MY NEW PRINCIPLES OF THE CLASSIFICATION OF THE HUMAN RACE.

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THE chief principle consists in discovering many varieties in man, as in animal species. These varieties have internal and external characters: the former are persistent and fixed by heredity, and in man are durable for many centuries—according to my own observations, more than a thousand years. The external characters are liable to be changed by crossing the varieties. These characters, now, are very much mingled in various ways, so that it is not easy to distinguish one from another. These mingled characters are constant causes of mistakes in the classification of human beings.

The internal characters of the human varieties are in the bony frame, especially in the skull; the externals are the color of the skin and of the hair and eyes.

Until the human classification is made by external characters (Linneus, Cuvier, etc.), we cannot have one upon a natural basis. Very little experience of the various races of man, as now classified, shows that these are an intermixture of various ethnic elements, with the same or various colors of skin, hair and eyes. Elsewhere we find various colors of skin with the same internal characters of the skeleton.

The skull chiefly furnishes the characters of classification; it shows the external shape of the brain, the most important and the highest organ of man; the skull is the means of the classification of the brain.

Now, I have discovered in the human skulls various forms or types which are persistent by heredity; these forms, which we find in many individuals, are varieties of my primitive ideal form of skull in human beings. Again, I have discovered that the varieties comprehend subvarieties by means of some new characters which modify the variety, or are superadded to the characters of the variety.

Therefore, I consider the shape of the skull as a natural basis of the classification of the varieties of man, because the varieties have a dependence upon a biological fact, viz., the natural formation by variations, as in animal species.

The various forms of the human skull have their origin from a series of anatomical facts: (1) From the various development of the bones of the human skull. (2) From the different curves of the bones, and from the different directions of these curves. (3) From the capacity of the skull.

It is true that anthropologists have often spoken of type of skull, but they have not defined this type; we can show it by the works of the German anthropologists, especially of Von Hölder, Ecker, Virchow, and others, of the French and Swiss anthropologists, as His and Rütimeyer, De Quatrefages and others. The Italian anthropologist, Mantegazza, has proposed a Linnean description of human skulls.

But all the anthropologists believe they can determine the form of the skulls by the measurements and the correlated indices.

This method of measurement, which Retzins introduced in anthropology, was suggested by himself and by subsequent scholars. Retzins classified the human races by means of the cephalic index, which is one character of the skull; he changed his classification four times in a few years, because his method was uncertain.

In my opinion, the method of measurements adopted for this classification is no method. The measures only discover some secondary characters of the skull; I have proved that, under the same cephalic index, we have many different forms of skulls, and under various cephalic indices we have the same shape of the skull. Besides, the skulls of all people of the world are dolicho, meoo, and brachycephalic.

I think that Blumenbach laid the true basis of anthropology in his little book, *De generis humani varietate nativa*, a century ago. He found that the human varieties are numberless, and investigated very accurately the causes of the variations in man, as in animals. But subsequent anthropologists have left off the Blumenbach principles, which should have been the basis of systematic anthropology and of classification.

Now, my object is to establish the basis of systematic anthropology on the shape of the skulls, without regard to measurements. For this purpose it is necessary to find a nomenclature of those forms which correspond to the varieties and sub-varieties, as we have done in zoölogy. The nomenclature is intended to distinguish one form from another, and to fix definitively the forms of the different varieties. Further, the nomenclature applies to the geographical distribution of the varieties and serves to analyze the various ethnic elements which compose the peoples of the world. Thus we can follow the course of human emigration and of mixture in various times.

I have attempted, in many sketches, to show practically the results of my principles and of my new method of classification of varieties. These sketches are the following:

African and Armenian skulls: General considerations on anthropology and craniology. (Archivio per l'Antropologio, 1891). The human varieties in Melanesia (Academia de Medicina de Parma, 1892). The human varieties in Sicily (Acad. dei Lincei, Roma, 1892). The human varieties in Sicily. (Acad dei Lindei, Roma, 1892). The human varieties in Lower Russia (Anali de Medicina 1892). The primitive inhabitants of the Mediterranean Sea (not yet published). The microcephalic varieties and pygmies of Europe (Acad. di Medicina di Roma, 1893). Catalogue of the varieties of man in Russia. Systematic classification of the primitive inhabitants of European Russia.

LETTERS TO THE EDITOR.

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The editor will be glad to publish any queries consonant with the character of the journal.

THE MECHANICS OF FLIGHT.

AT the recent Aërial Navigation Congress in Chicago a paper was read on this subject which was published in *Engineering News* for Oct. 12. The paper has caused a great deal of discussion, which has appeared in the same journal for Oct. 26 and Nov. 16. I think it will be of interest to readers of *Science*, who may not have access to this paper, to give a few points in these novel views and to show how valueless they are in explaining the perplexing problem of the soaring bird.

The author has made a careful study of the flight of buzzards in tropical regions, and assumes, as a premise, that because he has not seen the bird move its wings, or any portion of them, therefore it must gain some assistance from air currents. It seems to me this is a violent assumption at the outset; surely our eyes at a distance cannot give us movements of wings which might be ample to keep the bird at a level, or it may be that the bird does not continue absolutely at the same level, though appearing to the eye to do so. At all events, this premise should not be granted, and should be proved by evidence far better than any thus far adduced.

The author thinks that the bird in flying with a current and down an inclined plain will gain energy from the current over and above that due to the descent, and this