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I have placed before you in the briefest possible way the work to be undertaken by the Scottish Expedition. It gives me the greatest pleasure now to announce that a number of prominent Scotsmen have shown their approval in a most substantial manner by subscribing sufficient money to send off the Expedition. I should like to mention particularly in this connection the name of Captain Andrew Coats, who, three years ago, conducted a most successful expedition to the Arctic regions, and who more recently distinguished himself in the service of his country as Captain of the Glasgow Imperial Yeomanry. Captain Coats has contributed the very handsome sum of £5000 to the Expedition.

The more funds we are still able to secure, the more extensive and valuable will the results of the Expedition be. I appeal therefore to Scotsmen throughout the world to follow the example set by others, and so enable the equipment and scale of the Expedition to be a credit to Scotland and an ornament to Science.

ANTHROPOLOGICAL INVESTIGATIONS IN THE ALPS AND THE CAUCASUS.

By VICTOR DINGELSTEDT.

THE study of the physical structure of the various human races is an essential element in anthropogeography, and is the means by which we are most likely to achieve reliable conclusions with regard to the origin and early development of mankind. Anthropology is the true basis of ethnology. In our search for origins, neither customs, religion, language, nor any other feature, can give us so much help as those bodily differences which are so remarkably persistent in all races.

There are reasons for believing that anthropological investigations in mountainous regions have a special value; and I therefore desire to call attention to some of the recent work in the Alps and the Caucasus. Although it is not certain that mountains can be considered to have been the primitive abode of man, highlanders, rather than the inhabitants of the lowlands, preserve their ancient qualities in a form which lends itself readily to study. Their proverbial conservatism, the tenacity with which they are knit to their land, and the difficulties of communication, all make for the persistence of racial and tribal peculiarities; there is little intermingling of blood; the dependence of man upon nature is more complete than in other regions, and the influence of nature upon man is more profound. Local differences are strongly marked; and anthropological problems are presented to us in a form in which the essential factors in racial development are comparatively easily seized.

It is undoubtedly the case that all mountainous countries, and in a very special degree the Alps and the Caucasus, contain a comparatively large number of distinct tribes and nations. The latter region presents

an even greater variety of physical types than are found in the former ; and it is possible, as some affirm, that these types have been developed by local influences and have been established and preserved by the isolating conditions of mountain life. For while the intermingling of lowlanders tends to obliterate physical differences, by fusing them in a type which is perhaps higher and more complicated, the isolation of the hills and valleys not only preserves existing differences, but even increases them, and creates new ones.

Anthropological studies have been carried on in the Caucasus for many years by that very able and laborious investigator, Dr. J. Pantukof, to whose work I have already called attention in this *Magazine* (Vol. IX.). Since that time, however, the Caucasian anthropologist has not remained idle ; and in the *Izvestia* of the Caucasian section of the Imperial Russian Geographical Society (Vol. XIII.) we find a very valuable report on a new ethnological group which has for long been confused with others. This is the Ingoush, a group related to the Tchetchen and the Kisty, enjoying an undesirable notoriety for their propensity to robbery. Their land, which is about 570 square miles in area, is situated almost in the centre of the main Caucasian range, in the neighbourhood of Ossetians, and partly on the high military road which forms the sole means of passage through these lofty mountains.

The number of the Ingoush is estimated at about fifty thousand, of whom about one-fifth remain as yet in the mountain fastnesses, while the rest carry on their depredations in the more profitable regions to the north, on the lower Kabardin and Sunsha parallel ranges. Their principal river is the Ossa, tributary to the Sunsha, which, again, joins the Terek. They are divided into six communities, of which four remain in the higher regions which are difficult of access, and two, more numerous, more civilised, and more prosperous, inhabit the plain between the Black and the Karadagh ranges.

The Ingoush are considered very ancient inhabitants of the Caucasus ; but their origin is lost in obscure and even contradictory traditions. They have long been supposed to be identical with the Tchetchen—an error which has recently been disproved by anthropological inquiries, which have shown that they are a distinct ethnical group of men, although they resemble the Tchetchen in their creed, their language, and, for the most part, in their customs.

The Ingoush are widely notorious throughout the Caucasus as brigands and thieves. This deplorable disposition to plunder, partly explained by the very miserable means of livelihood offered by their inhospitable home, has been favoured by other circumstances of their life : their hardihood and intrepidity, their ignorance, the plentiful booty which is constantly carried on the great passage through the main Caucasian range, and the facility with which plunder may be hidden in the scarcely accessible mountain gorges. But recently, in consequence of the repressive measures which have been prosecuted by the Russian government, the Ingoush has somewhat changed his habits. From being a bold and daring brigand, he has become a prudent and cautious thief ; instead of going about his business in the daytime with uncon-

cealed weapons, he has learned to work stealthily and in darkness with his weapon hidden, or even unarmed, trusting solely to his skill and vigilance. But this change does not detract from the interest which they have to the anthropologist, and especially to the student of the so-called "criminal anthropology," who may find in these people valuable material for the construction of the type of those who are naturally inclined to violence and robbery.

The complexion of the Ingoush is swarthy; he is tall and slight in form; restless, always on the alert, inquisitive, dexterous, and usually highly intelligent. He bitterly resents treacherous denunciation by one of his own community, and the informer is sure to suffer revenge.

The anthropological characteristics are as follows:—

Cephalic Index.—The ratio between the longitudinal and transverse dimensions of the head varies from 1 : 0·74 to 1 : 0·92; that is, from the dolichocephalic to an almost extreme brachycephalic type. Of fifty-five adults examined, about 80 per cent. proved to be mesocephalic (from 77·8 to 86), 11 per cent. were brachycephalic, and the rest, or 9 per cent. were dolichocephalic. Of the same number of Ossetians 59 per cent. were mesocephalic, 34 per cent. were brachycephalic, and only 7 per cent. were dolichocephalic. The mean cephalic index of the Ingoush is 82·26; while in the case of the Ossetians it is 82·62. Among the Ingoush the mean length of head was found to be 129·78 mm., the mean breadth 156·30 mm., and the mean circumference 556·7 mm.; the corresponding mean measurements for the Ossetians were 189·4 mm., 156·5 mm., and 560 mm. respectively. The face of the Ingoush is longer than that of the Ossetians: the length is about 185·6 mm. (7·24 inches) or 10·6 per cent. of the stature, and is divided as follows: forehead 62·7 mm., nose 53·8 mm., and lower face 69·1 mm., or 33·4 per cent., 29·5 per cent., and 37·1 per cent. respectively. The breadth of the face in the Ingoush is 143·9 mm.; in the Ossetians it is 144·8 mm.

The Nose.—This, which is usually the most characteristic of the features, is more largely developed in all strictly Caucasian nationalities than it is in Europeans; and it would be interesting to know whether their sense of smell is correspondingly keen. It is at least the case that the Caucasians relish various perfumes very highly. The nose of an Ingoush has a mean length of 53·8 mm., the shortest being 44 mm. and the longest 62 mm. It is usually straight, rather big, high, sometimes protuberant, and almost always droops towards the upper lip, so that its length is greater when it is measured from the bridge to the tip than when it is measured from the bridge to the base of the vertical septum between the nostrils. The mean length, in the last case, is, as indicated above, 53·8 mm.; in the former case it is 54·7 mm., or about 1 millimetre more. This drooping of the nose is further illustrated by the measurements of the distance from the upper end of the nostrils to the bridge, this distance being about 6·2 mm. (or ·24 inch) shorter than the length of the nose. The breadth of the nose varies, ranging from 33 to 40 mm.; the mean is calculated at 36·6 mm., or a little less than that of the Ossetians. The height of the Ingoush nose is notably greater than it is among the Ossetians, the measurements being 29·6 mm. and 25·3

mm. respectively. The breadth of the upper part of the nose, or the interocular distance as determined by a few measurements, is greater among the Ingoush (35 mm.) than among the Ossetians (33·3 mm.).

The Eyes.—The Ingoush have for the most part (87 per cent.) brown eyes of a darker or lighter shade; but blue or grey eyes also occur, though far less frequently. It has been suggested that their olfactory powers are very acute; and this may be repeated, with stronger emphasis, with regard to the faculty of vision. This is very remarkably powerful, as it is among the Kurds and other pastoral peoples, and, according to the usual measurements, is estimated at double that of average eyesight. Their look is furtive, restless and anxious, anything rather than open: it was always very difficult to get them, even by payments, to submit to examination.

Stature.—The Ingoush belong to one of the tallest tribes in the world. The mean height obtained from the measurements of fifty-six individuals, taken partly from prison and hospital, and partly at random, was found to be 1728 mm. or 5 feet 7·39 inches. The two extreme measurements were 1640 mm. and 1840 mm. All their members are developed proportionately; but they are narrow-chested, the girth at the chest being generally somewhat less than half the stature (855 mm. instead of 864 mm.). The Ossetians are shorter, but have a broader chest.

The Hair.—The Ingoush have dark hair. The chest is abundantly covered with hair, and so, to a somewhat less degree, is the whole body; and this hairiness constitutes in their case, as in that of the Chaldaeans or Aïssorians or Abbyssians and the Tats of Persia, a very characteristic anthropological feature. The disposition of the hairs on the chest differs from that observed in the Russians: they do not grow in the form of a cross on the middle of the chest, as in the case of the latter, but are fairly evenly distributed over its whole surface, and are seldom massed very closely. The remarkable hairiness of the Ingoush, common to Aïssorians and Tats, has led some to the conclusion, which awaits full justification, that they are genetically related to these two peoples. The Aïssorians are ultra-brachycephalic, the Tats are mostly dolichocephalic, and the Ingoush, as we have seen, show a ratio ranging from 1:073, or true dolichocephalic, to 1:092, or ultra-brachycephalic.

In every respect the Ingoush prove to be, anthropologically, a group of men inhabiting the Caucasus, distinct from their neighbours, the Ossetians, Tchetchen, Lesghin, Kumykh, Circassian and Kabardin, Armenian, Georgian, Hebrew and others. All these peoples differ essentially from them in some particulars: the Ossetians are of a lighter colour in hair and eyes, shorter face, less hairiness and less pronounced brachycephaly. The Tchetchens have a broader face and head, greater skeletal development, larger chest, higher cephalic index (1·084), and less sensibility and more meagre intellectual endowment. The Lesghin also have a broader head, and have less hair, of a lighter shade. The Kumykh are smaller, and have larger cheekbones and larger chest; the Circassians and Kabardin are less brachycephalic and are less hairy; the Armenians, Georgians, and Hebrews have, among other distinctions, a narrower head, shorter stature, and a far greater proportionate number of protuberant noses.

If we should be asked what are the characteristic anthropological features of a predatory tribe, such as the Ingoush, it would be somewhat difficult to give an adequate reply. We might of course indicate those qualities which are common to all peoples of a similar disposition and manner of life, but we should find very few such points to enumerate. And there is little doubt that we should consider all the features of each tribe together, rather than point out such and such particular traits as specially associated with, or indicative of, the habits and temperament which distinguish the people in question. We do not doubt that there is a connection between mental disposition and physical structure, and that the investigation of the Ingoush, which we hope may be carried further, must be of the highest value to the student of criminal anthropology.

Let us now turn to certain recent anthropological inquiries in Switzerland, in which not the living, but the dead have been studied by young anthropologists, who have excavated certain caves with a view to the recovery of long-buried skulls. Only a small beginning has been made in this line of research: the material which has as yet been obtained is very small in amount; and our ignorance of the earlier generations of man is great. But though we are far from sharing the very optimistic views of those young enthusiasts who, having obtained a few skulls, consider themselves able already to trace the origin of the present inhabitants of the Swiss mountains, we must certainly acknowledge the value of further knowledge of what kinds of heads were on the shoulders of these ancient peoples whose remains were buried, in the immemorial past, in the caves of the Schweizersbild and of the Taigen, and in many others which still await excavation.

The Genevan Geographical Society has lately received two or three communications from Messrs. E. Pittard and Schenk, relating to their investigations in Valais and Savoy, and published in *Globus*, vols. xxxviii. and xxxix.; we shall make a short reference to these researches, which their promoters propose to continue.

In 1877 and following years Mr. Abel Novélaigne published, in the *Revue d'Anthropologie*, his studies on the Savoyard skull. These studies have been continued since by Dr. Jules Carret, and the young Swiss anthropologist, already mentioned, Dr. Eugene Pittard. Dr. Carret has published his results in the *Mémoires de la Société Savoisienne d'histoire et d'archéologie* (1882), and those of Dr. Pittard have appeared, as stated above, in the last volume of *Globus*.

We leave aside Dr. Pittard's views with regard to the primitive population of Savoy, as somewhat far-fetched and not sufficiently warranted by facts, and pass directly to his anthropological material, which consisted of 165 skulls, collected from different parts of the country. About 83 per cent. of these skulls have proved to be brachycephalic, 20 per cent. dolichocephalic, and 7 per cent. mesocephalic. The extreme brachycephaly gives the ratio between longitudinal and transverse dimensions as 1.087. These brachycephalic skulls, belonging, as it would seem, to the majority of the ancient inhabitants of Savoy, are identical with those found in Valais, whence has arisen the somewhat hasty con-

clusion that they belong to the same tribe of men. Both are supposed to have been of Celtic race. This skull is globular in form, the parietal bones are rounded, the sphenoid bones are only slightly developed, and the zygomatic arch is scarcely apparent. The frontal bones are high and large, the temporal bones diverging and salient, the superciliary ridge is strongly marked, the nasal apertures are moderate in size and the orbits are large. The ethmoid bones are salient; the space between the eyebrows (*glabellæ*) little accentuated. The ratio of the length to the breadth of the face is as 1.052, which brings most of these skulls under the designation *leptoprotopus* or long-faced. The nose is supposed to have been long and narrow.

No material, worthy of attention, has been secured for the investigation of the stature, colour of hair, and other particulars.

The anthropological inquiries in Valais and Vaatland, conducted by Messrs. Bedot, Scholl, Schenk, and Pittard, were based on a number of skulls found in certain ancient charnel-houses. M. Bedot also examined, for purposes of comparison, over a thousand young men recruited for the army. This simultaneous study of the past and the present generations of men has revealed the fact that in former times the population in Valais, as in Savoy, was mostly brachycephalic, and characterised by a high cephalic index (from 82 to 86), whereas at the present day this brachycephaly has decreased, the mean cephalic index obtained from the measurement of the recruits being from 80 to 83; and there are further to be found about 20 per cent. of dolichocephalic and sub-dolichocephalic people inhabiting the valley of the Rhone. The modern population therefore seems to be somewhat distinct from the ancient. Its mean stature, estimated from the measurement of twelve hundred recruits is 1635 mm., and therefore lower than the stature of the shortest of the Ingoush, which was 1640 mm.

It would be very interesting to carry out a full comparison between the inhabitants of these two high mountain regions, the Caucasus and the Alps. The influence of the environment does not greatly differ in the two cases, but the anthropological distinctions, deriving from different racial origins, are many and very marked. The present writer, who has lived for long periods both in the Caucasus and the Alps, has been struck chiefly by the more pronounced features, and the greatly more acute senses of several Caucasian tribes, than can be observed among the present Alpine population; and would express his hope that anthropologists in both countries will pursue a comparative study, in order that we may obtain a fuller knowledge of the special characteristics of high-land peoples; and that, by the systematic investigation both of the dead and the living, they will throw further light upon the causes of the evolution or the degeneration of human structure.