r=-0.027$: $E_r=\pm 0.024$) that the erratum is about equivalent. The low coefficient may be explained by the crossing of the lines of correlation of the components. In the field of correlation within the upper left square may be seen a group of low stature with very high nasal index and another group of very low stature and high nasal index. Within the upper right square appears a relatively isolated group of high stature (over 1750) with high cephalic index. But this group and even the whole square are not influential,—17% only. The most important group lies within the lower left square,—the hypothetic type of which may have a stature of about 1590 and a nasal index 78. Within the lower right square can be seen also a group of high stature—1690—with low nasal index (75). At a glance it might be seen that within the lower left square the group of the Chinese of Manchuria are represented more largely than within other squares. For example within the upper right square 11% only of this group are located. Therefore the first square can be considered as a characteristic for this group. Neverthless in this particular distribution of the Chinese of Manchuria the coefficient is very low and negative. The analysis of the Chinese by the territorial groups may help to disclose their components.

TABLE M

Nasal Index and Stature

[*Figure in Circle: Chinese of Manchuria*]

$N=392$; $\Sigma ee_1=-575$; $\sigma_x=6.144$; $\sigma_y=8.865$;

$M_{Nas.\ I.}=89.45$; $M_{Stat.}=166.57$; $r=0.027$; $E_r=\pm 0.024$.

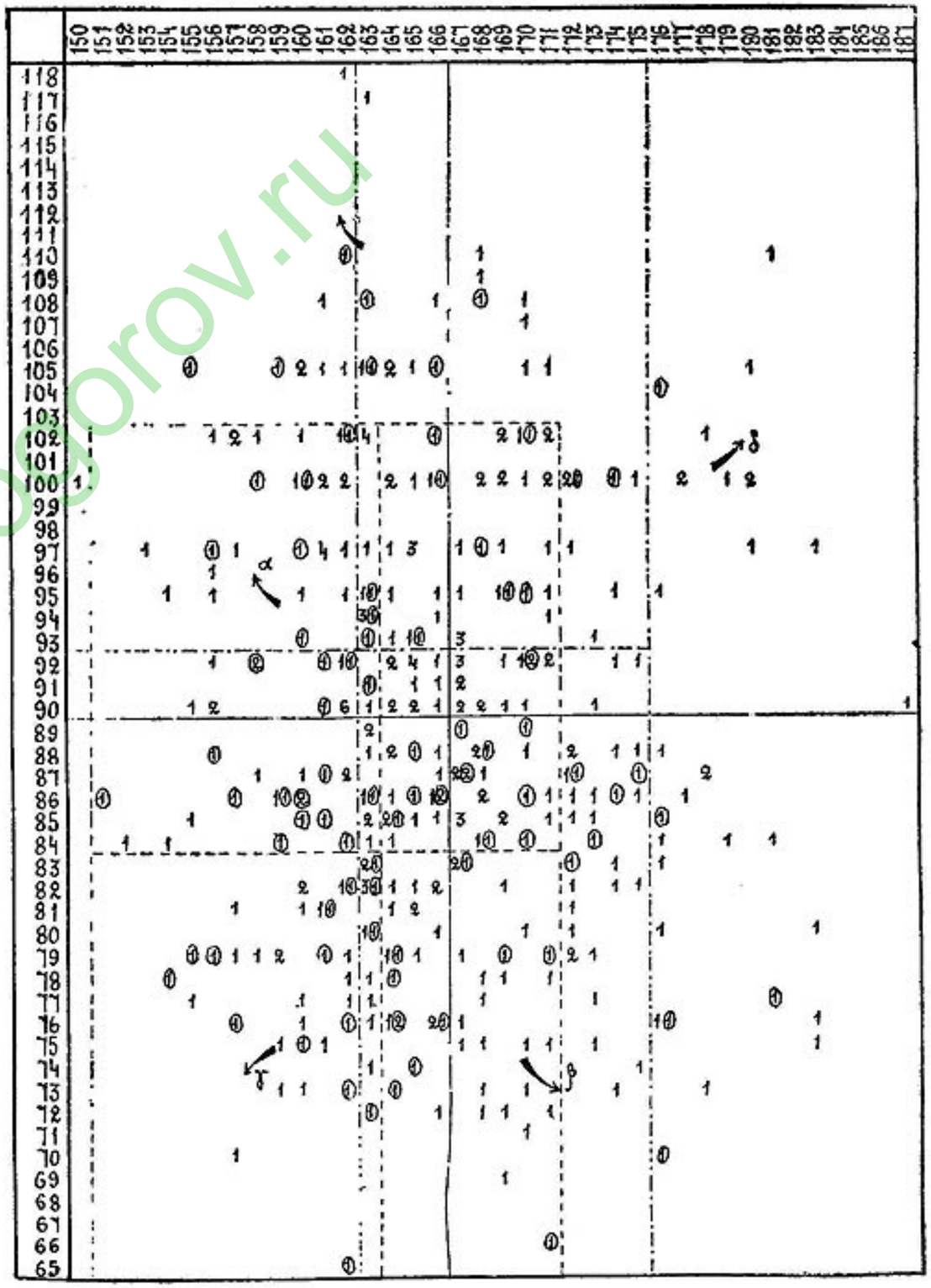


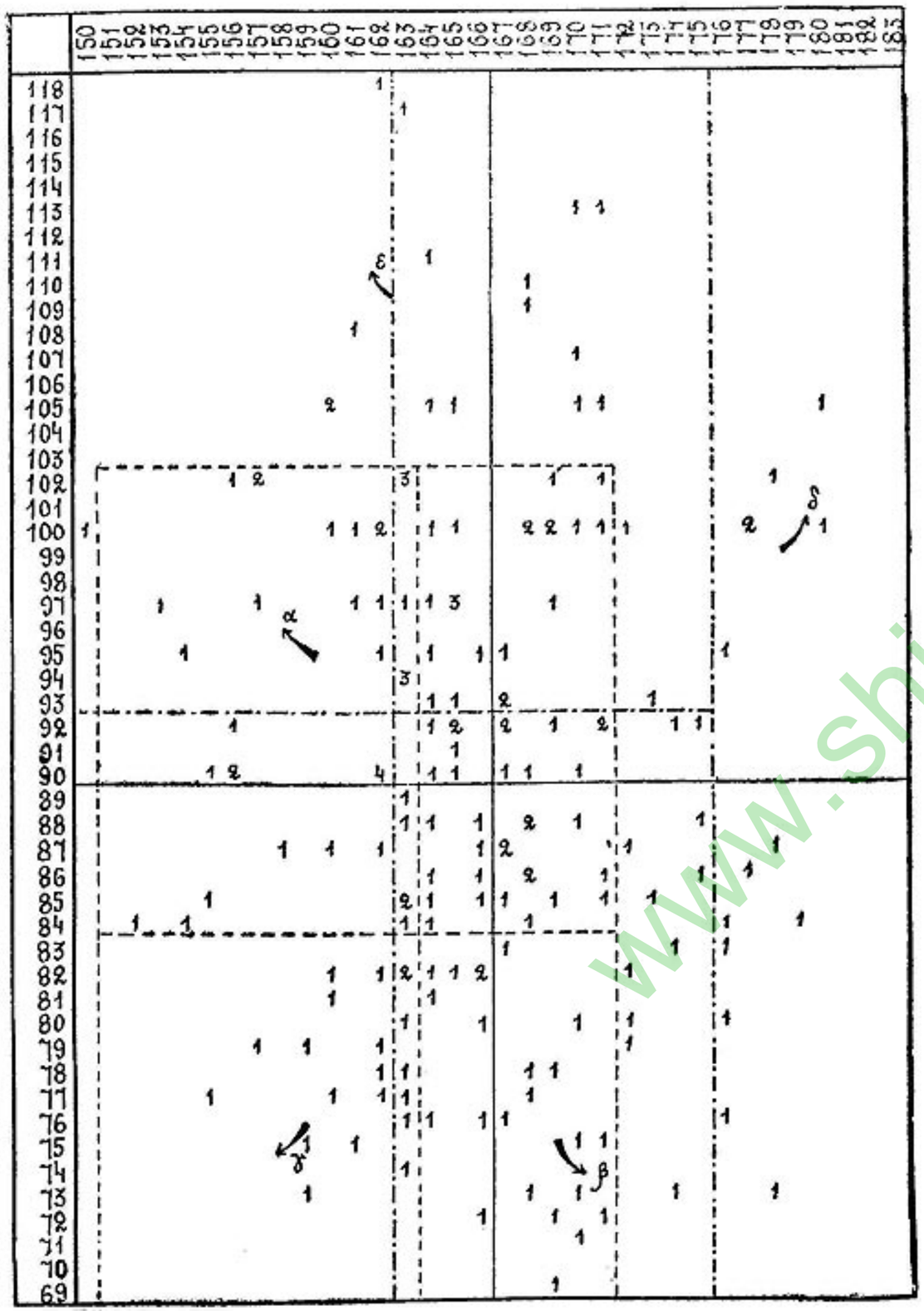
TABLE N

CHINESE OF SHANTUNG

NASAL INDEX AND STATURE

N=184; Σee_1=—663; σ_x=10.263; σ_y=5.958;

$M_{Nas.\ i.}$=89.86; $M_{Stat.}$=166.75; r=—0.059; E_r=±0.035.



(See Table N).

The negative sign of correlation (r=—0.059; E_r=±0 035), in the presence of the insignificant numerical value of the correlation, can be considered as a hint as to the correlation of the low stature with the high nasal index, but the groups located within the positive square are also very numerous. Within the upper left square I suppose the amalgamation of two types, i.e. the type with stature about1570 and nasal index 95-100, which I shall designate by α, and another one of moderate stature, 1620, and nasal index about 110, which I shall designate by ε. The leading type of the lower right square I shall designate by β with stature about 1690 and nasal index about 75. The type, with stature over 1750 and nasal index about 100 located within the upper right square, I shall designate by δ; and the characteristic type of the lower left square with stature about 1570 and nasal index ,5, I shall designate by γ. Thus this group can be considered as a complex of the fundamental types α, ε, β and incidental types γ, δ which perhaps may be considered as influential as the other types of this series.

(See Table O).

As in the preceding case the coefficient of correlation is of no practical significance (r=—0.007; E_r=±0.045). Neverthless the field of correlation can furnish some evidence. For instance, the extraordinary dispersion of the individuals in the field of correlation shows that this group is profoundly amalgamated. Secondly, the types which were discovered in the preceding Table can be observed in the present field too. The type ε in this field shows only traces and the type α of this square is more numerous. At the same time the type δ seems to be more numerous than in the preceding Table N. Within the lower right square the type β is evidently more developed and the type γ within the lower left square is numerous as well as in Table N. This group thus has no leading types and can be characterized as a complex of all types except ε types.

(See Table P).

The coefficient of correlation (r=—0.052; E_r=±0.049) is low as well as in the preceding case. The type γ is more numerous than other types. Relatively the type ε is more numerous than the type α. The types β and γ are very poorly represented, the type δ shows only a trace. Thus the type ε, γ, β can be supposed to be fundamental, the type α as incidental and the type δ as only a trace better.

The results of the above analysis can be seen in the following Table:

Groups of	Fundamental type	Incidental type	Trace of type
Shantung	α β ε	γδ	...
Chihli	α β γδ	...	...
Manchuria..	ε γ β	α	δ

TABLE O

CHINESE OF CHIHLI

Nasal Index and Stature

N=113 ; Σee_1 = —48 ; σ_x =9.191 ; σ_y =6.316 ;

$M_{Nas.\ I.}$ =90.02 ; $M_{Stat.}$ =167.89; r= —0.059; E_r = ±0.035

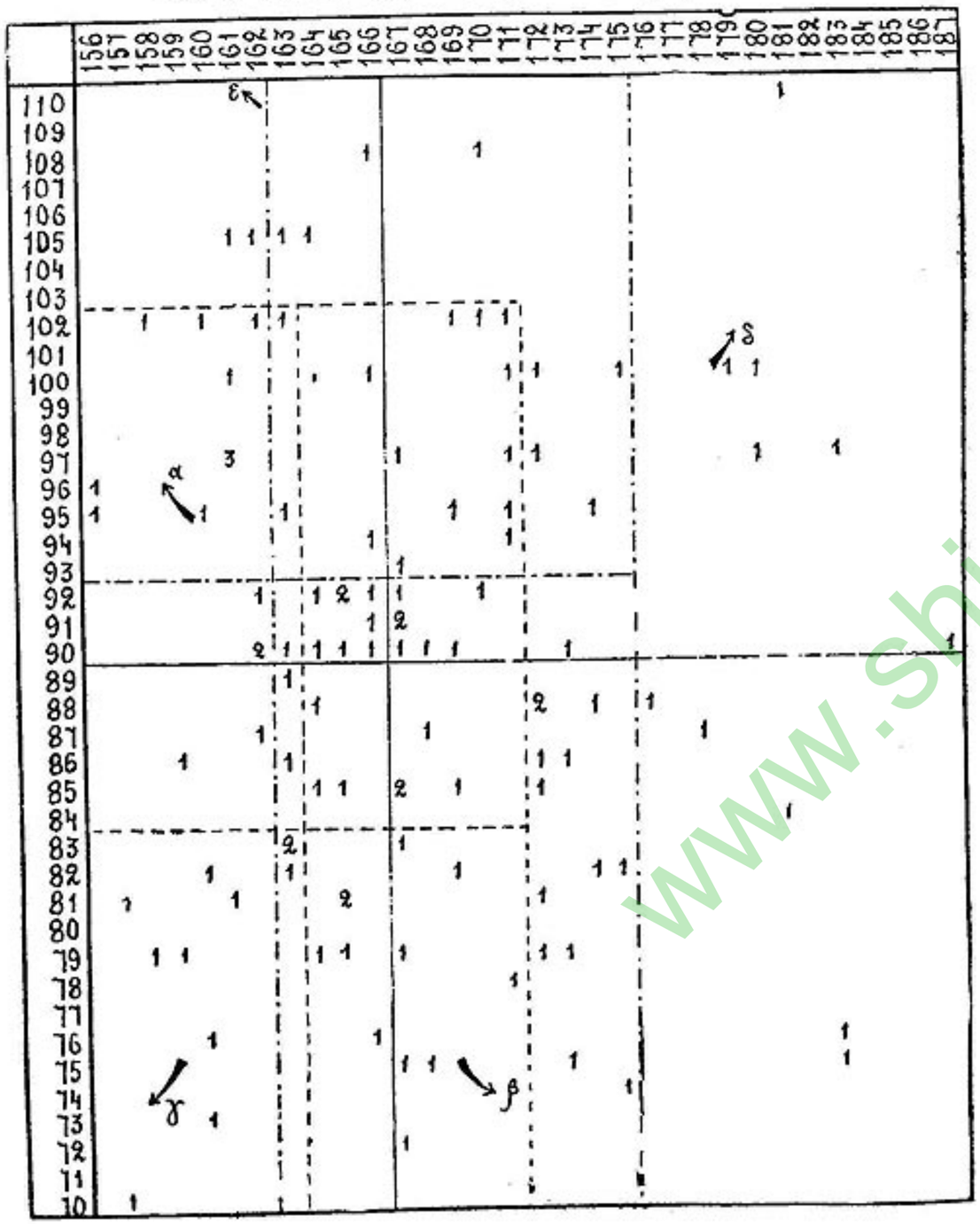


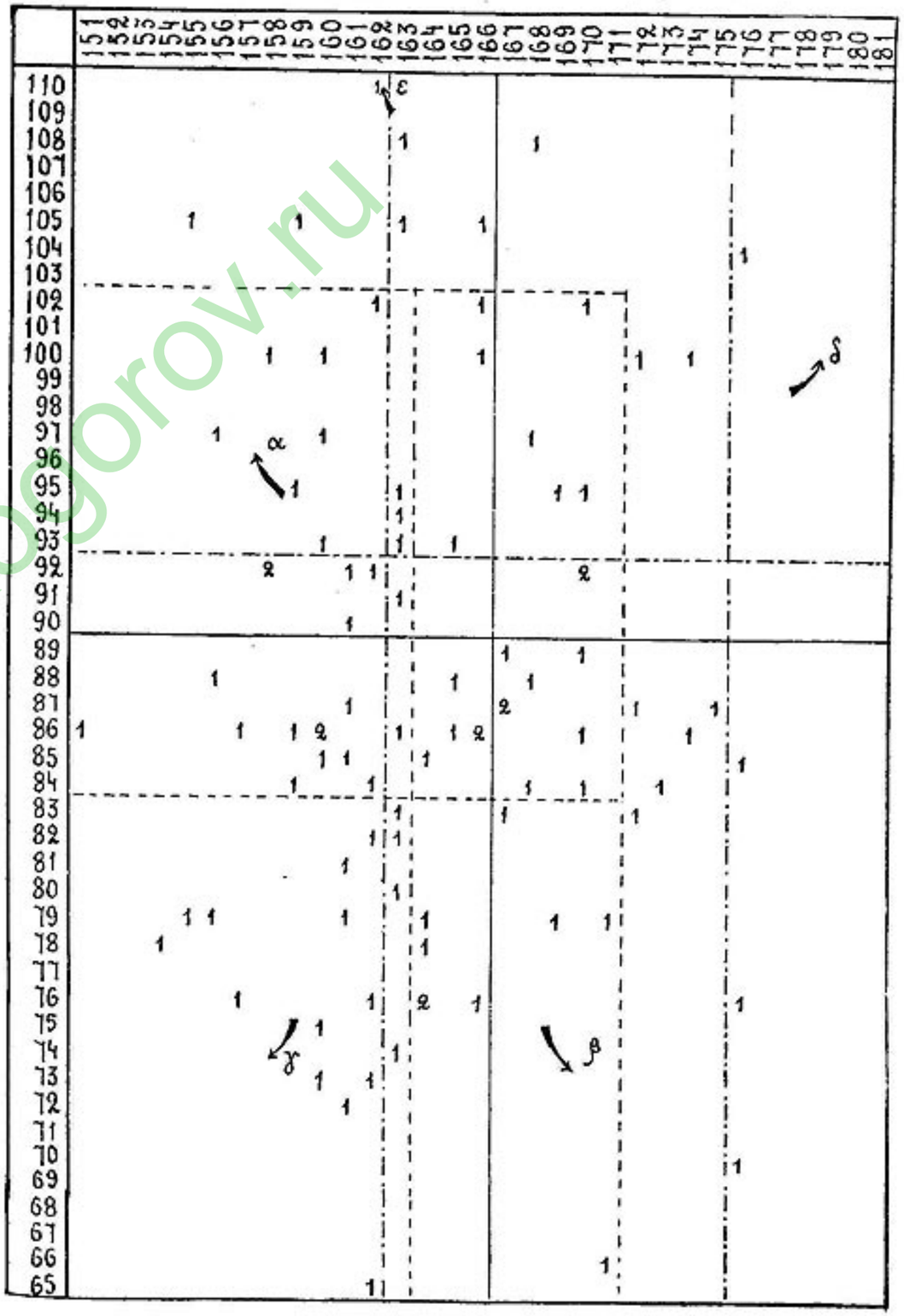
TABLE P

CHINESE OF MANCHURIA

Nasal Index and Stature

N=95 ; Σee_1 = —281 ; σ_x —9.787 ; σ_y —5.937 ;

$M_{Nas.\ I.}$ =87.98 ; $M_{Stat.}$ =165.04 ; r= —0.052 ; E_r = ±0.049.



Perhaps it will be better to consider the Types ε, and β as incidental among the Chinese of Chihli, because these types can serve as differentiation of two groups,—those of Shantung and Chihli.

Now I shall analyse the fields of the Manchus and Koreans.

(See Table Q).

The negative coefficient of correlation ($r=-0.289$; $E_r=\pm0.048$) leads me to suppose that the Manchus are composed of two types corresponding to the type α and β. Also the type γ may be considered as a type of importance. Because of the removal of the ranges with ±0 of deviation the upper left negative square relatively to the Chinese field is increased by the addition of a part of the lower half of the field. Therefore it might be formulated that the types β and γ are fundamental and the type α incidental. In fact the major part of the Manchus (56%) lie within the lower left square of the Chinese field. The Manchu field does not leave space for the extreme variations of the types α, ε and δ.

(See Table R).

The insignificant numerical value of the coefficient of correlation ($r=-0.024$; $E_r=\pm0.040$) does not permit any reliable deductions, but the dispersion of the individuals in the field, as in the preceding Chinese fields, is very instructive. The upper left negative square of the Chinese field is the most characteristic for the Koreans. Thus the type α and especially the type ε are the fundamental types of the Koreans. The type γ of the lower left square is always very numerous so that I consider it as a fundamental type too. At the same time the type β is in a very limited number and can be considered as an incidental type. Also the type δ shows only traces of its presence and it seems to me that these can be considered as the variations of type ε.

The results of the analysis of the correlation of the stature with the nasal index are shown in the following Table:

Groups of	Fundament. type	Incidental type	Trace of type	Approximate characteristics of the types		
				Type	Stature	Nasal Ind
Shantung	α β ε	γδ	...	α	159	95
Chihli..	α β γδ	(β)	ε	β	169	75
Manchuria...	ε γ β	α	δ	γ	159	75
Manchus	γ β	α	...	δ	175	100
Koreans	α ε γ	β	...	ε	162	110

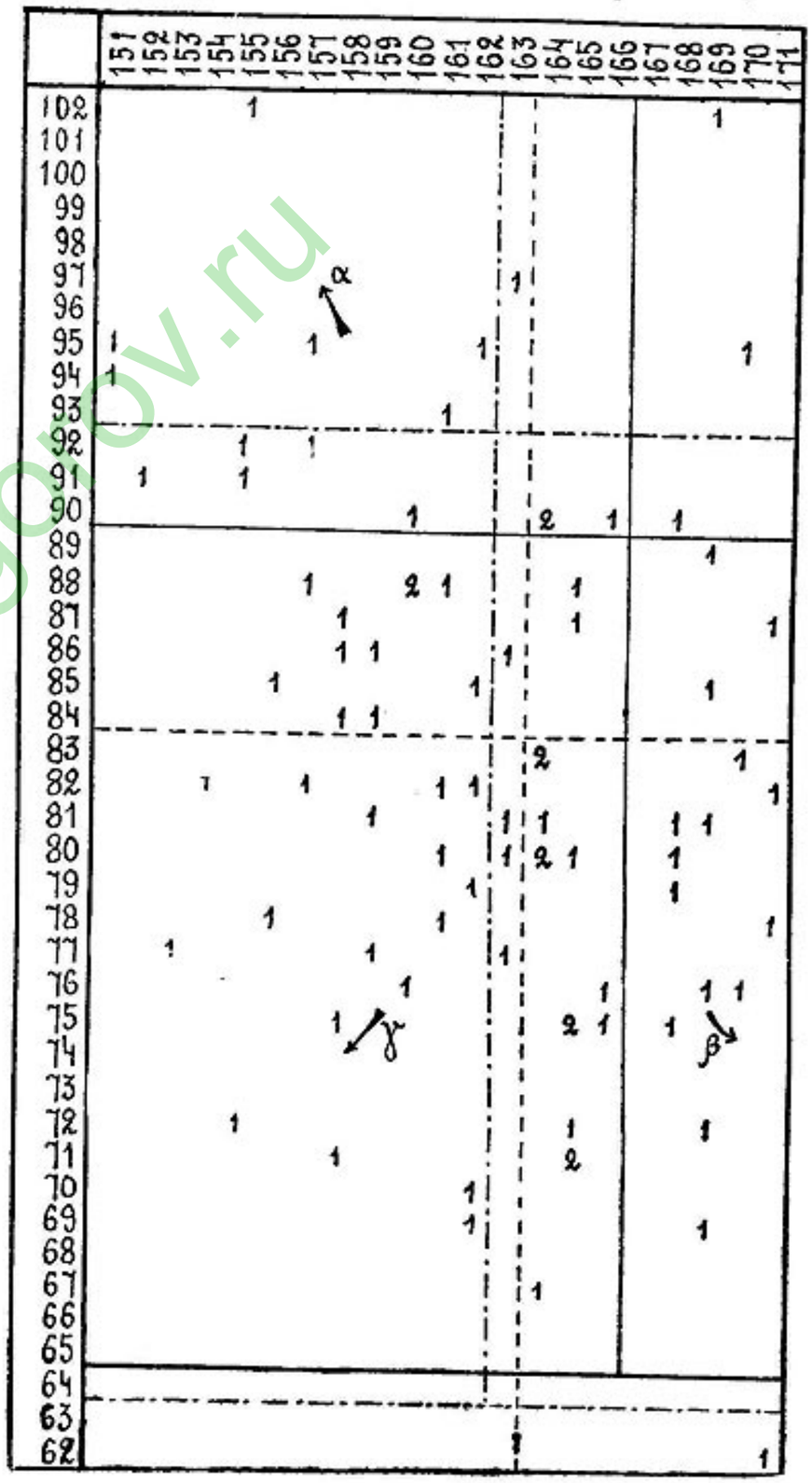
The type α of the present Table can be considered as an amalgamation of the types ε and γ, therefore the above results can be simplified as follows:

TABLE Q

NASAL INDEX AND STATURE

$N=81$; $\Sigma ee_1=-970$; $\sigma_x=8.12$; $\sigma_y=5.104$;

$M_{Nas.\ I.}=83.02$; $M_{Stat.}=163.09$; $r=-0.289$; $E_r=\pm0.047$;



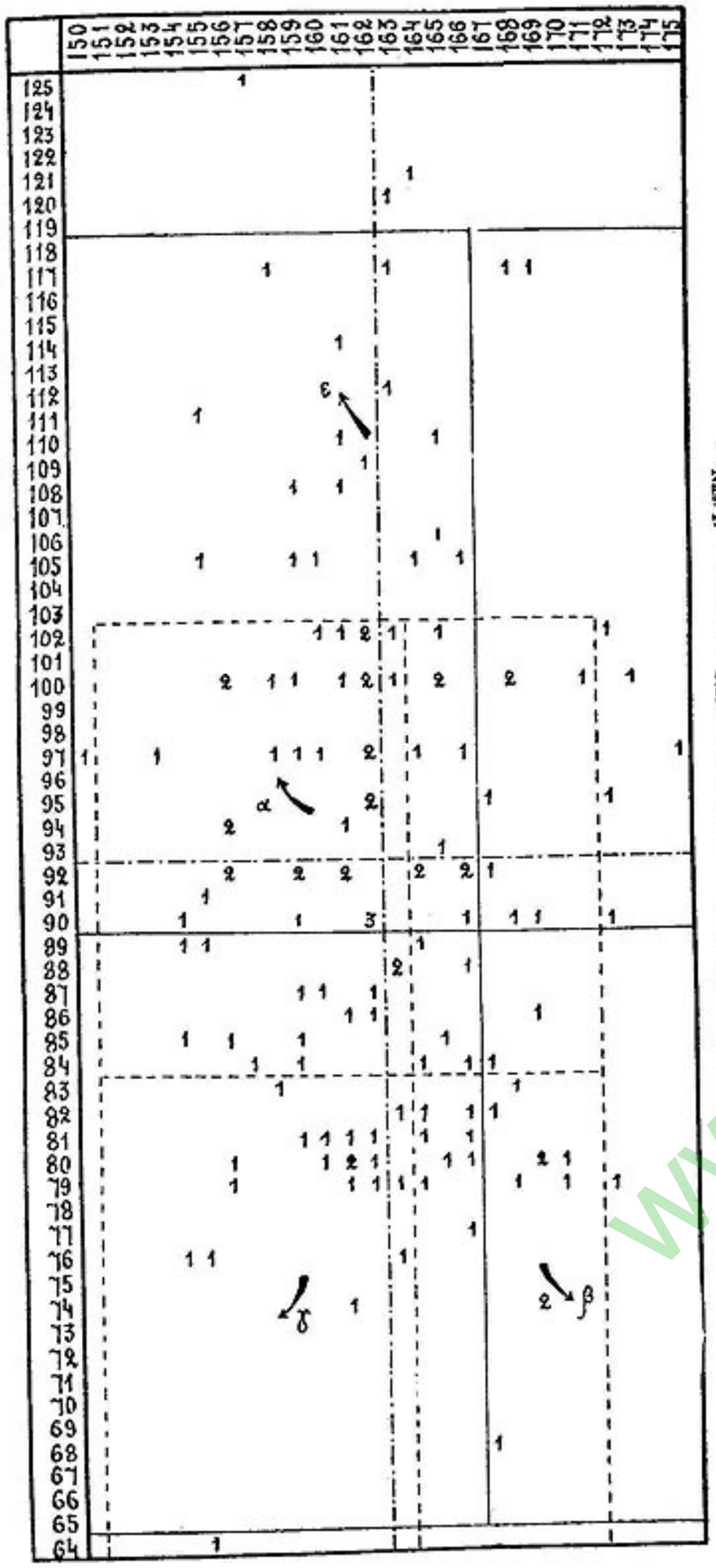


TABLE R

KOREANS

NASAL INDEX AND STATURE

$N = 141$; $\Sigma ee_1 = -190$; $\sigma_x = 11.626$; $\sigma_y = 4.771$;

$M_{Nas.\,I.} = 92.49$; $M_{Stat.} = 162.88$; $r = -0.024$; $E_r = \pm 0.040$.

Groups	Fundamental type	Incidental type	Trace of type
Shantung	β ε	δ γ	...
Chihli	δ γ (εβ)	(ε β)	...
Manchuria...	ε γ β	...	δ
Manchus	γ β	ε	...
Koreans	ε γ	β	δ

§45. Nasal Index and Other Characteristics of the Typic Differentiation.

In the preceding §§ 43 and 44 I have analyzed the types in the field of correlation of the nasal index with the cephalic index and on the other hand of the cephalic index with the stature, now I shall show when the results of this analysis can be connected with that of the correlation of the nasal index with the stature.

From the Table on p. 72 can be seen that (1) the type *a* is characteristic for the Chinese only; (2) the type *b* is characteristic for the Chinese of Shantung and Manchuria and the Manchus too; (3) the type *d* is characteristic for the Chinese of Chihli and Manchuria and for the Manchus; the type *c* is characteristic for the Chinese of Chihli and can be observed among the Manchus; (5) the type *e* is characteristic for the Koreans only and can be observed to a limited extent among the Chinese of Manchuria. Thus it can be supposed that the types *a* and *b* are probably the characteristic types of the Chinese, the type *e* is characteristically connected with the Koreans, the type *d* is connected with the Chinese and Koreans and the type *c* is connected with the Chinese and Manchus.

From the above Table it can be seen that the type δ is characteristic for the Chinese and corresponds to the type *d*; the type β has about the same meaning as the type *b*; the type γ is more characteristic for the Manchus and for other groups except the Chinese of Shantung; finally the type ε is among all groups, but it is characteristic for the Koreans.

The following comparative Table can be traced:

Ceph. ind.	Type	Nas. index		Type	Stature		Type	Ceph. ind.
84	*d*	100	100	α	1590	1620	A	83
75	*a*	110	100	δ	1750	1750	B	75
84	*b*	75	75	β	1690	1690	D	85
75	*c*	75	75	γ	1590	1590	C	77
90	*e*	110	110	ε	1620	1570	E	89
Correlation of the ceph. ind. with nas. ind.		Correlation of the stature with nas. ind.			Correlation of the stature with ceph. ind.			

From this Table the following approximate characteristics for the hypothetic types can be formulated:

Type	Complex	Ceph. ind.	Stature.	Nas. ind.
A	Bαδ	75	1750	105
Δ	Dhβ	85	1690	75
Γ	Cεγ	76	1590	75
B	Eεε	90	1600	110
*	Adα	84	1600	97

Note to the Table.

The characteristics are approximate. By * I noted the amalgamated complex that cannot be considered as a fundamental type of this area.

From this table may be seen four types—A, Δ, Γ, and B. The complex Adα I consider as a product of the amalgamation of the type Γ and B. In the conclusion of §42 I have supposed the probable ethnical connection of these types. There the type B was considered as a Chinese type. The complex Bαδ—type A—can be also considered as a Chinese type; The type D was connected with the Mongols, also the complex Dhβ—type Δ—can be considered as a Mongol type. In fact the Mongols, being an amalgamated ethnical group, have relatively low nasal index, the extreme variations of which correlate the high (relatively) stature. Among the mongolized Tungus of Urulga the type Δ has nasal index about 75.

In §42 I have formulated that the type C can be considered as a very ancient type in Asia which composes now different ethnical groups. The nasal index of the complex Cεγ —type Γ—is about 75, that may be seen among the Tungus of Barguzin.[1] The real stature of this type, I suppose, must be lower than 1590 because this type among the Chinese is always influenced by the type of the high stature (A and Δ) and extreme variations of it may be confused.

The type E was related to the Koreans (palaeoasiatic). The complex Eεε—type B—has the nasal index very high, this can be seen also among the Gilyaks. As it was above shown the influence of the type B over the Chinese is very large and it is especially significant over the Chinese of Manchuria; that is quite natural because of the near neighbourhood of this group to Manchuria.

§46. Correlation of the Cephalic Index with Frontal Index.

(See Table S).

The low negative coefficient of correlation ($r=-0.062$; $E_r=+0.024$) shows that the Chinese from this standpoint they are as well as inother characters very amalgamated. The negative sign is due probably to the presence of a group with low cephalic index and high frontal index within the lower right square. But the numerical value of the coefficient is so low that it cannot warrant other deductions. Therefore, I shall analyse by the method of the superimposition of the fields.

1. M—stature=1591, M—nas. i.=86.70, r=+0.08.

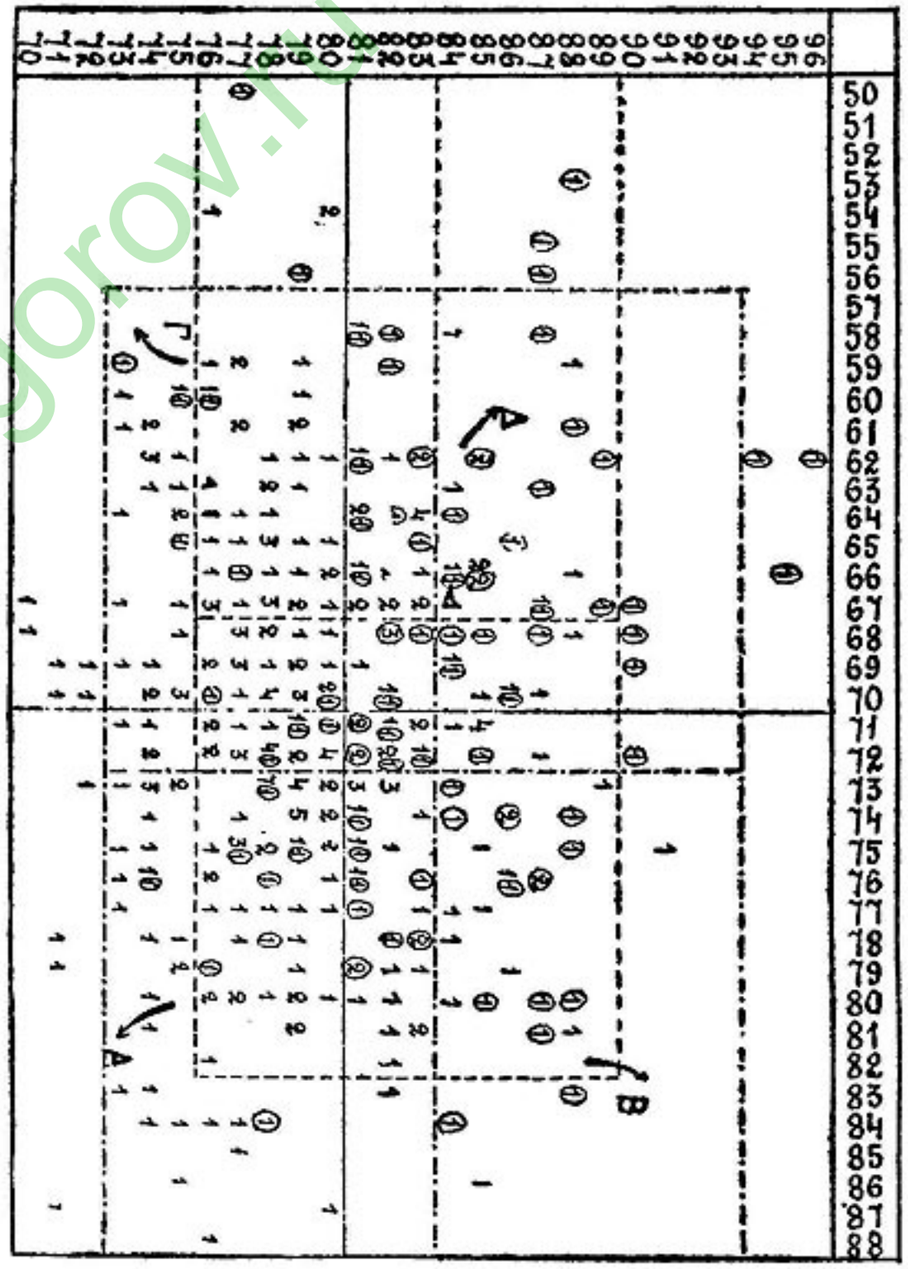
TABLE S

CEPHALIC INDEX AND FRONTAL INDEX

[*Figure in Circle: Chinese of Manchuria*]

$N=389$; $\Sigma ee_1=-752$; $\sigma_x=4.507$; $\sigma_y=6.948$;

$M_{Ceph.\ I.}=80.17$; $M_{Front.\ I.}=70.62$; $r=-0.062$; $E_r=\pm 0.024$.



In the field of correlalion the most numerous group of the Chinese of China Proper lies within the lower right square, i.e. of the individuals with low cephalic index and high frontal index. The type with cephalic index about 75 and frontal index about 80 that influence this group I shall designate by q (it corresponds to the type A). Within this square can be distinguished a group with low cephalic index and very high frontal the corner of the index in field. Within the lower left square can be observed another important group characteristic for the Chinese of China proper. The hypothetical type with the cephalic index about 75 and frontal index 60, I shall designate by p (it corresponds to the type Γ). There are two groups of secondary importance located within the upper half of the field; the group within the upper left square with high cephalic indexand low frontal index and a group within the upper right square with high cephalic index and very high frontal index. The types influencing these groups I shall designate: The first by r (it corresponds to the type Δ) with cephalic index about 87 and frontal index about 62, the second by s (it corresponds to the type B)with cephalic index about 87 and frontal index about 80. Besides these a group with cephalic index about 73 and frontal index about 69 can be observed on the frontier of the right and left half of the lower field. I consider this group as a product of the amalgamation of the types q and p. Therefore, I shall not designate it by a letter.

(See Table T).

In the field of correlation of the Chinese of Shantung can be observed about the same type of the dispersion in the presence of a coefficient of correlation near to ±0 ($r=+0.007$; $E_r=\pm0.035$). In comparison with the preceding Table S the type r is not so numerous within the upper left square. The extreme variations of the type q can be seen in this Table very clearly and may be supposed as an agent decreasing the positive coefficient of correlation. The type s has very few representatives in this field and the individuals in this square are more or less incidental.

(See Table U).

The positve coefficient of correlation in the presence of very insignificant coefficient ($r=-0.095$; $E_r=\pm0.044$) can be considered only as a hint of the presence of two fundamental types, i.e., r and q. But within the lower left square the presence of a group connected with the type p is also evident. Within the upper right square the type s can be observed as more numerous than in the case preceding. It might be noted also that the dispersion of the individual shows some peculiarity, namely the extreme left part of the field is almost empty and the limit of the right part is more remote (Range 87)

(See Table V).

This Table shows another type of dispersion though the coefficient is not more significant ($r=-0.072$; $E_r=\pm0.048$). If the field of correlation of this group were superimposed over the field of Total Chinese the main mass of individuals of the Chinese of Manchuria would be within the two upper squares of the field. Very few individuals lie within the lower half, whence it might be concluded that the types q and p are quite incidental. But the groups within the upper left square corresponding to type s so numerous that they have caused the negative sign of the coefficient. Also the type s has ts representatives though its extreme variations cannot have place in this field.

TABLE T

CHINESE OF SHANTUNG

CEPHALIC INDEX AND FRONTAL INDEX

$N=182$; $\Sigma ec_1=+35$; $\sigma_x=3.744$; $\sigma_y=6.855$;

$M_{Ceph.\ I.}=78,51$; $M_{Front.\ I.}=70.77$; $r=+0.007$; $E_r=\pm0.035$.

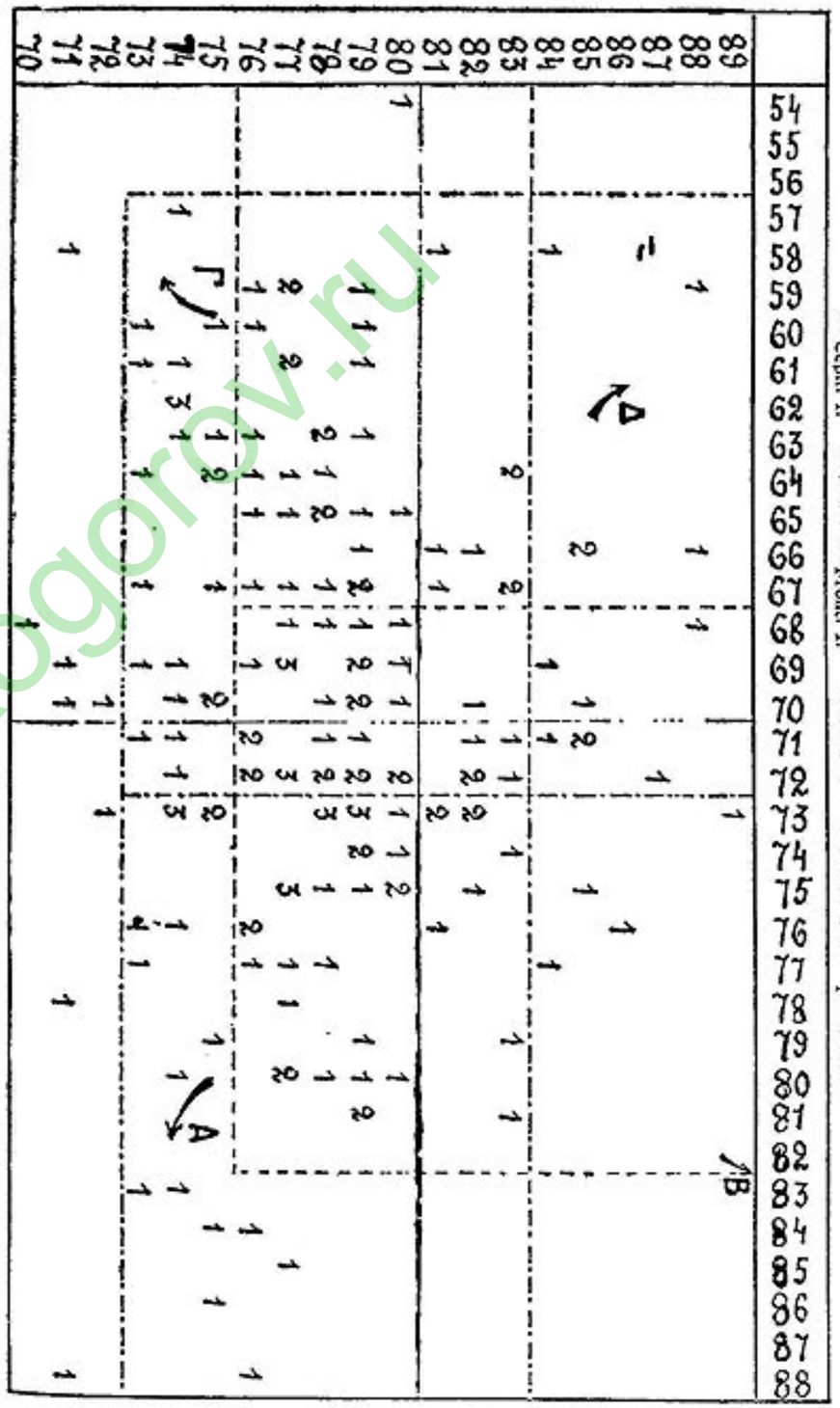


TABLE V

CHINESE OF MANCHURIA

CEPHALIC INDEX AND FRONTAL INDEX

N=96 ; $\Sigma ee_1 = -215$; $\sigma_x = 4.489$; $\sigma_y = 7.110$;

$M_{Ceph.\ I.} = 83.64$; $M_{Front.\ I.} = 69.78$; $r = -0.072$; $E_r = \pm 0.048$.

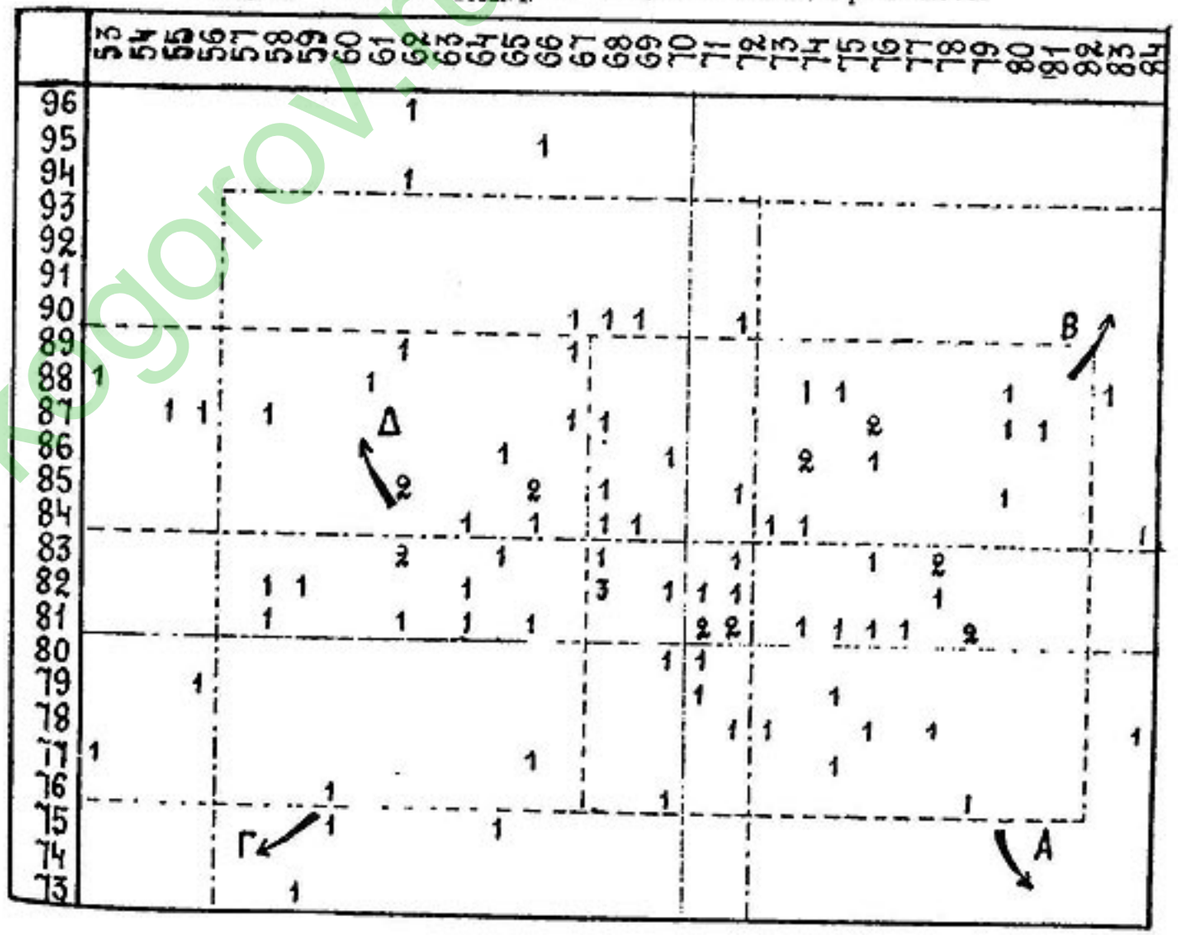


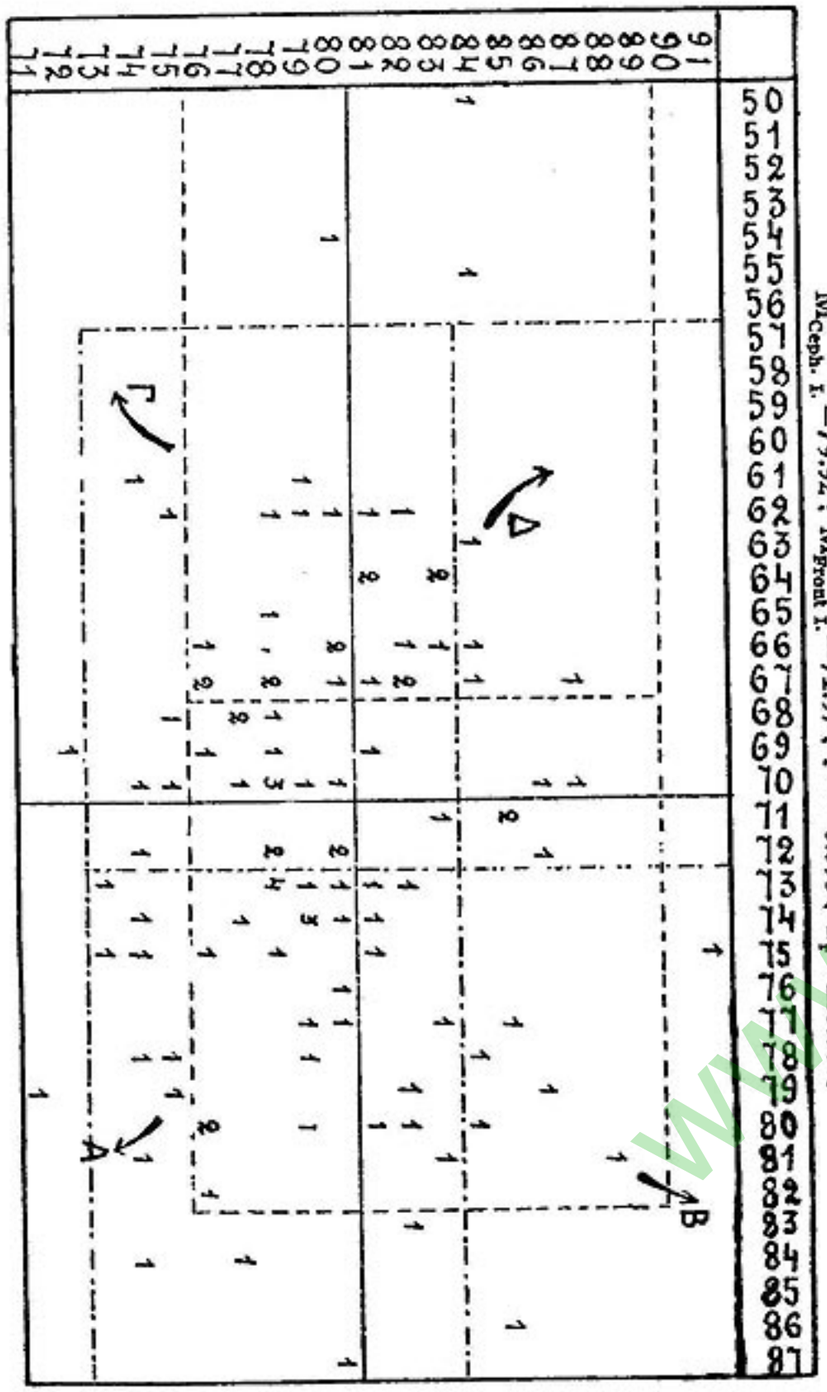
TABLE U

CHINESE OF CHIHLI

CEPHALIC INDEX AND FRONTAL INDEX

N=112 ; $\Sigma ee_1 = -251$; $\sigma_x = 3.742$; $\sigma_y = 6295$;

$M_{Ceph.\ I.} = 79.92$; $M_{Front.\ I.} = 71.97$; $r = -0.095$; $E_r = \pm 0.044$.



The results of this analysis can be shown in the Table below :

Groups of	Fundamental tyye	Incidental tope
Shantung	q and p	s and r
Chihli	q and s	p and r
Manchuria...	r and s	p and q

Thus all these types are fundamental for some Chinese group, but the type q is characteristically Chinese (of China Proper). At the same time the types r, s and p have limited distribution. Now I shall show the distribution of the above types among other ethnical groups.

(See Table W).

The positive coefficient of correlation relatively to the Chinese groups is high enough ($r=+0.188$; $E_r=+0.039$) to conclude that the Koreans are composed of two groups connected with the types p and s. Besides these groups the upper left square includes a large number of individuals connected with the type r. The lower right square includes also a great number of individual cases, which influenced, as well as the preceding group, the decrease of the positive coefficient. This square includes always a less numerous group than the upper right square, where the extreme variations of the type s occupy the whole square.

If the Chinese field of correlation be superimposed on the Korean field the Koreans will be divided into two main groups connected with the types s and r. The comparatively small number of individuals within the lower squares (of the Chinese field) includes, it seems to me, the extreme variations of the types s and r or a very limited number of individuals of very incidental groups connected with the types q and p. The last one is so insignificant that it can be considered as absent. Thus the Koreans have their characteristic group within the upper right square, including 56 % of the series, connected with the type s, and the types r and p as incidental.

(See Table X).

The insignificant coefficient of correlation ($r=+0.015$; $E_r=\pm0.055$) does not permit making any deduction, but the dispersion of the individuals is very clear if this field be superimposed on the Chinese field of correlation. In fact, the square characteristic for the Koreans—the type s—includes 26 % of the Manchus, but the main mass of them, namely 62%, lies within the upper right square connected with the type r. Thus the type r is characteristic for the Manchus and the type s is incidental Very few representatives of the type p can be noted in the Manchu field. It might be supposed with some probability that the type p generally influenced by the Manchus in the sense of the development of the cephalic index in reality must be more developed and located in the field within the lower left square of the Manchu field, but outside the Chinese lower left square.

TABLE W

KOREANS

Cephalic Index and Frontal Index

$N=140$; $\Sigma cc_1=+759$; $\sigma_x=4.154$; $\sigma_y=6.742$;

$M_{Ceph.\,I.}=83.69$; $M_{Front.\,I.}=72.87$; $r=+0.188$; $E_r=\pm0.039$.

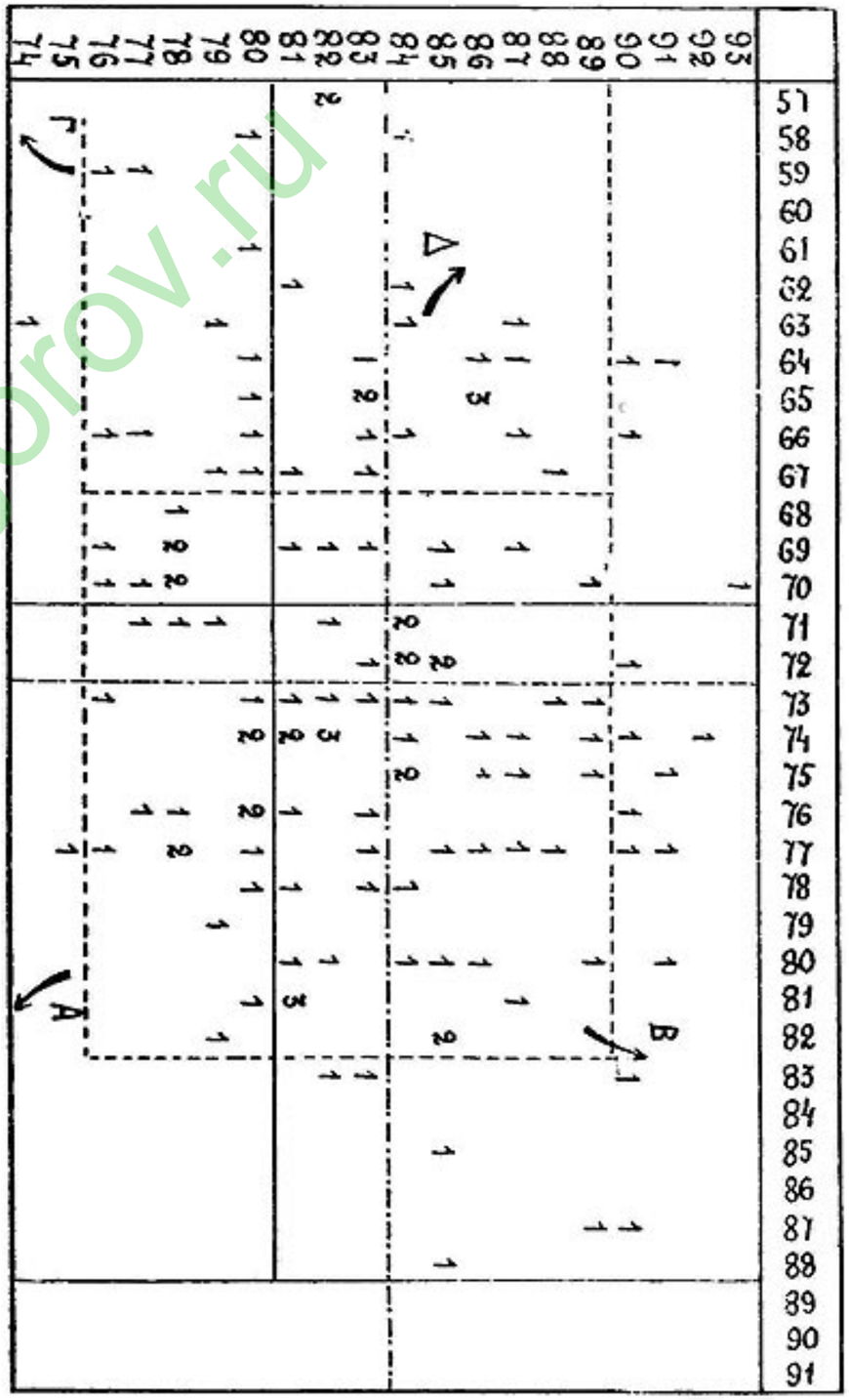


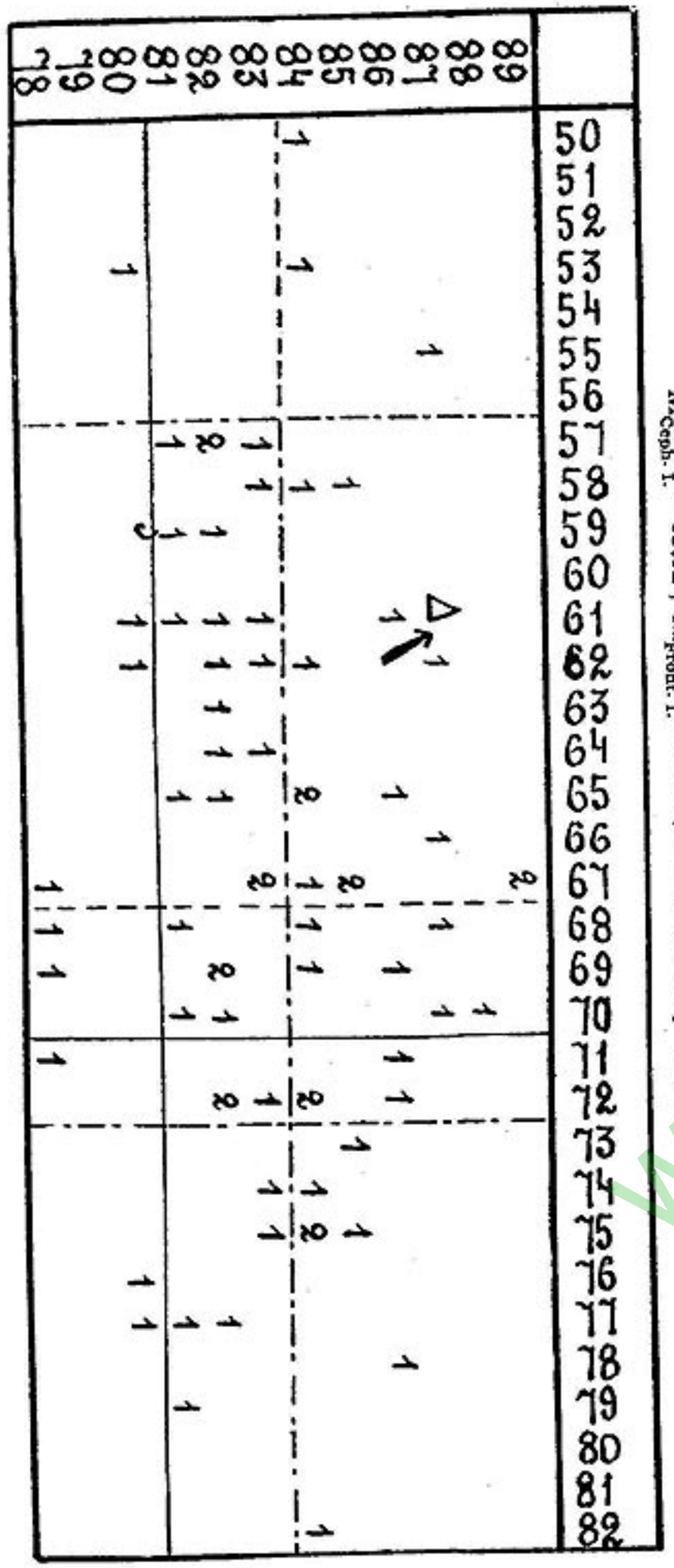
TABLE X

CEPHALIC INDEX AND FRONTAL INDEX

MANCHUS

$N=75$; $\Sigma ee_1=+20$; $\sigma_x=2.652$; $\sigma_y=6.536$;

$M_{Ceph.\,I.}=83.52$; $M_{Front.\,I.}=67.08$; $r=+0.015$; $E_r=\pm 0.055$



The results of the preceding analysis can be formulated as follows:

Groups of	Fundamental type	Incidental type
Shantung	q and p	s and r
Chihli	q and s	p and r
Manchuria..	r and s	p and q
Manchus	r	s and p
Koreans	s	r

The above distribution of the tyces does not differ significantly from the distribution observed in the preceding exposition. Thus the type q. characteristic for the Chinese, can be related to the type A, also the type s, connected with the Koreans, can be related to the type B, the type r to the type Δ, and the type p to the type Γ^1.

I shall not give the further analysis of the correlation of the frontal index with the cephalic index, nasal index and stature. I shall limit the exposition by showing the correlation of the frontal index with the stature for the Total Chinese series.

(See Table Y).

This correlation in the principal characters does not differ from other fields of correlation. The low coefficient of correlation ($r=+0.022$; $E_r=\pm 0.042$) and distribution of the individuals can be disclosed only by the method I used in the preceding exposition. For example, the correlation of the frontal index and stature of the Manchus (See Table Z) shows the component types very clearly. The coefficient ($r=-0.433$; $E_r=\pm 0.044$) and distribution of the individuals in the field shows doubtless two types, that one type with high frontal index and low stature, which is known as the type B and another one with low frontal index and relatively high stature, known as the type Δ.

The approximate characteristics of these types will be as follow:

Type	Frontal index
A	80
Δ	62
Γ	60
B	82

In fact the Mongols, as can be seen from Table XX have very narrow forehaed, the type common among the Tungus has also a very narrow forehead and the analysis of §15 shows that the Chinese can be characterized by very developed foremost part of the head, that correlates with the open forehead and corresponds exactly to the above exposed characteristics.

1. It is natural that all above analysed correlations show such low coefficients—the amalgamation of the types alike by their cephalic index and frontal index (q and p; r and s) confuse the distribution of the individuals in the field within the positive and negative squares.

TABLE Y

Frontal Index and Stature

N=392; $\Sigma cc_1 = +360$; $\sigma_x = 6.948$; $\sigma_y = 6.144$;

$M_{Front.\ I.} = 70.62$; $M_{Stat.} = 166.57$; $r = +0.022$; $E_r = \pm 0.042$.

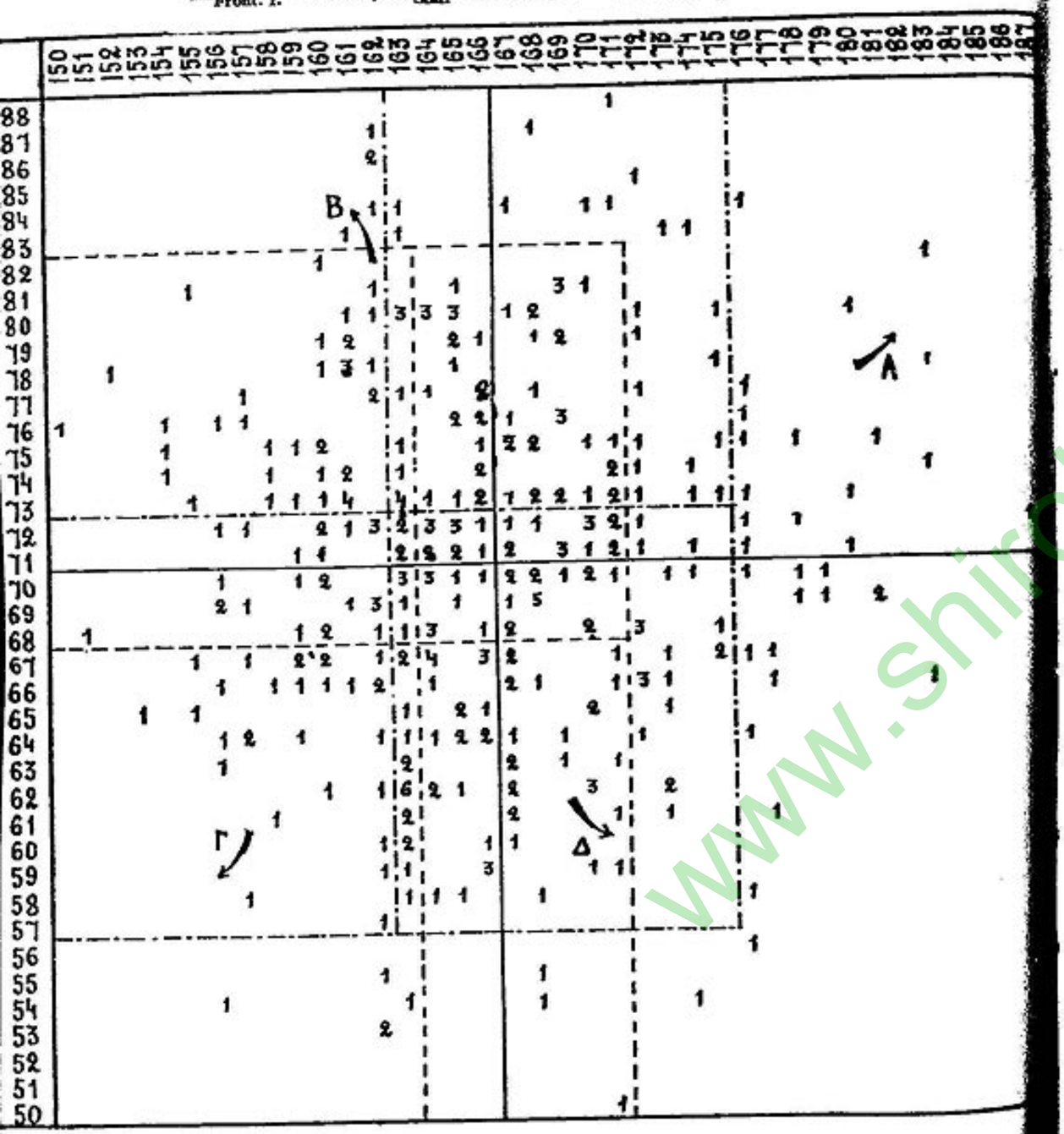


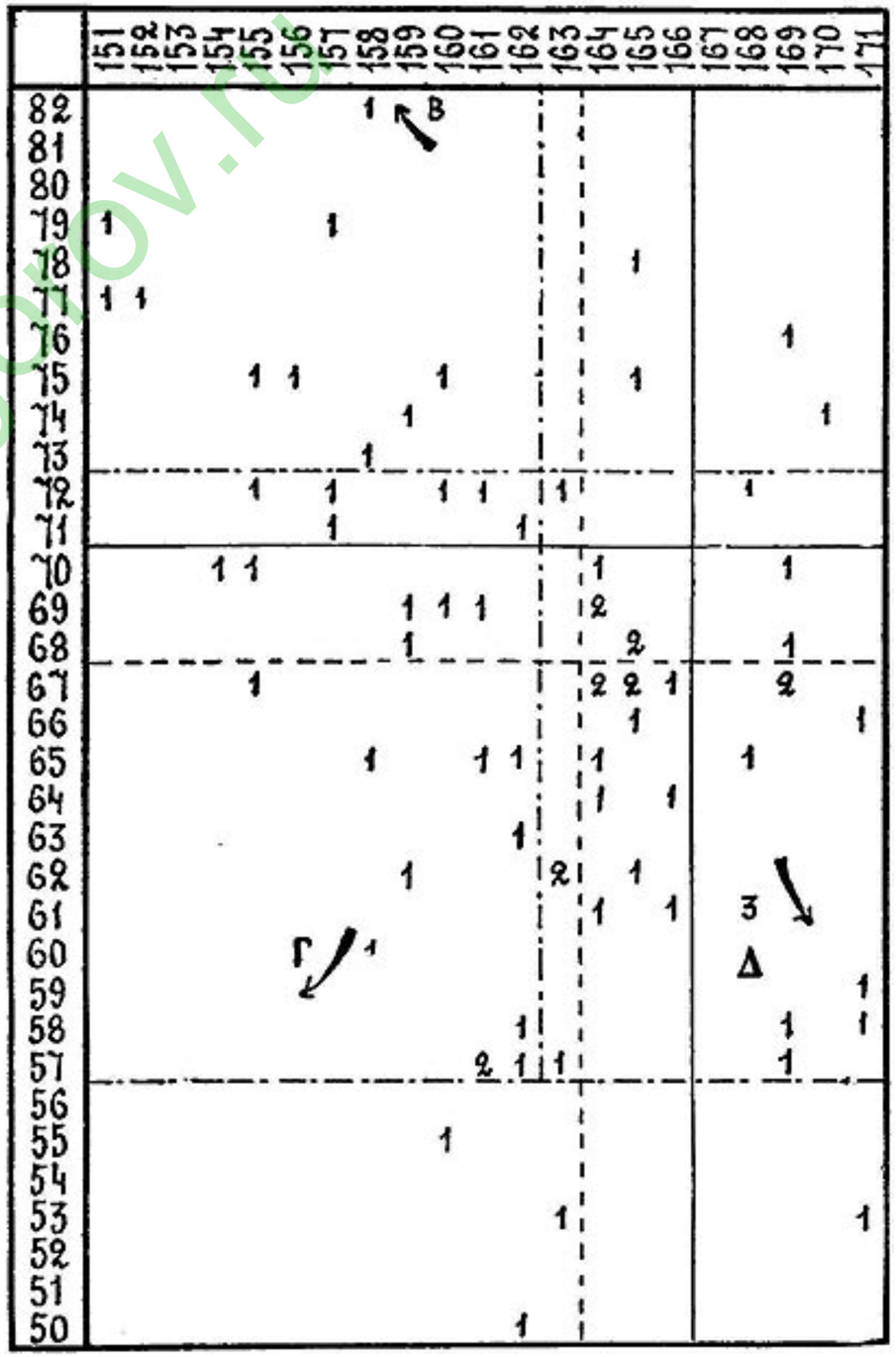
TABLE Z

MANCHUS

Frontal Index and Stature

N=77; $\Sigma cc_1 = -1111$; $\sigma_x = 6.536$; $\sigma_y = 5.104$;

$M_{Eront.\ I.} = 67.08$; $M_{Stat.} = 163.09$; $r = -0.433$; $E_r = \pm 0.044$.



§47. Other Indices and Measurements Correlated.

As regards other characteristics of these types I shall omit their description and analysis by the method of correlation, because they do not show very significant differences for the Chinese groups or correlate one with other anatomically. The significant differences show only the following measurements: Cephalic index (diff. MM—3.66), frontal index (diff. MM—2.19), nasal index (diff. MM—2.04) and the height of the head by the length (diff. MM—1.76). Other indices do not show the significant differences of MM (See Appendix, Table VIII). I have analysed by the method of correlation four characteristics including the stature and I shall show now a correlation of two measurements connected between them by an anatomical correlation. As an example of this kind I shall take the cephalic index and the height of the head referred to the breadth.

As was shown in §11 the height of the head correlates with the stature, i.e., the individuals of high stature have high heads and the individuals of low stature have low heads and the differences of MM do not show any "racial" correlation. On the other hand the maximum head breadth has shown very significant variations and the cephalic index was put as the basis of the differentiation of the types and groups. The index of the height of the head by the breadth and length, as was shown, correlates with the cephalic index. Therefore these evidences cannot furnish new characteristics for the types, as may be seen from the following Table A1.

(See Table A1).

The negative coefficient of correlation ($r=-0.461$; $E_r=\pm 0.019$), shows that the high cephalic index correlates with low index of the height and low cephalic index correlates with high index of the height. That is quite natural, because the cephalic index is the relation between the head-breadth and head-length and the index of the height is the relation between the height of the head and the head-breadth, that is a component of the first relation. At the same time the height of the head and the head length do not vary significantlly in inverse ratio to the stature. Therefore the differences of MM of the height of the head by length show very insignificant variations of MM. (diff. MM—1.76).

These facts must be taken into consideration before analysiug the correlation of these characters. It is clear that the high stature correlates to the high length and height of the head, because of the natural proportions of the body-dimensions in the case of the Chinese. Therefore the high stature must correlate the high index of the height of the head referred to the breadth and will not show the significant variations of the index of the height of the head referred to length.

Thus it might be supposed that the characteristics of the hypothetical types will correlate the stature and cephalic index. But the nasal and frontal indices, which are not in correlative dependency upon other measurements, can be used as the characteristics of the "racial" or, better, anthropological differentiation, but, as already analysed by the correlation they do not show any new evidence useful for the anthropological differentiation of the Chinese groups.

TABLE A_1

CEPHALIC INDEX AND INDEX OF THE HEIGHT OF THE HEAD BY HEAD BREADTH

(Figures in circle: Chinese of Manchuria)

$N=386$; $\Sigma ee_1=-4.036$; $\sigma_x=4.507$; $\sigma_y=5.033$;

$M_{Ceph.\ I.}=80.17$; $M_{J.H.B.}=89.92$; $r=-0.461$; $E_r=\pm 0.019$.

	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102
96						⓪																						
95						⓪																						
94										⓪																		
93																												
92																												
91											1																	
90	⓪					⓪			⓪		⓪																	
89				1							⓪					⓪												
88				⓪	⓪	⑩		⓪	1	⓪				1						1								
87	⓪			⓪	②				⓪	②	④	1			⓪					1	1							
86				⑩		⓪			1	⑩			1	⓪	⓪													
85					⑩	⓪	②			⑩	⓪	1	1	2	1		⓪	1	2									
84				1	⓪		⓪	⓪		⑩	⑳	1			1	1	⓪	1	1					1				
83	1			⑩	1			2		⑩	⑩	⓪	⓪	2		⑩		⑳			1							
82				1	⓪	1	⓪			⑩	⑫	4	3	㉘	⓪	1	⑩	1	1						1			
81				②		⓪		⑳	2	③⓪		②		1		⑩	⓪	⑳		⑩				1	3			
80	1				⓪	2	1	2	3	2	2		6	1		2	⓪		1									
79			1				3	3	2	3		2	⑫	4	2	1	6	1	3	1	2	⓪						
78							3	1	⑩	3		④⓪	1	2	④⓪	③⓪	2	2	2	2	2		1					
77				1			1		1	⑩	2	3	5		2	4	2	⑩	4		⑩							1
76										1	⑩	3	⑨	③⓪	1	4	1	3	3		3		1					
75										2	1	2	⓪	⑩	1	3	2		4			1						
74										1	1	1	⑳	3	2	5	2	1	1	2	1	1						
73													1	2		2	⓪		3		1		1					
72													1		1	1						1						
71															1			1			1	1	1					
70																			1		1							

The facial length correlating the interzygomatical breadth and the facial indices (physiognomical and anatomical) shows very insignificant variations of MM. These indices are connected with the anatomical correlation and not with the anthropological, because the interzygomatical breadth correlates also the breadth of the head, but not so strictly as other characteristics correlated with the stature.

The gonial index does not show the significant differences of MM and correlates almost absolutely the breadth of the face (intezyg. breadth).

Thus the indices and generally all relative measurements, maybe, would furnish some supplementary data to characterize the above described types, and their analysis by the method of correlation and superimposition of the fields might disclose some new characterisics[1], but for my study it is not necessary. I do not pretend to exhaust all the questions arising out my materials and I have no intention to give the complete characteristics of components of the Chinese anthropological complex. That will be done when the materials are completed. In the present study I intend only to outline the principal types that can be discovered in my materials. Therefore with the present chapter I finish the analytical part of my study and I shall revise the results of the application of different methods with a view to see how can they be made to agree with the ethnographical and historical evidence.

1. For example the height of the head among some ethnical groups can be used as a characteristic of the anthropological differentiation. Among the Tungus of Urulga two fundamental types differ each from other by the difference of the height of the head—the type of the high stature with high cephalic index has relatively low head and the type of the small stature with low cephalic index has relatively high head. The first type I have related to the Mongols. Among the Chinese this characteristic does not show the differences, but it might be that a minutiose analysis of these series from this standpoint would be not fruitless.

CHAPTER V

GENERAL DEDUCTIONS

§48. Comparison of the Results of the Analysis. §49. Types. §50. Geographical Distribution of the types and their Ethnical Equivalents. §51. Type Δ. §52. Type Γ. §53. Type B. §54. The Formation of the Northern Chinese. §55. Conditions of the Forming of the Types.

§48. Comparison of the Results of the Analysis.

In chapter IV, I have concluded that the Chinese of Manchuria show such distinctive characteristics that from some standpoints they are closer to the Manchus and Koreans than to the Chinese of China Proper. Also in chapter III, I have concluded that the difference between MM of this group and MM of the Koreans (in relative measurements) is less than those between the Chinese of Manchuria and Chinese of China Proper. Thus this group was influenced by their neighbours, as I shall illustrate in the following Table:

Groups	Ceph. index and Stature			Ceph. index and Nas. index			Stature and Nas. index			Front. index and Ceph. index		
	F.T.	I.T.	Tr.	F.T.	I.T.	Tr.	F.T.	I.T.	Tr.	F.T.	I.T.	Tr.
Chinese of Manchuria ...	A	CD	E	*bd*	*ae*	...	εγβ	α	δ	rs	(qp)	(qp)
Manchus	A	CD	...	*bd*	*c*	...	γβ	ε	...	r	sp	...
Koreans	AE	C	D	*de*	*b*	*ca*	εγ	β	δ	s	r	...

Note:

F.T. means—Fundamental type.
I.I. means—Incidental type.
Tr. means—Trace of the type.

At a glance it may be seen that the Chinese of Manchuria and the Manchus, also the Koreans, are very close according to their components. In all the cases they have the common fundamental types. The difference between the Koreans and the Chinese of Manchuria consists in the variation of the intensivity of the types. In one case, only namely the case of the Frontal index and Cephalic index the Chinese of Manchuria have two incidental types,—or perhaps the traces of them,—which are not observed among the Koreans. It seems to me that the Manchus are not so amalgamated as other groups under discussion, but they have always the same components as the other two groups. From some points of view they are closer to the Koreans, from other points of view they are closer to the Chinese of Manchuria. Therefore the coefficient of differences between the Chinese of Manchuria and Koreans (coef. $\Delta=4.780$) and on the other hand the coefficient of differences between the Manchus and Chinese of Manchuria (coef. $\Delta=5.249$) are lower than the coefficients of differences between the Koreans and

Manchus (coef. Δ=6.498). This phenomenon may be explained by the presence of the types characteristic of these groups and quite opposite to each other, as are the type B and the types Γ and Δ. At the same time some common types in this table only change their places—among the Manchus they are fundamental and among the Koreans incidental or contrary. From this Table it may be seen also that the influence of. the Manchurian enviroment over the Chinese immigrants or colonists is very effective and these Chinese have lost some anthropological characteristics.[1]

The differences of MM of the Chinese groups of China Proper are not so high, therefore the coefficient of differences also are very insignificant, but the real difference between these groups is more significant. These groups are composed generally of the different anthropological types with preponderance of some of them. The fact that these types by their characteristics are opposite and the groups besides include some common types confuse the real meaning of MM. The following Table can illustrate the above proposition:

Groups	Ceph. index and Stature			Ceph. index and Nas. index			Stature and Nas. index			Front. index and Ceph. index		
	F. T.	I. T.	Tr.	F. T.	I. T.	Tr.	F. T.	I. T.	Tr.	F. T.	I. T.	Tr.
Chinese of Shantung	AB	CD	...	*ab*	*cd*	...	βε	γδ	...	qp	rs	...
Chinese of Chihli ...	CD	B	...	*cd*	*ab*	...	γδ(βε)	(βε)	...	qs	pr	...

The degree of the amalgamation with their neighbours is, of course, different and depends not only on the intensity of the influence through the direct contact of these groups but probably also on the ancient amalgamation of the fundamental types now composing these groups. It seems to me that the group of Chihli from some points of view is closer to the Koreans than the group of Shantung. In the field of correlation this might be observed many times. The coefficients of differences seem to prove this proposition. In fact the coefficient of difference between the Chinese of Chihli and Koreans (coef. Δ=6.451; coef. of relative measurements Δ=4.724) is lower than that between the Chinese of Shantung and Koreans (coef. Δ=6.709; coef. of relative measurements Δ=6.121).

Thus the comparison of the results of the analysis by the methods of interserial differences and method of correlation and also the descriptive characteristics show the coincidence of deductions.

In my anthropological analysis I suppose that the individuals which compose a group of only one type show the variations of their characteristics. The coefficient of variation and the standard deviation show the degree of the dispersion and closeness of the main mass of the group with the average type, characterized by MM. If this is so, ithen the amalgamation of two and more types form a majority of the amalgamated individuals and a minority of the pure "race," which are usually located on the periphery

1. Facts of this kind are known already. The influence of the anthropological types characteristic of the local populations over the Jews was so effective that some groups of the Jews changed their anthropological feature. (The opinion of Mr. L. J. Sternberg).

of the fields of correlation. The characteristics of these types in ciphers may be, of course, defined with a very relative exactness.

§49. The Types.

The anthropological types and their characteristics which I have outlined in ciphers cannot be considered as final. I suppose that the extreme variations of some types cannot be observed in some series only because they were influenced by other types. For example the type E, numerous representatives of which may be observed among the Chinese of Chihli and Manchuria, is more distinguishable among the Koreans as a fundamental type, where, and not among other groups, it has its extreme variations. The same phenomena may be observed relatively to the types Δ and A. The extreme variations of them may be observed among the groups for which they are fundamental and among other groups they become more or less confused, but always distinguishable. Therefore the characteristics in cipher as they are formulated in §45 must be considered as very approximate ones.

The type A,—fundamental for the Chinese,—was characterized by a high stature—1750, low cephalic index—75, high nasal index—100, and high frontal index—80. The extreme variations of this type were noted many times, as distinctly represented. It might be that these characteristics are not exact for the original type and they must be changed, but, I think, the changing can be done only in the sense of the more accentuated differences with other types, as for example: the stature—1800, the cephalic index—70 and so on. Then the characteristics will be, perhaps, closer to the original characters of the type, the main mass of which probably could not resist the influence of the environment. This influence was, of course, in the sense of reducing the original characteristics.

The type Δ, that was observed among the Chinese and Manchus, but very seldom among the Koreans, was characterized by a stature about 1690, cephalic index—85, nasal index—75, and frontal index 62. This type is not very numerous among these groups and is not quite characteristic or fundamental for them, but it may be observed among the northern ethnical groups, namely among the Mongols and Mongolized Tungus of Urulga. It may be supposed that this type must be more accentueted among the groups for which it is characteristic. Unfortunately the published materials concerning the Mongols do not include tables with the individual measurements. Therefore my supposition on the components of this complex can be based only on MM and comparison with the results of analysis of other groups, as for example my series of Tungus. However, it might be supposed that the type Δ must have the cephalic index higher than it is in my above supposition. In fact, the Mongol group of Irkutsk Gov. has cephalic index higher (over 88), the type Δ among the Tungus have cephalic index about 88 and so on. The nasal index of this group may be lower than 75, though the components of this group have the nasal index higher than 75. The frontal index also may be lower than 62.

The type Γ, the incidental character of which among the Chinese and other ethnical groups was observed, has not its extreme variations among the populations of this area. It seems to me that this type can be observed more or less distinctly among the

Tungus of Barguzin, where it can be characterized by a very low stature (about 1550), low cephalic index (77), low nasal index (77) and low frontal index (65). These characteristics would be more accentuated were it not that other components of this complex vary in the contrary sense.

The type B seems to be represented more largely among the Koreans. Its characteristics must also be corrected. The stature must be lower than it was supposed. In fact the Gilyaks that doubtless include this type in their complex have M of stature lower than 1620. Among them the small stature correlates the high cephalic index and high (of course, relatively) stature correlates low cephalic index. Hence it may be supposed that the type B among the Gilyaks has the stature lower than it was supposed (below 1570). Indeed the result of the analysis of the Koreans and other fields was not quite clear in the definition of the approximate stature of this type, as may be seen from the Table on p. 64. Therefore the stature (1600) must be reduced by some centimeters.

As regards the cephalic index I think it must be about as high as it was supposed, but the nasal index shows some very peculiar characteristic features. The type has very large nose and the high nasal index correlates the concave-flat form of it, as can be seen better from the table below:

TABLE LXIV

THE KOREANS

The nasal index and the forms of the nose,

Nasal index \ Form of nose	Aquiline		Straight		Concave		Flat All forms		No data	Total
	N	%%	N	%%	N	%%	N	%%	N	N
110-125	...	...	2	20	8	80	8	80	2	10
100-109	2	7	18	62	9	31	8	28	...	29
90-99	6	18	20	51	7	21	8	24	2	33
80-89	20	44	18	40	7	16	...	...	1	45
64-79	8	47	8	47	1	6	2	12	...	17
64-125	36	27	66	42	32	23	26	..	...	134

This Table shows that the aquiline form is characteristic for the nasal index below 89. This form is characteristic for the type Δ. The type Γ commonly has the straight form of the nose and the type A—concave and straight forms. The type B can be characterized by the concave and flat form of the nose.

The colour of the eyes and hair scarcely varies among the types A, Δ and B and is commonly dark and black. But variations of coloration can be observed among the type Γ. Light eyes and brown, even light, hair are very common. In fact the Tungus and some other ethnical groups which include this type have so great a number of light-coloured individuals that they cannot be considered as the "dark-coloured race" of several authors. Red hair is very rare among all these types, but some red-haired individuals have been observed among the Mongols; those include the type Δ.

There might also be noted among the populations of the Northern region of this area some peculiar characteristics which were not observed among the Chinese and Koreans at all. The evidence from this region have shown that types Δ and Γ have very long arm and the type that influenced them both has relatively short arm. As has been shown, the types A and B have the arm of moderate length.

The gonial breadth in my study of the Tungus was a characteristic of typical distinction. There the type Δ was characterized by the high gonial index and the type Γ by relatively low index, which gives very definite distinction of the faces. I suppose that these characteristics were not discovered among the Chinese because the types Δ and Γ are not quite fundamental for the Chinese.

The Mongolian eye and the degree of the closeness of the eyes show some variations among the types. It might be noted that these characteristics decrease southward. In fact the Tungus of Barguzin have the closest eyes though the Mongolian eye is not a general characteristic for this group. The Mongols and Mongolized Tungus have very pronounced "mongolian" eye, but it is not so close as that of the Tungus. Among the Chinese the Mongolian eye is very common and correlates, it seems to me, with the low nasal index and high cephalic index and not with the high stature, low cephalic index and so on. The degree of development of these characteristics among the Koreans is lower than among the Mongols and Tungus, but higher than among the Chinese. Thus these characteristics may be related to the types Δ and Γ and partly to the type B.

§50. The Geographical Distribution of the Types and their Ethnical Equivalents.

As has been stated, the type A is especially characteristic of the Chinese, but some influence of it may be observed over the Koreans. The influence of this type over the Chinese of Manchuria is enfeebled by the presence of the type B and others. That is quite natural, because the Chinese of Manchuria during a long time were only a Chinese colony surrounded by a local population very distinct from the Chinese themselves. In fact the active colonization of Manchuria by the Chinese dates only from the XVIII century, though the Southern section of Manchuria and especially the lands around the Pechihli Gulf and Liaotung Peninsula were populated by the Chinese since the Han Dynasty. The Chinese movement eastward and northward was opposed by the local populations and this country was controlled from time to time by different leading ethnical groups.

At the moments of the growing influence of some of these groups they conquered their neighbours. During the change of dynasties and leading ethnical groups the Chinese advanced into the country but they were also pushed out when the leading groups were taking the power. During this long period the Chinese spread their influence many times over the Koreans and other ethnical groups of this area. Successful wars alternate with military defeat. In this way the influence of the Manchus and Koreans over the Chinese was always very effective and finally on this territory was formed an amalgamated population. Of course, this was not a military conquest, but generally the peaceful intrusion of the Chinese amongst the local tribes and of the non-Chinese groups among the Chinese.

Phenomena of this kind can be observed not only in this territory but also in Siberia. There, for example in Transbaikalia, the amalgamation of the Russian colonists with the local population is so stable that the early Russian population, namely the Cossacks of Transbaikal, now have features more "Asiatic" than "European." Besides, some Mongols and Tungus are now incorporated into the Cossack military organization and have appropriated the Russian tongue. Something like that might take place in Manchuria.

Thus the spreading of the type A might be now observed within the limits of China Proper, Manchuria, where it is of secondary importance, and Korea, where it is not more than incidental. Theoretically it might be supposed that it is spreading in Mongolia too.

§51. Type Δ.

The geographical distribution of the type Δ in this territory, as has been shown, is more intense in Mongolia and Manchuria than in China Proper and Korea. It is fundamental among the Mongols and Manchus and is more numerous on the west than on the east, whence it may be supposed that the present centre of this type must lie somewhere on the west. It may be too, it has no centre at all and is spread in the territory more or less uniformly with other anthropological types. I have supposed it to be connected with the Mongols. In fact this type is common not only among the Mongols proper, but also among the Buriats, Khirgiz, Kalmuks and Yakuts. It is very significant that this type is evidently common among the ethnical groups that are speaking the Mongol and Turkic tongues and among the Mongolized Tungus and Southern Tungus —the Manchus, Goldis and other groups of the basin of the Sungari and Amur Rivers.

The above exposed distribution of this type will be intelligible only if the connection of this type with the Turko-Mongols (that I shall abbreviate as Mongols) is admitted. The Mongol movement eastward, northward and southward left the traces of this type among the populations that do not speak now Mongol. In fact the Mongols become many times the rulers of Manchuria and it is even quite possible that they were the original organizers of the North-eastern states. The struggle of the Turko-Mongols and Chinese must probably be referred to prehistoric times, because during the first millenium B.C. the Chinese were already passively opposing the Turko-Mongol movement and constructed the Great Wall. This struggle must be, of course, preceded by some previous movement—the Turko-Mongols could not become the conquerors of civilized China, if they did not have any military experience and organized army before. Some historians describe the Turko-Mongols as absolutely "barbarous" tribes. This description is taken usually from Chinese sources and is not quite objective. In fact, if the Turko-Mongols were really so barbarous it would not have been necessary to build such a large defensive construction as the Great Wall and to organize an army to stop them. Therefore I think that they were not so "barbarous" and had all the necessary organization to resist the Chinese radiation, but their organization was different from the Chinese system and seemed to the Chinese chronologists "barbarous."

If the Chinese civilization in Asia is really more ancient than any other, it may be supposed that the Chinese first began their movement in all directions and pushed back

the Turko-Mongols and Tungus, but their spreading was opposed by the native populations. The transfer of the Chinese capital from west to east shows the general direction of their movement. They moved, of course, on the line of least resistance—at that time the Northern population became strong enough to oppose the Chinese movement northward. This opposition of the Turko-Mongols caused the Mongol movement into Manchuria, where they organized the resistance to the Chinese movement eastward. In fact, Chinese documents refer the Chinese invasion of Manchuria and Korea and growing influence over the local population to the first thousand years B.C., i.e., at the time when the Mongols became very aggressive in the northern and western sections. Then they were obliged to spread their influence eastward with a view to stop the Chinese movement eastward and during the last two thousand years the Mongols many times took control over Northern China and Korea. It is therefore quite natural that they left some traces on the local population and the type Δ spread over the territory of present China, Manchuria and partly Korea.

It might be very probably that the original tongue of the type Δ was not the Mongol. This type is common among the ethnical groups now speaking the Turkic dialects. Besides the Chinese written documents which do not furnish exact linguistical classification there is some historical and ethnographical evidence to support this proposition. The Uigurs in VI-VII centuries had their own alphabet, spoke a Turkic dialect and were organized in a state in the Northern part of Mongolia, which supposes, of course, a long historical development before they became able to organize a civilized state. The Yakuts, who speak a Turkic dialect, moved from their Motherland, somewhere about Lake Baikal, to the Siberian steppes in the North, after the Tungus occupied Siberia, which happened in a very remote time. The Kirgiz and the Yellow Uigurs of Koko-nor also speak Turkic dialects. These facts show that the Turkic dialects occupy now the periphery of the Mongol tongue but in the early time they were spoken by the population of the present Mongolian area.

Thus the alteration of the ethnical control in this part of Asia was so intense that the languages were many times changed, the different types amalgamated, and a series of well organized states arose and fell. Therefore it may be very probable that the leading ethnical groups sometimes spoke Turkic dialects, sometimes Mongol or Tungus dialects, but the type Δ survived these alternations.

The influence of this type over the Manchus is quite natural. The Manchus divide themselves into three groups, viz.—Mongol-Manchu, Ancient Manchus and Modern Manchus, so that thay recognize the Mongol origin of some clans, though these clans always speak Manchu. The Goldi of Sungari River, who are considered by the Manchus as Modern Manchus, or "the last incorporated," and speak a Manchu dialect, include the type Δ. They introduced this type among other Tungus groups, with which they maintain very close relations. The Dahurs of some uncertain origin, who speak now a Mongol dialect and were the rulers of Northern China under the name of Khitans or Cathayans[1] include also the type Δ and are connected very closely with the Manchus.

1. Among the Manchu clan names may be noted: Kitan, Tatar, Mongol and some others, which seem to show their close relationship with the tribes of these names.

§52. Type Γ.

The ethnical origin of this type is more confused. I have noted that the pure representatives of this type may be observed among all ethnical groups, except the Koreans, and it is fundamental for the Tungus of Barguzin, and other Tungus of Siberia. The Tungus from an anthropological standpoint are not homogeneous and represent an amalgamation of different types. For example, the Tungus of Urulga, as has been mentioned, are an amalgamation of the type Δ and the type relatively close to the type Δ. At the same time they show some traces of type Γ. The influence of this type is more significant among the Tungus of Barguzin, which also includes the amalgamated type so common among the Tungus of Urulga. The influence of the type Δ over the Tungus of Yakutsk Gov. is due probably to the Yakuts, who came to their present territory as an already amalgamated group, including the type Δ. Also, I have already shown that the Southern Tungus are amalgamated. As regards the Tungus of Northern Siberia they were influenced probably by their neighbours of palaeoasiatic origin. Notwithstanding these strong influences, the type Γ may be observed, as far as is known, among all Tungus groups.

If it is so, the spreading of this type may be explained by the distribution of the Tungus in this territory and the presence of this type among the Chinese can be explained on the supposition of the former contact of the Chinese type A with the type Γ. In fact the present ethnographical features of the Tungus and the historical deduction which may be formed give some proofs of the southern origin of the Tungus.

The sole possible region of habitation for the Tungus was Northern China, because the Turko-Mongols since early time occupied the Mongolian Plateau ; the basin of the Amur River was populated by the Palaeoasiatic tribes ; and Western China was occupied by the Chinese and other tribes, traces of which can be observed now in Western and Southern China.

At that time when the Chinese were in the west the Tungus were living in the territory of Eastern China, i.e., somewhere in the basin of the Yellow and Yangtse Rivers. Then the Chinese invasion into this region pushed back the Tungus and they went eastward and northward into Amurland, viz., the present Manchuria, also Transbaikalia, Amur Gov. and Maritime Gov. of Siberia. On the banks of the Amur River they met the ancient population composed of the palaeoasiatic tribes who lived there since prehistoric time. This population was comparatively dense and was probably divided into several groups, living by hunting in the forest region, and fishing on the banks of the Amur River. Also in the forest region they perhaps domesticated reindeer. The Tungus could not expel these well organized aborigenes and went through this region into Siberia. During this migration the Tungus appropriated some of the cultural characters of palaeoasiatic groups, but conserved their tongue, clothing, social organization and so on. (See Maps)

In fact the Tungus dialects of Siberia, Mongolia and Manchuria are very developed in the direction of the agglutination of several suffixes together, also the grammar of these dialects is very complicated. Meanwhile, the Southern dialects, as for example the Manchu, from this standpoint are more simplified. The appropriation of new vocabulary, and sometimes of grammatical forms and phonetics show their relatively later origin.

Though the Yakuts, Mongols and different palaeoasiatic tribes influenced, of course, the Tungus dialects, their tongue remains always intact. In comparison with the dialects of the Southern Tungus (the Manchu, the Goldi dialect and other) the Northern dialects are more pure, independent and developed, but they seem to lose or, may be, to stop the development of the peculiar Tungus characters of this linguistical group. However the Northern Tungus and Southern Tungus recognize the common origin of their dialects and oppose them to the Mongol, Chinese and different Palaeoasiatic dialects. From this it might be concluded that the first Tungus crowd passed through the Amurland and developed independentely their tongue within the northern regions. Meanwhile the later Tungus group stopped within the basin of the Sungari River and formed the Southern branch of Tungus dialects.

The southern type of clothing of the Tungus consist of a very open coat, like the European morning coat and sometimes even like European evening dress; very short trousers partly covering the lower part of body and descending 3-4 inches on the limbs; a small apron covering the breast and body; long garment to protect the knees and lower part of the limbs from the cold; and very comfortable shoes very practical for the forester. This clothing is not adapted to the rigorous climate of Siberia, where the palaeoasiatic tribes invented clothing of special fashion, adapted just for the local climatic conditions. Though the Tungus reformed as well as possible their clothing they always suffer from the frost and wind and perish in great numbers, but notwithstanding conserve its style jealously. Some of this clothing was appropriated by the Chinese and Manchus who combined the long trousers and the long coat of the Mongol and Chinese but conserved for special works and for general use the apron and other Tungus clothing.

The social organization of the paterline system clans was conserved by the Tungus, but the Manchus show many traces of the materline clan organization and have a peculiar social organization, which seems to be connected with the culture of the palaeoasiatc ethnical groups.

The movement of the Tungus northward and westward through Siberia could not be stopped by a very sparse palaeoasiatic population, which was partly assimilated and partly pushed out on the borders of their area by the Tungus.

The Tungus folk-lore relates, that thay had many struggles with this early population and migrated in two different directions. They spread over the whole area and afterwards they were expelled by the Yakuts, who occupied the Middle course of the Lena River. Because of this Yakut migration some Tungus clans went back i.e., eastward and southward, where they lost their reindeer and appropriated the Mongol culture. For example the Tungus clan Samagir moved from Lake Baikal eastward and left its traces along its way to the lower course of the Amur River. This clan populated also the basin of the Shilka River, and the middle course of the Amur River, where it was partly assimilated by the Mongols. Generally the Northern Tungus clans of Manchuria and Mongolia seem to be of a later origin, namely of the second Tungus migration. The migrations of the Tungus may be observed up to the present time. For instance some of the Tungus of the Bureya River basin migrated 10-12 years ago to Saghalien Island, other Tungus group migrated also northward from Transbaikalia. In these cases the immediate cause of migration was the growing Russian colonization or, maybe, the disease from which reindeer generally suffer within the basin of the Amur River.

The southern branch of Tungus stopped on the banks of the Sungari River which became their "motherland." The neighbouring paleasiatic tribes were partly pushed out, partly conquered by the immigrants. The Manchus call the Milky Way Sungar-bira, i.e., the Sungari River and believe that the Amur River has its sources in Manchuria—the Sungari River. All other memories are related only to this region. They assimilated, of course, some palaeoasiatic ethnographical characters as, for example, the primitive form of fishing, some clothing, underground houses, and, I suppose, some forms of the social organization and so on. The establishment of this Tungus group in Manchuria may be referred to the first and, maybe, second millenium B. C.

This sole supposition can explain the complete lack of knowledge of reindeer breeding among the Manchus. In fact the later migration of the Tungus with their reindeer southward, into Mongolia and Manchuria, resulted in the loss of this animal within this region. But, at the same time it must be considered that the Manchus never lived in northern regions where the climatic conditions are favourable for reindeer-breeding. Therefore I suppose that only the Tungus of the first migration appropriated from the palaeoasiatic tribes of the northern region the reindeer and sledge which are useless in south. Then the second Tungus crowd did not follow the first one and at that early time formed a peculiar ethnographical complex, which existed up to the latest time. Now it is in a state of decomposition under the pressure of the Chinese and partly Russian influence.

The Chinese chroncles do not distinguish the palaeoasiatic and Tungus group and suppose them to be of common origin—various kind of ta-tse.

At the time of the second Mongol movement eastward, the Mongols began to introduce into Manchuria a new anthropological type—the type Δ. Then the various Tungus and Palaeoasiatic tribes amalgamated with the Mongols. The Mongols from time to time established their control over these populations. The alternation of these ethnical groups left its testimony in the history of this region. The formations of organized powers, as Moho, Bohai, Liao Dynasty, Korea, Kin Dynasty, Yuan Dynasty, Manchu Dynasty and so on, opposed more or less successfully during about 2000 years the Chinese invasion into this region. Of course, this movement in view of the Chinese danger was not so smooth and the struggle between the various ethnical groups, as the Mongols, Tungus, and Palaeoasiatics, left many fortified places, trenches and walls stretching hundreds of miles in Manchuria and Mongolia. The remains of large cities and numerous small towns and village also the cemeteries show that in the past some regions of this area were very densely populated by ethnical groups of high civilization. The Chinese evidence on these populations is not so exact as some investigators think and is probably coloured by their quite

1. According to the Russian travellers in the XIXth century, the so called Maniagir, i.e. a Tungus group including the clan Maniagir and living now within the basin of the Kumara River—the left tributary of the Amur River—in the begining of the last century had the reindeer. They have now only poor recollection of it. At the present time a small group of Tungus—the last coming from Yakutsk Gov.—is losing little by little its reindeer on the Manchuria Plateau.

natural dislike of enemies not less dangerous and well organized than the Chinese themselves.[1]

By reason of the constant foreign influence the type Γ lost its preponderance among the Tungus. But at the same time it left some traces among the population of China. It may be supposed that these traces are due to the original population of this part of China that were amalgamated by the Chinese. As has been shown, this type is relatively numerous among the Chinese of Shantung. That is quite comprehensible, because they were the first invaders of the present Chihli and Shantung Provinces and they assimilated the native populations of the newly acquired territory.

The Manchus, Tungus by origin, were amalgamated with the palaeoasiatic tribes and afterward superimposed by the Mongols. Therefore this group, conserving up to the latest time its ancient tongue and some ethnographical characters of Tungus origin, could not resist the anthropological influence and little by little lost its original physical feature of the type Γ.

It seems to me that the secondary movement of the northern and eastern ethnical groups into China did not left profound traces on the Chinese population, but the Chinese colonists of Manchuria were influenced by the anthropological environment because they usually came without Chinese women and families. Thus two influences of the type Γ over the Chinese of Manchuria may be considered i.e. one of ancient origin and another one of the present time.

Taking into consideration the very frequent alternation of the ethnical influences, which is so characteristic of the history of this part of Asia, and the preponderance of the Chinese and on the other hand of the Mongols after the Tungus had withdrawn eastward and northward, the insignificant influence of the type Γ can be considered as quite natural.

I submit the above exposed theory of origin of this type only conditionally until a new admissible hypothesis may be elaborated.

§53. The Type B.

As has been presumed, the type B is characteristic for the Koreans. Besides the Koreans, this type has been observed among the Gilyaks and some influence of it has been noted also among the Chinese and Manchus. It was supposed, that it belongs to the original population of Manchuria, Korea and the whole basin of the Amur River.

The Amur River as a great road of this region was always populated by the leading ethnical groups. At the early time it was populated by the palaeoasiatic tribes; during the Mongol control over this region the Mongols left their traces; at the time of first Tungus Dynasty (Kin) the Tungus occupied probably this valley; finally the Manchu colonies were established on the banks of the Amur River and are living there

1. I think that the real value of these group is not yet cleared by the investigations, the major part of which was based on the Chinese document. What results of historical investigations of European nations during, for example, the Middle Age would there be, if the historians used only documents, left to us by one sole nation?

up to the present time. The alternation of the leading ethnical groups and endless wars between them left several archaeological traces. In fact, all the valley of the Amur River, especially, as far as it is known, in the Middle basin of this River, is covered with the remains of forts, walls, cities and so on. On the skeletons excavated from the cemeteries can be seen traces of arrows and various cutting side-arms. After that it is natural that the original population of this region was finally assimilated and amalgamated by other invaders. Only in Korea this type is largely represented and evidently is a fundamental type. This phenomenon may be explained by the peculiar geographical position of Korea, which is isolated from the rest of this region. First, she is surrounded by the sea, secondly she is by the side of the great highway of migration and separated from it by a mountain chain and forest line. So that relatively parsive resistance was sufficient to stop the enemy's attempt. Notwithstanding this isolated state the Koreans themselves from time to time spread their influence outside their territory and were also subjugated by other ethnical groups. Therefore the Koreans, as well as all relinquished biolog cal units show quite peculiar characters.

Other palaeoasiatic groups were dispersed on the territory of Siberia and parts of China, so that very insignificant groups of them are now living on the borders of their former area. The Gilyaks, Chukchee, Yukaghirs and the little tribes on the banks of the Enissy River are the last remains of this brilliant past.

Thus the boundary of the type B is very spacious, but the distribution of this type within it is very sparse. In the past it was probably the sole type within Manchuria and, may be, also within the present Shantung and Chihli provinces. That must be so because the ancient inhabitants of Korea living near the sea must be good navigators. In fact the Koreans some hundreds of years ago were very able navigators and lost this knowledge only because of the political conditions of Korea, as did for example, the Manchus, who were also very courageous seamen.

Besides, the contact between the Koreans and Chinese and the alternation of the Korean and Chinese control over Korea must leave some anthropological traces on the Chinese. As well as the type Γ, the type B among the Chinese can be of ancient orgin and modern origin.

Thus, the type B seems to be the most ancient type located now within limited regions. Lack of osteological evidence from the southern region of the former area of this type does not permit me to be more positive and to trace the approximate boundary of the former distribution of this type.[1]

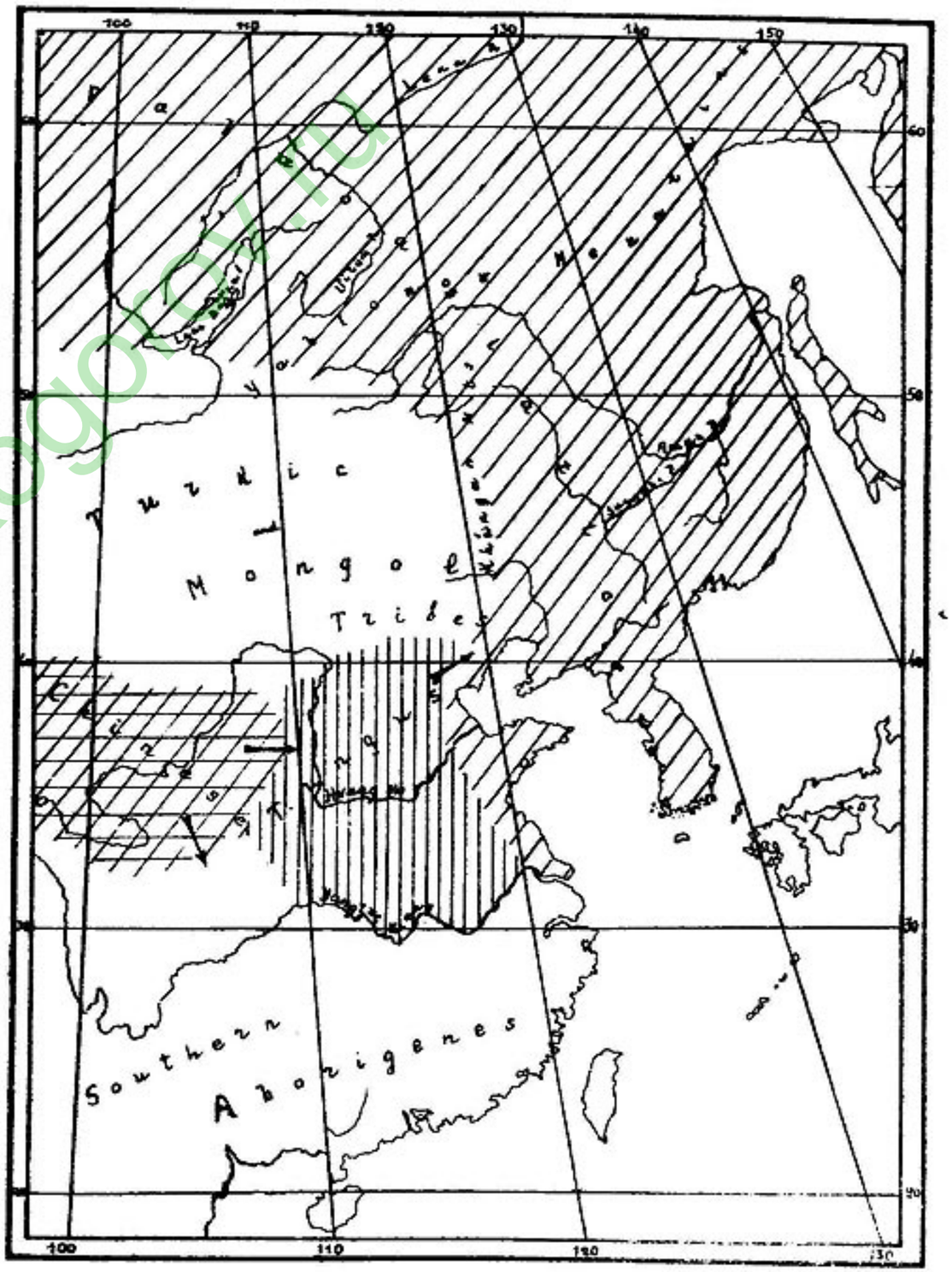
§54. The Formation of the Northern Chinese.

From the preceding exposition it might be deduced that the Chinese of Shantung, Chihli and Manchuria are an amalgamation, which consists of the various types more or

1. Here I must note that my definitons of the "early" and "ancient" time are, of course, very relative definitions. Might be that further investigations, especially archaeological excavations, will urnish new evidence concerning the palaeolithic man of this area. All the populations under discussion in the present study are known as relatively, to the human existence, modern. The culture of the hypothetical population of the Amur River basin belongs to the later neolithic period. It may also be that the type B of the present study had more limited distribution and was connected with the population of the Far-Eastern coasts only.

FIRST ETHNICAL MOVEMENT

(About Fourth Millenium B. C.)



less influencing the fundamental Chinese type A. Now I shall try the whole process of the formation of this Chinese population considering the above exposed ethnical relations.

The original place of the Chinese up to the present time is not yet known. Different theories unsuccessfuly tried to resolve this problem by supposing the non-asiatic origin of the Chinese or by supposing an organic development and differentiation of various "tribes," "races" and "clans" in the present territory of China. Of course, because of the lack of archaeological and anthropological evidence all these theories are more or less admissible "working hypotheses." However we must consider as a fact the Chinese radiation eastward, northward and southward, that was marked by historical data. Hence it might be concluded that the Chinese original place, "the Chinese motherland," must lie somewhere west of the present Central China. Then, taking into consideration the former relations of the Chinese with the populations of Western Asia, and also that the population of Turkestan at that time was speaking Indo-Iranian dialects, it may be supposed that the Chinese were in very close contact with other centres of civilization of that time and that these relations were broken off only by the invasion of Turkestan and generally territoies lying on the west of the China by Turko-Mongolic ethnical groups. Besides the direct relations between the Chinese and western centres, indirect ones were possible through the Altai metallurgic centre, whence two great ways led to western Asia and China.

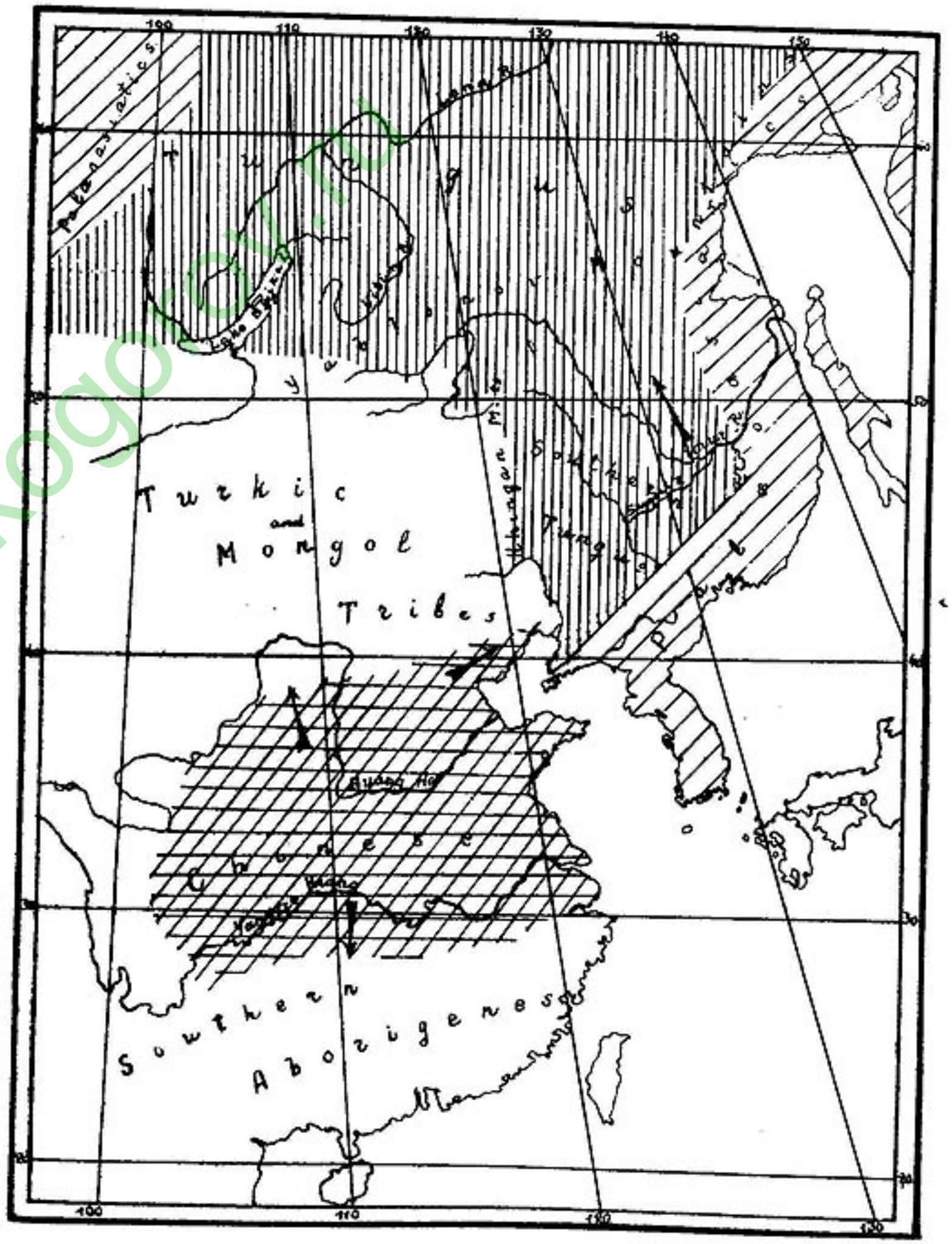
Also it may be agreed that the Chinese appeared as an active ethnical unit in Asia at the time of Stone Age and they were more advanced from a cultural standpoint, because, according to the historical data, they were living since the earliest time by hunting, fishing, and agriculture. The development of this culture was followed by the natural increase of population and drove the Chinese in the search of new territiries outside their former area lying somewhere on the west of the present Central China. In this movement, I have supposed, they were opposed by the Mongol and Turkic ethnical groups. Then they went eastward assimilating and amalgamating the local populations. These were the Tungus, who partly accepted the conquerors and remained in the territory, partly pushed back the palaeoasiatic tribes and passed throughout Manchuria to reach the semi-empty northern regions of Siberia.

Thus the Chinese successfully amalgamated the type Γ and reached the Shantung Peninsula and Pechihli Gulf, where they met a new anthropological type,—type B. This insignificant population could not resist the vigorous invasion and was compelled to leave the territiry or to submit themselves to the invaders. They were very soon assimilated and amalgamated by the Chinese. Some groups of these palaeoasiatics went into Korea and, may be, partly into Manchuria. Some traces of this process of amalgamation can be seen on the present Chinese population of this region.

Thus at that time the Chinese included two new anthropological types, i. e. the types Γ and B. At the same time they appropriated some cultural elements characteristic of the amalgamated populations of this region. Then they began to develop their new acquisitions, as new territory, new population and new knowledge, and formed China, as she has been known since ancient historic time. The development of this new formation compelled the Chinese to move more eastward, into Manchuria. There the Tungus, Palaeoasiatics and, as I supposed, Mongols opposed the Chinese migration. In

SECOND ETHNICAL MOVEMENT.

(About Second Millenium B. C.)



a comparatively late period the Chinese spread their colonization southward along the tributaries of the great Chinese rivers and reached there the independent ethnical groups of unknown origin. It might be that some of the native groups of China were pushed by Chinese migration southward and, if further investigations discover the influence of the type I', this will support my above suppositions.

The successive amalgamation of these populations formed the Southern Chinese, who created a peculiar ethnographical complex beyond the growing influence of the northern ethnical groups. It might be also supposed that this Chinese migration met some the more intense population and the Chinese in the processes of amalgamation with the aboriginals lost some anthropological characteristics.

Afterwards the Chinese of Northern China and Manchuria were influenced by the type Δ when the Mongol invasion into China could not be stopped by the Chinese. Also, by a direct contact the type B influenced the Chinese population of Manchuria, where the Koreans and Chinese are mixed within the Mukden region, near the present political boundary of Korea

Thus the Chinese of China Proper are composed of different types among which the type A is more numerous and may be supposed to be the original Chinese type migrated from West.

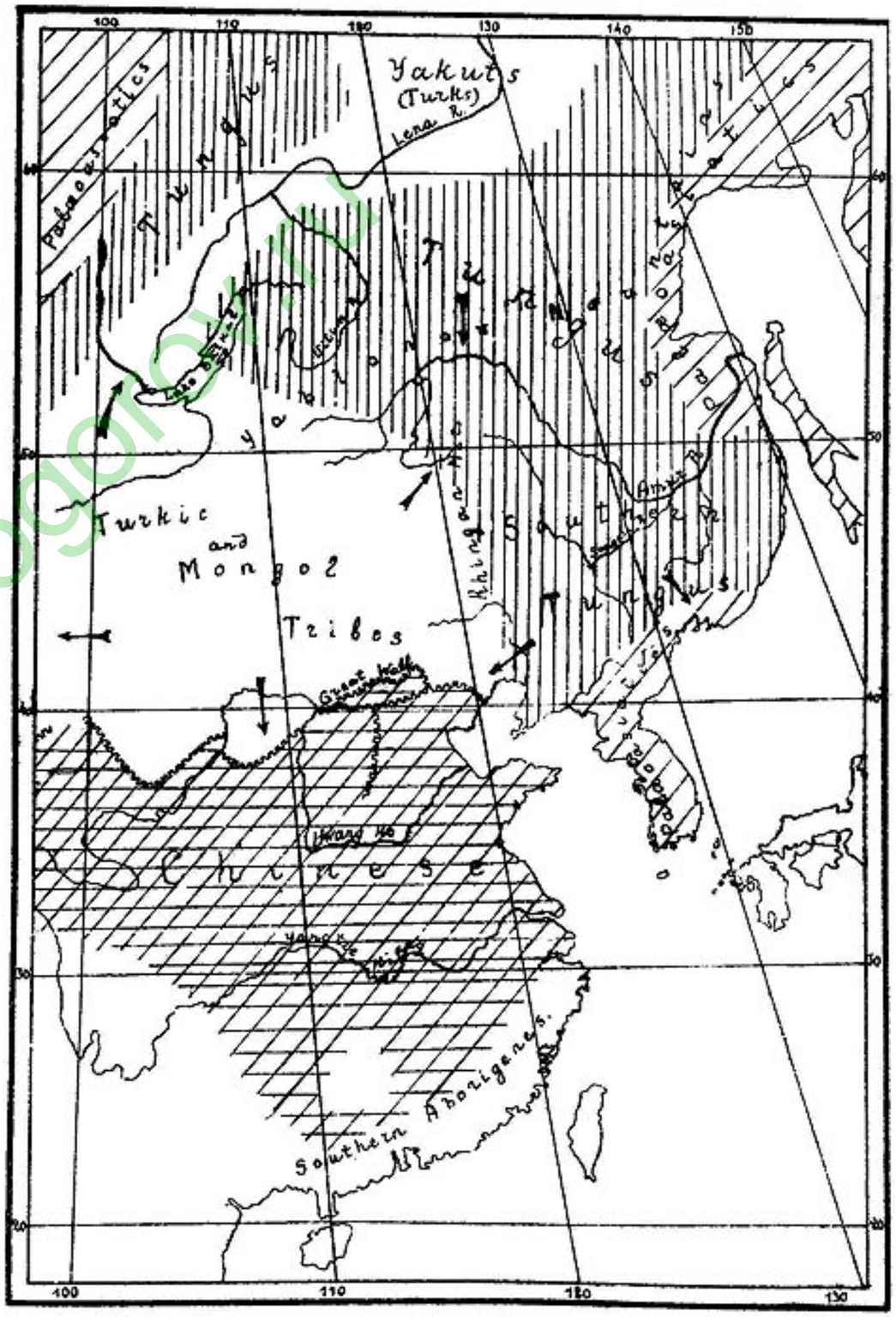
§55. Some Notes on the Generalizations.

The conclusion resulting from the analysis of the anthropological characteristics of the Chinese seems to be contradictory to the opinion on the unity of the Chinese from an anthropological standpoint. My investigation shows that the "Chinese type" does not exist at all; meanwhile the Chinese exist and their general physical feature is known as well as that of European ethnical groups. This impression,—very superficial it may be added,—of the homogeneity of the Chinese is based on the elements independent of the physical, somatologic characters. But this is not the sole example of this kind. Other ethnical, or, better, national, groups, as for example the Russians, show doubtless very mixed characteristics of their physical features and are an anthropological complex, but they are however homoeneous ethnical groups from an ethnological standpoint.

The common feature of an ethnical groups is based on elements whose variations are very easy, viz. the expression of the face, the form of lips, the expression of the eyes and so on. All these characteristics do not depend on the osteologic basis, but on the peculiar exercise of muscles. It has been observed that the British as well as other Europeans in America are subjected to the change of their features and become similar to the environment. Also the peculiar use of the muscles regulating the phonetic of the spoken tongue changes considerably the expre sion of the lower part of the face. The ethnographical conditions, as for example social culture and technical culture, always change the expression of the eyes. More than that, the geographical enviroment—humidity, insolation, elevation above the sea level and so on—probably changes the skin colour and expression of the face, because of its influence on the physiological and psychological functions.

All these factors changing the external feature do not depend on the osteological variations, but on the psychological and physiological variations, which cannot be measured

THIRD ETHNICAL MOVEMENT.
(About I-IV Centuries A. D.)



with the anthropometric instruments. All these factors compose the complexes of culture and ethnographical environment, which influence the formation of ethnical groups.

Up to the present time we have no reliable evidence which can refute or prove some theory on the origin and development of the "races", "types" and other untis, but we have many direct and indirect observations on the formation of the new ethnical units possessing their peculiar features and forming their ethnical milieu.

The study of the anthropology of Northern China shows that the same anthropological (somatological) types can be observed among very different ethnical groups, viz. the Chinese, Koreans, Turcs, Mongols and Tungus. These ethnical groups form so peculiar and distinct anthropological complexes that they cannot be united by any but a purely geographical generalization. Meanwhile the first impression of some early travellers led them to generalize all theseg roups in a "Mongol Race". The following period of observations resulted in the theory of the western origin of the Chinese who appeared more distinct from the rest of the unknown ethnical groups. The same results followed the anthropological investigation of other so-called Mongolian and Mongoloid tribes of Siberia, so that the theory of the united yellow race was little by little rejected and continues its existence only in the works of the authors who do not know the results of the later anthropologial investigations made by the Russian anthropologists. Meanwile the anthropological study of these groups shows another kind of phenomena and seems to prove the original differentiation of the anthropological types, but in another way of application. I shall have in my further studies the opportunity to expose these evidences and conclusions.

In the preceding exposition I have mentioned the influeuce of the physiological phenomena on the formation of the new ethnical units. The theory of the peculiar part played by the glands on the formation of human physical characters exposed, for example by Prof. Keith[1], explains many facts concerning the formation of new ethnical units. But Prof. Keith postulates "Mongols" and includes in this term all ethnical groups of this part of Asia. He is quite right, but his "Mongols" can be homogenous only from a superficial standpoint,—i.e. in so far as they differ from the "White" and "Black" man, while the anatomical, even osteological, distinctions of his "Mongols" are perhaps more significant than those of his racial types. The apparent homogeneity of the Mongols, it seems to me, was the product of ethnographical observations from the European standpoint. The theory of Prof. Keith is quite admissible, but it does not explain the origin of the racial type and their variations,—it shows only the way in which the formation of the new types operates. The question how and why the racial types are formed is open. The hypothesis of the climatical and geographical influence over the gland-functions does not answer at all the question because the observations that we have do not permit us to draw necessary deductions. It is absolutely agreed that some glands and especially the brain take their important part in the formation of the *ethnical types*, which permit us to recognize at a glance a Mongol, a Chinese, a Japanese, an American and so on. The functions of these glands are not seen, only

1. The Differentiation of Mankind into Racial Types. In "Annual Reports of the Board of Regents of the Smithsonian Institution" for the year 1919. Washington. 1922. p. 433. ff.

their effects, i.e. the culture and psychology of various ethnical groups can furnish this evidence in a vast quantity. Thus the formation of the new units of mankind depends on a function of their psychical and mental abilities and not on the anatomical variations, or in other words the variations of the human units now belongs to the field of physiological and psychological phenomena.

I shall illustrate the present preposition by the following examples. The type Δ may be observed only among all above described ethnical groups, but the Mongol ethnical complex may be observed among the Mongols and partly Manchus. The German ethnical complex may be observed among very few ethnical groups in Europe, but the "German racial characteristics" may be distinguished among Northern Frenchmen, Italians (of Northern Italy), also in Russia and Northern States. The populations of the United States of America are an agglomeration of all ethnical groups of Europe, but the American citizen may be recognised at a glance, as the representative of this new ethnical complex. Finally, the population of Northern Russia is the result of the amalgamation of the Slavs of Central Europe and some ethnical groups of unknown origin speaking various Finnish and Turkic dialects, that forms now an anthropological complex, very complicated from an anthropological standpoint, but the representatives of thisl amalgamation can be recognized as well as some "pure race". Other examples can be found easily, if it should be necessary.

Of course, this proposition is no more than a "working hypothesis", which helped me in my present study on the anthropological (anatomical) differentiations discovered among the Chinese. Now a question arises: what importance has this study?

The results of the present study show anthropological components which now form the Chinese. Thus the importance of this study consists in the furnishing of historical evidences,—namely of which racial elements the Chinese are composed. Therefore from an ethnological standpoint I admit for the anthropology the place of an historical method.

I think that it might not now be answered how and why the anthropologica types exist in a state of amalgamation, but the foregoing analysis has shown that they do exist and always influence the formation of the new ethnical groups. Also it might not be now answered if the anthropological types absorb each other or not, but the successive displacing of one anthropological type by another is known[1] and perhaps may be observed among the Manchus and Chinese of Manchuria. In fact, from the point of view of physical features the Manchus of the present study are not quite the same Manchus as they were before the Mongol invasion into Manchuria and the Chinese of Manchuria are not now the same Chinese as they were when they migrated into Manchuria from China. There are many questions, of first importance, the answers to which can be furnished only by anthropological investigations.

1. The Ossets of Caucasus changed their physical feature under the influence of the neighbouring ethnical groups speaking Turkic dialect and supposed to be of later Asiatic origin.

CHAPTER VI

CONCLUSIONS.

In the present last chapter I shall formulate the general deductions I have already drawn and some generalizations and suppositions, which can be deduced of the preceding exposition.

§56. The Anthropological Distinctions of the Chinese.

I. The absolute measurements of the Chinese correlate each other. The stature and the head-breadth are the fundamental characters that determine other absolute measurements, except nasal, frontal and auricular characteristics. Some of these charateristics cannot be useful from the point of view of the differentiation of the groups and types because of the insignificant variations.

II. The stature, head-breadth, height of the forehead, also the breadth and length of the nose are fundamental measurements, that form the basis of the anthropological differentiations. Other measurements can be used also as the characteristics of the differentiated groups, because they correlate the stature and head-breadth.

III. The relative measurements follow the same regularity as the absolute measurements. The indices related to the stature do not show significant differences, but the indices related to the head-breadth, frontal and nasal measurements, also the interzygomatic breadth, show very accentuated differences.

IV. The differences of the Chinese groups are based on the peculiar characters of the anthropological types that compose these groups. The types are not abstract ones, but quite concrete. Also the extreme variations and hypothetic types, which I have supposed to influence the amalgamated series, are concrete too, but the number of individuals which represent these types are generally in an insignificant minority.

Note on Section IV.

All these deductions are based on the supposition that the amalgamation of two and more types creates a great number of individuals who can be characterized by the intermediary characters.

V. The differentiation of the types is based on the stature, cephalic index, nasal index and frontal index. Therefore I admit that *the differentiation of the Chinese cannot be based on a preliminary limited number of measurements and indices.* For example the type Δ and type B are differentiated by the characteristic nasal index and frontal index while the stature and cephalic index of these types are so close that these types cannot be surely distinguished in the fields of correlation (See TablesA and F). The types A and Γ have about the same cephalic index, but very different stature, the variations

of which sometimes might be considered as "normal dispersion" if the difference of the nasal index and frontal index were not so significant and characteristic for these types. Thus, generally, *a choice of the characteristics to differentiate groups and types must be made unless the analysis of the materials is complete.*

§57 The Method of Interserial Differences and Method of Correlation.

I. The method of interserial differences can be applied to the different (territorial) series of ethnical groups, if these series show the difference of MM. The best results can be drawn if there are neighbouring series. This method can be considered as an analytical method, but the results of application must be always verified by other analytical methods, because this method is based on MM, which sometimes confuse the real anthropological components of the ethnical groups under discussion.

II. The method of correlation must be always applied. If the coefficient has no numerical value or very insignificant one the analysis of the series can be done by superimposing of the fields of correlation of the same characters, but belonging to different groups or series. The insignificant coefficients resulting from the calculation of the amalgamated series composed of many anthropological types have no importance as such, but such coefficients cannot be considered as absolutely meaningless, if other series taken in comparison show significant coefficients or opposite signs. Thus this method may be applied *comparatively* to the analysis of the territorial and ethnical series. For instance the differentiation of the cephalic index and similarity of the stature of two types will show no correlation, but this result can be controlled by the correlation of the stature and cephalic index with other measurements and indices separately. Then, perhaps, there will be discovered some more complicated amalgamations in which may be distinguished two types of the same stature and different cephalic index, and, on the other hand, two types of different stature and similar cephalic index. At the same time all these types may be distinguishable by other characteristics, as for example nasal and frontal indices or colour of the skin and hair, and so on, which characterize four different types.

Note on Section II.

It might be that in the Anthropology the application of this method cannot give at all the high numerical meaning of coefficients, except the cases of the anatomical (constructive) correlation or very simple amalgamations of the types, as for example, one type of very high stature with very high cephalic index and other type of very low stature and very low cephalic index.

III. The calculation of the coefficients of correlation and especially the putting of the individuals in the field of correlation must be done for several pairs of measurements and indices, because the anthropological types in the state of amalgamation can sometimes produce very insignificant differentiation of some characters and very significant differentiation of other ones.

§58. The Ethnographical a d Anthropological Evidences Combined.

I. From an anthropological point of view the Chinese are a complex of different anthropological types, which may be distinguished in an amalgamated state among the

Chinese, These types are more or less distinguishable among other ethnical groups. The present distribution of these types in the territory furnishes some data for establishing the ethnical movements in the past.

II. The Chinese lived within the limits of West-Central China, whence they moved eastward, northward and southward. The Chinese movement eastward resulted in the amalgamation of the Chinese with the native ethnical groups of this region, i.e. Tungus and Palaeoasiatic groups. The influence of the Chinese type may be observed among the present population of Manchuria and partly Korea. The interaction of the Chinese and other ethnical groups resulted in the continuous amalgamation of the fundamental Tungus and Palaeoasiatic types.

III. The interaction of the Chinese and Mongols resulted in the Mongol movement eastward, northward and westward. Thus the Chinese movement had exclusively important influence on the history of Europe,—the Huns provoked the Great Migration in Europe and removed the German and other ethnical groups who lived at that time in Europe. Also indirectly this movement influenced the failure of the Roman Empire. The Mongol pressure on the east caused probably the Tungus migrations and the formation of the new states. The decline of the Mongol Empire resulted in the formation of two great powers—Russia on the west and Manchu on the east.

This movement interrupted the peaceful trade between Ancient China and the Mediterranean cultural circle.

IV. The Chinese movement eastward and northward was stopped only by the Russian migration. In Manchuria the Chinese movement always grows and forms now the majority of population.

§59. Ethnological Deductions.

I. The anthropological differentiation from the ethnological standpoint cannot explain the real importance of the Chinese among other ethnical groups of Asia. Though the Chinese are not at all homogeneous, they form a peculiar ethnical unit, which acts as such among other ethnical groups. The ethnical unity of the Chinese is based on the cultural complex that produces the peculiar position of the Chinese among other ethnical groups, but it cannot be discovered by the anthropological methods.

II. The anthropological differentiation in the cases of the complexes, as the Chinese are, cannot help in the discovery of the real causes of the interethnical position of some ethnical groups, but the anthropological analysis can be used only as an historical method. It seems to me that at the present time the ethnical differentiation is operated on the basis of the psychological characters, whose external manifestations can be observed in the cultural complexes.

III. The language is not a stable characteristic for ethnical units. As is shown by the example of the Manchu, Mongol and Tungus the languages alter very easily. The ethnical environment is one of the most important factors of the variations, but the variation can occur only in such a case, when the alteration of the language is necessary for selfdefence of the ethnical unit.

APPENDIX

MM, Max., Min. and LL of the Chinese Groups, Manchus, Koreans and Dahurs.

(Nos. excluded—i.e. Nos. of lists of individual measurements) are excluded, as shown in §7, Note on the Table IV.

Tables.....I—XIV

TABLE I.
CHINESE OF SHANTUNG.
Absolute Measurements.

Measurements	N	Max.	Min.	M	Nos. excluded.
Stature	185	1838	1507	1665.5	...
Height of the head... ...	180	156	116	134.10	83,109,122,166,171.
Length of the arm	181	844	661	730.6	5,14,81,148.
Length of the upperarm ...	181	395	269	310.6	5,14,81,148.
Length of the forearm ...	182	262	192	236.8	5,81,148.
Length of the hand... ...	181	221	160	189.5	5,14,81,148.
Length of the leg	185	970	760	854.0	...
Length of the thigh.. ...	184	474	313	390.3	92.
Height of the kneejoint ...	184	540	394	463.9	92.
Length of the trunk ...	178	652	488	563.5	69,78,81,88,89,121,168.
Length of the head... ...	184	205	172	188.27	122.
Breadth of the head.. ...	184	162	135	147.68	122.
Frontal diameter	184	119	95	104.81	30.
Interzygomatic breadth ...	184	153	125	140.77	134.
Gonial diameter ...	185	125	94	109.28	...
Physiognom. leng. of the face	184	215	169	191.64	119.
Anatom. length of the face..	184	134	98	117.72	77.
Height of the forehead ...	183	93	59	74.07	77,119.
Length of the nose... ...	183	50	34	41.57	34,77.
Breadth of the nose... ...	185	47	29	37.12	...
Extern. interocul. breadth ...	184	108	85	95.27	
Intern. interocul. breadth ...	184	40	27	34.29	
Ocular length	185	35	25	30.49	...
Length of the ear	183	72	52	63.73	13,89.
Breadth of the ear	183	39	27	32.52	13,89.

TABLE II.
CHINESE OF SHANTUNG.
Relative measurements.

Indices	N	Max.	Min.	M	Nos. excluded.
Length of the arm.. ...	181	49.01	39.06	43.83	5,14,81,148.
Length of the upperarm ...	181	48.64	39.41	42.29	ibid.
Length of the forearm ...	181	35.22	26.48	32.42	ibid.
Length of the hand. ...	181	29.50	22.68	25.33	ibid.
Length of the leg	185	57.87	46.68	51.31	...
Length of the trunk ...	178	38.47	28.62	33.86	69,78,81,88,89,121,168.
Cephalic index	184	89.53	70.44	78.51	122.
Height of the head by length	180	83.89	62.50	71.17	83,109,122,166,171.
Height of the head by breadth	180	100.00	77.56	90.82	ibid.
Frontal index	183	88.12	54.13	70.77	30,119.
Physiognom. facial index...	182	84.21	62.33	73.45	72,119,134
Anatomical facial index ...	183	97.04	71.72	83.99	72,134.
Gonial index	184	85.82	64.83	77.87	134.
Nasal index..	184	118.18	69.09	89.86	34.
Auricular index.	183	60.00	41.43	51.02	13,89.

TABLE III.
CHINESE OF CHIHLI.
Absolute Measurements.

Measurements	N	Max.	Min.	M	Nos. excluded.
Stature	114	1874	1565	1678.9	...
Height of the head... ...	113	154	121	135.44	57.
Length of the arm... ...	111	826	621	730.0	57,88,92.
Length of the upperarm ...	108	349	275	307.4	24,44,57,88,92,110.
Length of the forearm ...	104	266	196	236.2	24,27,44,57,80,88,92,
Length of the hand ...	104	253	151	186.5	110,113.
Length of the leg	112	980	777	862.0	14,56.
Length of the thigh ...	112	484	327	389.3	14,56.
Height of the kneejoint ...	112	541	417	471.6	14,56.
Length of the trunk ...	110	631	510	572.9	24,50,53.56.
Length of the head... ...	113	200	168	186.90	60.
Breadth of the head ...	113	161	138	149.21	60.
Frontal diameter	114	119	92	104.49	...
Interzygomatic breadth ...	113	155	126	140.13	114.
Gonial diameter	114	125	96	109.18	...
Physiognom. length of face	112	212	173	192.76	3, 37.
Anatom. length of the face	113	135	105	117.78	3.
Height of the forehead ...	112	88	58	76.09	3, 37.
Length of the nose ...	113	51	36	41.73	53.
Breadth of the nose ...	113	42	32	37.31	53.
Extern. interocul. breadth ...	113	106	80	96.13	10.
Intern. interocul. breadth ...	113	41	27	34.29	10.
Ocular length	113	36.5	25.5	30.92	10.
Length of the ear	113	76	52	64.66	11.
Breadth of the ear	113	38	27	32.50	11.

TABLE IV.
CHINESE OF CHIHLI.
Relative measurements.

Indices	N	Max.	Min.	M.	Nos. excluded.
Length of the arm ...	111	48.26	39.69	43.52	57,88,92,
Length of the upperarm ...	108	45.56	37.53	42.09	24,44,57,88,110,92.
Length of the forearm ...	104	34.10	28.89	32.35	24,57,44,27,92,55,80,88,
Length of the hand ...	104	30.63	23.02	25.48	110,113.
Length of the leg... ...	112	55.51	47.73	51.36	14,56.
Length of the trunk ...	110	37.55	29.88	34.11	24,50,53,56.
Cephalic index	113	91.07	71.13	79.92	60.
Height of the head by length	112	84.15	65.41	72.53	57,60.
Height of the head by breadth	112	102.74	81.17	90.81	57,60.
Frontal index	113	87.12	50.91	71.97	3.
Physiognomical facial index	111	83.80	54.45	73.01	3, 37,114.
Anatomical facial index ...	111	97.67	73.29	83.78	ibid.
Gonial index	113	88.03	68.57	77.54	114.
Nasal index	113	110.81	70.83	90.02	53.
Auricular index	113	61.67	41.43	50.34	11.

TABLE V.
CHINESE OF MANCHURIA.

Measurements	N	Max.	Min.	M	Nos. excluded.
Stature	96	1815	1518	1650.4	...
Height of the head ...	94	149	120	133.64	3, 71
Length of the arm ...	92	808	641	724.8	12,13,57,59.
Length of the upperarm ...	87	345	266	308,2	3,12,13,14,57,58,59,60.67.
Length of the forearm ...	87	267	197	235.2	ibid.
Length of the hand ...	87	227	158	183.5	ibid.
Length of the leg... ...	94	942	747	842.9	ibid.
Length of the thigh ...	94	449	303	383.1	ibid.
Height of the kneejoint ...	94	548	393	459.4	ibid.
Lenght of the trunk ...	92	650	498	571.7	6,17,18,67.
Length of the head ...	96	203	163	183.57	...
Breadth of the head ...	96	170	137	153.57	...
Frontal diameter	96	116	96	105.79	...
Interzygomatic breadth ...	96	155	130	142.14	...
Gonial diameter	96	122	95	109.56	...
Physiognom. lengthof the face	96	219	176	191.41	...
Anatom. length of the face	96	132	106	117.85	...
Height of the forehead ...	96	90	58	73.68	...
Length of the nose ...	95	51	34	42.39	11.
Breadth of the nose ...	95	44	31	37.02	11.
Extern. interocul. breadth...	95	104	87	96.09	16.
Intern. interocul. breadth ...	95	40	26	33.61	16.
Ocular length	95	36.5	28.5	31.24	16.
Length of the ear... ...	96	78	54	63.64	...
Breadth of the ear ...	96	40	28	32.74	...

TABLE VI.
CHINESE OF MANCHURIA.
Relative measurements.

Indices	N	Max.	Min.	M	Nos. excluded.
Length of the arm ...	92	49.54	39.37	43.86	12,13,57.61.
Length of the upperarm ...	87	44.82	38.96	42.39	
Length of the forearm ...	87	35.32	29.14	32.42	3,12,13,14,57,58,59,60,61.
Length of the hand ...	87	28.96	22.99	25.31	
Length of the leg... ...	94	54.15	47.50	50.96	57,80.
Length of the trunk ...	92	38.09	28.98	34.65	6,17,18,67,
Cephalic index	96	96.43	73.98	83.64	...
Height of the head by length	94	82.25	65.76	72.93	3,71.
Height of the head by breadth	94	98.01	75.93	87.16	3,71.
Frontal index	96	84.90	53.57	69.78	...
Physiognomical facial index	96	86.11	63.79	74.16	...
Anatomical facial index ...	96	95.56	70.47	82.96	...
Gonial index	96	86.92	67.38	77.13	...
Nasal index	95	110.00	65.96	87.98	11.
Auricular index	96	61.90	42.31	51.64	...

TABLE VII.
TOTAL CHINESE.
Absolute Measurements.

Measurements	N	Shantung	Chihli	Manch.	Max.	Min.	L	M
Stature	395	1665.5	1678.9	1650.4	1874	1507	367	1665.7
Height of the head ...	387	134.10	135.44	133.64	156	116	40	134.38
Length of the arm ...	386	730.6	730.0	724.8	844	621	223	728.7
Leng. of the upperarm	376	310.6	307.4	308.2	395	266	129	309.1
Length of the forearm	373	236.8	236.2	235.2	267	192	75	236.1
Length of the hand ...	372	189.5	186.5	183.5	253	151	102	187.3
Length of the leg ...	391	854.0	862.0	842.9	980	747	233	853.6
Length of the thigh ...	390	390.3	389.3	383.1	484	303	181	388.3
Height of the kneejoint	390	463.9	471.6	459.4	548	393	155	465.1
Length of the trunk ...	380	563.5	572.9	571.7	652	488	164	568.2
Length of the head ...	393	188.27	186.90	183.57	205	163	42	186.73
Breadth of the head ...	393	147.68	149.21	153.71	170	135	35	149.55
Frontal diameter ...	394	104.81	104.49	105.79	119	92	27	104.96
Interzygomatic breadth	393	140.77	140.13	142.14	155	125	30	141.09
Gonial diameter ...	395	109.38	109.18	109.56	125	94	31	109.32
Physio. leng. of the face	392	191.64	192.76	191.41	219	169	50	191.90
Anatom. leng. of the face	393	117.72	117.78	117.85	135	98	37	117.77
Height of the forehead	391	74.07	76.09	73.68	93	58	35	74.30
Length of the nose ...	391	41.57	41.71	42.39	51	34	17	41.81
Breadth of the nose ...	393	37.12	37.31	37.02	47	29	18	37.14
External interoc. breadth	392	95.27	96.13	96.09	108	80	28	95.70
Internal interoc. breadth	392	34.39	34.29	33.61	41	26	15	34.12
Ocular length ...	393	30.49	30.92	31.24	36.5	25	11.5	30.79
Length of the ear ...	392	63.73	64.66	63.64	78	52	26	63.98
Breadth of the ear ...	392	32.52	32.50	32.74	40	27	13	32.55

TABLE VIII.
TOTAL CHINESE.
Relative Measurements

Indices	N	Shan.	Chih.	Man.	Max.	Min.	L	M
Length of the arm ...	384	43.83	43.52	43.86	49.54	39.06	10.48	43.75
Length of the upperarm	376	42.29	42.09	42.39	48.64	37.53	11.11	42.26
Length of the forearm	372	32.42	32.35	32.42	35.32	26.48	8.84	32.37
Length of the hand ...	372	25.33	25.48	25.31	30.63	22.68	7.95	25.37
Length of the leg...	391	51.30	51.36	50.96	57.87	46.68	11.19	51.24
Length of the trunk	380	33.83	34.11	34.65	38.47	28.62	9.85	34.12
Cephalic index ...	393	78.51	79.92	83.64	96.43	70.44	25.99	80.17
Hei. of the head by leng.	386	71.17	72.53	72.93	84.15	62.50	21.65	72.41
Hei. of the head by bread.	386	90.82	90.81	87.16	102.74	75.93	26.81	89.92
Frontal index ...	392	70.77	71.97	69.78	88.12	50.91	37.21	70.62
Physiognomi. facial ind.	389	73.45	73.01	74.16	86.11	54.45	31.66	73.55
Anatomical facial index	390	83.99	83.78	82.96	97.67	70.47	27.20	83.67
Gonial index... ...	393	77.87	77.54	77.13	88.03	74.83	23.20	77.59
Nasal index	392	89.86	90.02	87.98	118.18	65.96	52.22	89.45
Auricular index ...	392	51.02	50 34	51.64	61.90	41.43	20.47	59.97

TABLE IX.
MANCHUS.
Absolute measurements.

Measurements	N	Max	Min.	L	M	Nos. excluded.
Stature	81	1718	1513	205	1630.9	...
Height of the head.. ...	76	153	119	34	132.64	3,11,52,75,78.
Length of the arm.. ...	75	822	622	200	706.7	6,8,25,44,54,78.
Length of the upperarm ...	75	366	254	112	294.4	ibid.
Length of the forearm ...	75	288	185	103	231.0	ibid.
Length of the hand. ..	75	222	158	64	181.4	ibid.
Length of the leg... ...	54	916	783	133	832.0	47-52,57-76,78-81.
Length of the thigh	54	432	333	99	374.7	ibid.
Height of the kneejoint. ...	54	507	410	97	456.3	ibid.
Length of the trunk ...	47	591	467	124	547.3	25;44-52;57-76;78-81.
Length of the head ...	81	194	170	24	181.94	...
Breadth of the head ...	80	161	143	18	151.31	3.
Frontal diameter	80	118	97	21	105.35	3.
Interzygomatic breadth ...	79	150	131	19	140.28	62,69.
Gonial diameter	80	130	97	33	110.47	69.
Physiognom. length of the face	79	202	170	32	188.29	62,70.
Anatom. length of the face	80	132	104	28	117.67	62.
Height of the forehead ...	80	82	56	26	70.17	70.
Length of the nose ...	81	53	37	16	45.38	...
Breadth of the nose. ..	81	45	33	12	37.86	...
Extern. interoc. breadth ...	81	...	...	...	93.46	...
Intern. interoc. breadth ...	81	41	28	13	34.10	
Ocular length	81	35	25	10	29.68	...
Length of the ear	81	77	54	23	64.95	..
Breadth of the ear... ...	81	40	25	15	33.15	...

TABLE X.
MANCHUS.
Relative measurements.

Indices	N	Max.	Min.	L	M	Nos. excluded.
Length of the arm ...	75	49.53	39.34	10.19	43.28	6,8,25,44,54,78.
Length of the upperarm.	75	46.35	38.42	7.39	41.62	ibid.
Length of the forearm ..	75	37.73	27.87	9.84	32.68	ibid.
Length of the hand ...	75	29.92	22.80	7.12	25.75	ibid.
Length of the leg ...	54	56.24	49.16	7.08	51.58	47-52,57-76,78.
Length of trunk ...	47	36.55	28.86	7.69	33.84	25,44-52,57-76,78-81
Cephalic index ...	80	89.94	76.12	13.82	83.52	3.
Height of the head by leng.	76	83.15	63.33	19.82	72.86	3,11,52,75,78.
Height of the head by bread.	76	98.71	78.48	20.23	87.47	ibid.
Frontal index	77	82.83	50.90	31.93	67.08	6,62,66,70.
Physiognomical facial index	78	84.71	66.83	17.88	74.57	62,69,70.
Anatomical facial index...	79	95.56	74.31	21.25	83.87	62,69,
Gonial index	80	88.65	68.80	19.85	78.66	69.
Nasal index	81	102.63	62.92	39.71	83.02	...
Auricular index	81	61.67	39.73	21.94	52.32	...

TABLE XI.
KOREANS.
Absolute Measurement.

Measurements	N	Max.	Min.	L	M	Nos. excluded.
Stature	142	1752	1509	243	1628.8	...
Height of the head ...	137	152	118	34	134.50	69,93,110,129,132.
Length of the arm ...	134	805	645	160	715.4	16,23,36,64,67,87,106,128.
Length of the upperarm	129	345	269	76	300.6	10,16,23,36,64,
Length of the forearm ...	129	283	195	88	231.2	87,106,105,101,
Length of the hand ...	129	219	155	64	183.6	121,109,128.
Length of the leg ...	141	905	741	164	819.5	128.
Length of the thigh ...	140	436	317	119	378.8	128,12.
Height of the kneejoint ...	140	495	367	128	440.5	12,128.
Length of the trunk ...	140	625	485	140	553.4	12,124.
Length of the head ...	141	200	165	35	183.93	91.
Breadth of the head ...	141	166	143	23	153.72	91.
Frontal diameter	141	120	95	25	106.30	111.
Interzygomatic breadth ...	141	157	130	27	143.76	111.
Gonial diameter	140	128	99	29	112.48	83,131.
Physiogn. leng. of the face.	141	219	174	45	194.67	111.
Anatom. leng. of the face..	141	136	103	33	117.17	111.
Height of the forehead ...	141	92	62	30	77.51	111.
Length of the nose ...	141	54	31	23	40.79	111.
Breadth of the nose ...	141	43	31	12	37.33	111.
Extern. interoc. breadth ...	142	105	82	23	95.29	...
Intern. interoc. breadth ...	142	43	28	15	33.94	...
Ocular length	142	34.5	27	7.5	30.67	...
Length of the ear ...	141	76	50	26	63.93	35.
Breadth of the ear ...	141	36	26	10	30.74	35.

TABLE XII.
KOREANS.
Relative measurements

Indices	N	Max.	Min.	L	M.	Nos. excluded.
Length of the arm ...	134	48.43	40.47	7.96	43.94	16,23,36,64,67,87,106,128.
Length of the upperam	129	44.44	38.74	5,70	42.01	10,16,23,36,64,67,
Length of the forearm	129	35.01	28.99	6.92	32.31	87,101,105,106,
Length of the hand ...	129	28.66	22.96	5.70	25.67	109,121,128.
Length of the leg ...	141	53.41	46.16	7.25	50 30	128.
Length of the trunk ...	140	37.77	29.94	7.83	33.98	12,124.
Cephalic index	141	93.10	74.48	18.62	83.69	91.
Height of the head by leng.	137	82.86	65.75	17.11	73.16	65,93,110,129.132.
Height of the head by bread.	136	97.95	77.36	19.59	87.57	65,91,93,110,129,132,
Frontal index	140	91.67	57.41	34.26	72.87	91,111.
Physiognomical facial index	140	83.70	67.16	16.54	73.96	ibid.
Anatomical facial index	140	94.20	69.48	24.72	81.55	ibid.
Gonial index	139	88.32	67.57	20.75	78.10	111.
Nasal index	141	125.81	64.00	61.81	92.49	111.
Auricular index ...	141	62.50	37.84	24.66	48.26	35.

TABLE XIII.
DAHURS.
Absolute measurements.

Measurements	N	Max.	Min.	L	M	Nos. excluded.
Stature	49	1750	1505	245	1643.6	...
Height of the head	45	144	119	25	133.20	18,19,25,41.
Length of the arm	42	786	660	126	719.0	
Length of the upperarm ...	42	364	258	106	300.9	2,10,24,25,
Length of the forearm ...	42	272	204	68	235.2	44,45,48.
Length of the hand	42	205	151	54	182.9	
Length of the leg	46	952	777	175	855.4	
Length of the thigh	46	463	327	136	388.2	38,40,49.
Height of the kneejoint ...	46	521	427	94	467.2	
Length of the trunk	45	589	471	118	540.8	2,40,44,49.
Length of the head	49	198	171	27	184.59	...
Breadth of the head	49	165	135	30	148.86	...
Frontal diameter	49	118	97	21	105.24	...
Interzygomatic breadth ...	49	151	131	20	140.01	...
Gonial diameter	49	126	100	26	110.53	...
Physiognomical length of the face	49	212	172	40	193.37	...
Anatomical length of the face	49	129	102	27	118.06	...
Height of the forehead ...	49	91	64	27	75.45	...
Length of the nose	49	50	34	16	42.65	...
Breadth of the nose	49	42	31	11	36.14	...
External interocular breadth ...	49	101	85	16	91.43	...
Internal interocular breadth ...	49	38	29	9	32.78	...
Ocular breadth	49	33	25.5	7.6	29.33	...
Length of the ear	49	73	57	16	66.76	...
Breadth of the ear	49	38	27	9	32.92	...

TABLE XIV.
DAHURS.
Relative measurements.

Indices.	N	Max.	Min.	L	M.	Nos. excluded.
Length of the arm ...	42	48.77	42.21	6.56	43.74	
Length of the upperarm ...	42	46.98	38.01	8.97	41.82	10,21,24,25,
Length of the forearm ...	42	37.67	29.56	8.11	32.69	44,45,48.
Length of the hand ...	42	29.57	20.91	8.66	25.47	
Length of the leg... ...	46	56.04	49.70	6.34	52.11	38,40,49.
Length of the trunk ...	45	35.55	28.04	7.51	32.99	2,40,44,49.
Cephalic index	49	93.75	73.77	19.98	81.41	...
Height of the head by length	45	83.63	63.78	19.85	72.37	18,19,25,41.
Height of the head by breadth	45	95.36	76.43	18.93	88.73	ibid.
Frontal index	49	91.00	62.93	28.07	79.43	...
Gonial index	49	85.71	73.53	12.18	78.92	...
Physiognomical facial index	49	84.88	63.68	21.20	72.40	...
Anatomical facial index ...	49	96.24	69.86	26.38	84.38	...
Nasal index	49	111.43	68.75	42.68	85.31	...
Auricular index	49	59.64	41.54	18.11	50.15	...

S. M. SHIROKOGOROFF; "ANTHROPOLOGY OF NORTHERN CHINA."
ROYAL ASIATIC SOCIETY. (NORTH CHINA BRANCH.)

EXTRA VOLUME II.

ERRATA

AFFECTING THE MEANING OF THE TEXT.

		Printed	*To read*
Page ii.	4th line	44-48	44-49
,, ,,	11th ,,	50-94	50-96
,, ,,	16th ,,	97-112	97-116
,, 19.	Table XVI. Chinese of Shantung. M of the Height of Forehead		
		Printed	*To Read*
		47.07	74.07
Page 52.	4th line	—28.66348	+28.66348
,, ,,	,,	4.507	4.491
,, ,,	9th ,,	$v^2=\frac{\Sigma e^2}{N}$	$v^2=\frac{(\Sigma e)^2}{N}$
,, ,,	,,	$v_1=\frac{\Sigma e_1^2}{N}$	$v_1^2=\frac{(\Sigma e_1)^2}{N}$
,, ,,	10th ,,	$\sigma_x=\sqrt{\Sigma e^2-v^2}$	$\sigma_x=\sqrt{\frac{\Sigma e^2-v^2}{N}}$
,, ,,	,,	$\sigma_y=\sqrt{\Sigma e_1^2-v_1^2}$	$\sigma_y=\sqrt{\frac{\Sigma e_1^2-v_1^2}{N}}$
,, ,,	12th ,,	Upper left square	Lower left square
,, 105.	4th ,,	they	those
,, 53.	In this Table is omitted one case—1870 stature, 78 ceph. ind.		

Approximate Ethnographical Map.

(S.M. Shirokogoroff "Anthropology of Northern China")