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Ethnic Psychology.

SOME REMARKS

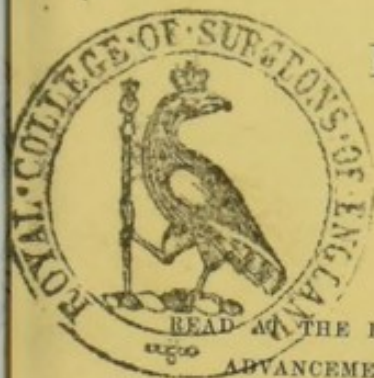
ON

ETHNIC PSYCHOLOGY.

BY

ROBERT DUNN, F.R.C.S.

PRESENTED
by the
AUTHOR.



READ AT THE BRADFORD MEETING OF THE BRITISH ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE, IN SEPTEMBER 1873, AND BEFORE THE
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Some REMARKS on ETHNIC PSYCHOLOGY. By ROBERT DUNN,
F.R.C.S.

The comparative psychology of the typical races of man presents a subject for investigation of great interest to every ethnological inquirer, and to all physiological anthropologists ; for who is there amongst them, let me ask, that does not yield a ready and willing assent to the dictum of the pagan philosopher, Favorinus, that whilst

“On earth there is nothing great but man,
In man there is nothing great but mind.”

It is not, however, my intention, had I the ability and the requisite information, which I have not, to enter fully upon a field of inquiry so wide, varied, and comprehensive, but to confine the remarks which I am about to submit to you principally to the physiological bearings of the subject—to cerebral physiology. Comparative psychology, indeed, in its widest sense, embraces the study and strict interpretation of all those living experiments, to use the happy expression of Cuvier, which nature has presented to us, in an ascending series, throughout the wide domain of animal life, from the lowest up to man himself ; whilst ethnic psychology restricts us, in our inquiry, to the study of genus *homo sapiens*, and its typical varieties.

Now, waiving at this time, as foreign to our present inquiry, all discussion on the Spenserian doctrine of evolution, and on the Darwinian hypothesis of the genesis of man, however enticing and interesting such discussions may be in themselves, I would here at the outset remark, and as bearing directly on our present subject, that at the Cambridge meeting of the British

Association in 1862, more than eleven years ago, I read a paper on the psychological differences that exist among the typical races of men, and which I subsequently read before the Ethnological Society of London, and is published in Vol. iii of the Society's Transactions.

In that paper I dwelt upon the importance of assiduously studying and carefully contrasting and comparing the cerebral organisations of the typical races, with the view, and as the most efficient means, to the better understanding and elucidation of the psychological differences which exist among and characterise them. Believing, as I then did, and as I still do, that the distinctive psychical differences which exist among the typical races will be found to be engraven on their brains, I would again, and on the present occasion, enforce the paramount importance of this duty upon every physiological anthropologist, and thus indicate a field of investigation and inquiry, which, if fully explored, cannot fail, unless I am greatly mistaken, of yielding a rich harvest and of throwing a flood of light upon the subject of ethnic psychology.

And here let me ask, what time could then be more befitting and appropriate than the present for bringing this subject before the Anthropological Institute, while we have for our President such a distinguished physiologist as Professor Busk? I am fully aware of the difficulties which beset such an investigation and inquiry, but which nevertheless have been rendered no longer insuperable, as they were in the days of the venerable Blumenbach, by the indefatigable labours of Gratiolet, and the chart which he may be said to have provided for our guidance as a standard for comparison. For, to use the emphatic language of Professor Rolleston, of Oxford, "what Max Müller has done for language and Adams for astronomy, that Gratiolet has done for the anatomy of the human brain." Still I cannot too strongly impress upon the minds of other physiological anthropologists my own conviction of the necessity and importance of a more exact knowledge than that to which we have yet attained of the cerebral structural differences which exist among the typical races of man. For how often, on the one hand, has there been noticed a marked superiority on the part of the savage over civilized man in the force of his *instincts* and in the acuteness of the organs of sense; but then, on the other hand, how great and striking are the differences in their intellectual manifestations—so striking and so great, indeed, is the intellectual inferiority of the Bushman, the Australian Savage, and the African Negro, to that of the Indo-European, that even their claims to our common humanity have been denied to them, and they have been considered and treated like wild fowl and cattle.

How important, then, becomes the inquiry—nay, incumbent the duty upon every physiological anthropologist to study, examine, and compare the nervous apparatus and organic instrumentality through which such varying psychical phenomena are manifested. Now, my own conviction of the paramount importance of this duty rests, as its bases, on the postulates, that the genus *homo* is *one*, and that the brain is the instrument of the mind.

For who, on the one hand, can ignore or deny the fact that all the races of the great family of man are endowed with the same instinctive intuitions, sensational, perceptive, emotional, and intellectual—the same mental activities, however they may differ in degree;—in other words, that they all have as constituent elements the germs or original principles *in common* of a moral, religious, and intellectual nature, so that, however great and striking the psychological differences may be which exist among and characterise them, they are nevertheless differences in degree and not of kind. And again, on the other hand, are not all physiological psychologists agreed that the brain or encephalon is the material organ of the mind—the seat of the understanding and the will? And that if there is one point into the physiology of the brain more firmly established than another, it is this, that the vesicular substance, or grey matter, of the cerebrum or great hemispherical ganglia is the *sole and exclusive seat* of all intellectual action and volitional power, and upon which, as its substratum, the mind is dependent for the manifestation of all its activities in this life, and among all the races of mankind. It is here that sensations are converted into perceptions, giving rise to ideas and becoming the pabulum of thought, and from here it is that the mandates of the will issue.

The human mind, rising above sensation and above perception, soars into the region of representative knowledge, grasping, through its intellectual faculties, its reasoning and reflecting powers, abstract ideas, and necessary and universal truths, and finding articulate expression for them, through the noble faculty of speech, in language. But at the same time, be it here remembered that, in affirming sensation, emotion, thought, and volition to be attributes or functions of the nervous system, all that is really maintained is this, that the vesicular matter of the encephalic ganglia furnishes the material conditions, the substratum or medium, through the instrumentality of which these mental phenomena are made manifest in this life. But as for consciousness itself, that is an *ultimate fact*, beyond which we cannot penetrate. For the abstract nature or essence of mind, like that of life, is to us *inscrutable*. They are indeed problems which belong to the same category. For here we know nothing

of life apart from an organism, and we have no manifestations of mind independently of a living *brain*.

Now the great hemispherical, as the crowning ganglia of the encephalon, are superimposed on the sensory, emotional, and motor ganglia for offices and purposes the noblest and most exalted of which the human mind is capable. For, as I have said, all physiological psychologists are agreed that they are the *sole and exclusive seat of all intellectual action and volitional power*. My mind, however, rests in the conviction, as a well-established fact, that different parts and portions of that vast sheet of vesicular matter which crowns the convoluted surface of the great hemispherical ganglia subserve and are the seat of special psychical activities and of different kinds of mental action.

For, as Mr. Herbert Spencer has well remarked: "Localisation of function is the law of all organisation whatever, separateness of duty is universally accompanied by separateness of structure, and it would be marvellous were an exception to this to exist in the cerebral hemispheres."

The microscopic investigation of the ultimate structure of the vesicular substance, in the three main divisions—the anterior, middle, and posterior lobes of the brain, by my friends Dr. L. Beale and Dr. Lockhart Clarke, revealing as it does to us in these three lobes distinguishing differences and varying degrees of complexity, assuredly warrants the legitimate inference of diversity of office.

And as complexity of function is necessarily connected with complexity of structure, and as it is in the ultimate structure of the vesicular matter of the anterior lobes that the greatest complexity in the machinery of its action, of nerve cells, nerve fibres, and circuits are demonstrable, does it not necessarily follow, as a legitimate deduction, that the vesicular matter of the anterior lobes is the seat of the highest and most complex of our psychical activities? But again, says Herbert Spencer: "Let it be granted that the cerebral hemispheres are the seat of the higher psychical activities, let it be granted that among these higher psychical activities there are distinctions of a kind, which, though not definite, are yet practically recognisable; and it cannot be denied, without going in direct opposition to established physiological principles, that these more or less different kinds of psychical activity must be carried on in more or less distinct parts of the cerebral hemispheres. To question this is not only to ignore the truths of physiology as a whole, but especially those of the physiology of the nervous system. Now there is either some arrangement, some organisation, in the cerebrum, or there is none. If there is no organisation, the cerebrum is a chaotic mass of fibres, incapable of performing any

orderly action. If there be some organisation, it must consist in that same physiological division of labour in which all organisation consists, and there can be no division of labour, physiological or other, of which we have any example or can form any conception, but what involves the concentration of special kinds of activity in special places."

And thus, again, we are led to the legitimate deduction that the vesicular matter of the anterior lobes, in consequence of the great complexity in the machinery of its ultimate structure, must be the medium or substratum of our highest intellectual activities.

Now, Dr. Ecker maintains—I quote his own words—"That the cortex of the cerebrum is the undoubted material substratum of our mental operations, and is *not* a single organ which is brought into play as a whole in the exercise of each and every psychical function, but consists rather of a multitude of mental organs, each of which is subservient to certain intellectual processes." And again he says: "Admitting it to be an undoubted fact (of which Dr. Ecker has no doubt) that certain portions of the cortex of the cerebrum subserve certain intellectual processes, the possibility is at once conceded that we shall some day arrive at a complete organography of the surface of the brain—a science of the localisation of the psychical functions. But a knowledge of the psychical organs of the brain, in all their relations, is certainly one of the most important problems for the anatomy and physiology of the next century, and the solution of which is destined to bring about a no small revolution in psychology." Gall, he says, had originally struck upon the right path—that of a careful study of the brain—but he quitted it very early, and making the fact, which in general holds perfectly good, that the outline of the skull adapts itself to the form of the contained brain, his starting point, Gall rested upon the belief that for laborious and rare investigations into the brains of the dead could be substituted observations on the scalps of the living. And hence the origin of his system of phrenology.

Since the enunciation of Gall, that the convolutions of the brain are the seat of the faculties of the mind, their development and classification have become invested with peculiar interest. All honour is due to Gall, for he was the first to classify the convolutions. One of the most remarkable men of the age in which he lived, he was alike distinguished for originality and independence of thought, for untiring industry and indomitable perseverance. No one has studied the varying outward forms of the human cranium, with a view to their psychical significance, with greater care and attention, and on a more extended scale, than the illustrious Gall. It was the labour of his life, and, so

far as outward and visible signs are concerned, he, Spurzheim, Combe, and Carus, from multiplied observations, have established certain cranial landmarks which are highly important in the study of the typical races.*

Now, the type of the human brain is the same in different races. For, on a cursory survey, how strongly are we at first impressed with the general resemblance which they bear to one another. We see the same lobes, the same convolutions, and the three main divisions of the brain into anterior, middle, and posterior lobes are as distinctly and as well defined in the one as in the other. But, on a closer survey and more scrutinising examination, we find marked and palpable differences among them, not only in the size and development of these three cerebral lobes, but also differences in the size, character, and complexity of structure in many of the corresponding convolutions, the significance of which is all-important, according to the psychical activities of which they are the seat. Nor can we fail to be struck with the existence of certain superadded convolutions, which constitute a marked and striking difference between one human brain and another, and a most characteristic distinction between the human and the Simian brain. The contrast is indeed striking in respect to these superadded convolutions and their complexities, in the cerebral hemispheres of the lowest and the highest races, the Negro or Hottentot, and the Teuton or Celt.

But the researches of the embryologist have shown that the human brain, in its evolution and ascensive development, passes through the phases in which it appears in the Negro, Malay, American, and Mongolian races, and finally reaches the highest or Caucasian type, so that, in fact, the leading characters of the typical races of mankind are virtually and simply representations of particular stages of the highest or Caucasian race. And hence, if the anterior lobes of the brain are the seat of the highest intellectual activity, fulness of development, for the influence of organic size on the energy of function is an established physiological fact, and complexity of structure in these lobes are sure indications of the elevation of the racial type; while the converse is equally true, as Gratiolet from extended observations has fully established, viz., that simplicity of structure and perfect symmetry of shape and arrangement among the convolutions on both sides of the hemispheres are indis-

* A most valuable treatise on the "Convolutions of the Human Brain," has been published by Dr. Alexander Ecker, Professor of Anatomy in the University of Freiburg, Baden; and of which an admirable English translation, by permission of the author, has recently appeared, by Mr. John E. Galton, M.A. Oxon, M.R.C.S. and F.L.S., etc.

putable marks of degradation of function and of inferiority of race. He has demonstrated that in the three stages of frontal cerebral development, the superciliary or inferior, the middle, and superior frontal—in other words, the intellectual regions of the brain—there exists among the lowest and the highest types of humanity differences in the size and complexity of structure in the convolutions, and in the relations of the second or middle, both with the inferior and superior stages, which accord with, and indeed are found to indicate and to correlate, corresponding differences in the psychical activities of the race. He has accordingly dwelt on the importance of studying with scrupulous care and attention the complexities, relations, and arrangements of these convolutions in the superior frontal and coronal stage, in all the typical races, with a view to their psychical significance, and thus to the elucidation and advancement of the study of ethnic psychology.

According to Agassiz, a peculiar conformation characterises the brain of the adult Negro, and, among other singularities, it bears in several particulars a marked resemblance to the brain of the orang outang, and its development never goes beyond that developed in the Caucasian in boyhood. The illustrious and philanthropic Tiedemann, the warm and zealous friend of the African Negro, is constrained to admit that in him the anterior part of the hemispheres of the brain is more pointed and narrower than it is in the European; and he makes this farther concession to its inferiority, that the gyri and sulci on both hemispheres are more symmetrical than in the brain of the European, and that in this respect it resembles the brain of the orang outang. Tiedemann, however, dwells on the fact that, in the case of a certain Bosjesman woman, the *Hottentot Venus*, the narrowing of the anterior part of the hemispheres was still more remarkable than in the Negro. This allusion of Tiedemann to the *Hottentot Venus* brings vividly to my recollection the eager and intense curiosity and wonder with which, in the days of my boyhood, I gazed on this *Hottentot Venus*, when she was publicly exhibited at Newcastle-upon-Tyne. She subsequently died at Paris, and had the honour of being anatomised by Cuvier. "Fortunately," says Professor Huxley, "Gratiolet has also particularly described and carefully figured her brain, and his remarks upon the subject are exceedingly important and instructive. The convolutions," says he, "of her brain are relatively little complicated. But what strikes one at once is the simplicity, the regular arrangement of the two convolutions, which compose the superior stage of the frontal lobe. These folds, if those of the two hemispheres be compared, present an almost perfect symmetry, *such as is never exhibited* by the normal brains of the

Caucasian race. This regularity—this symmetry, involuntarily recal the regularity and symmetry of the cerebral convolutions of the lower species of animals. There is, in this respect, between the brain of the white man and this Bosjesman woman a difference such that it cannot be mistaken." After pointing out other differences, he concludes by saying, "the brain of the Hottentot Venus is thus in all respects inferior to that of the white men, arrived at the normal period of their development. It can only be compared with the brain of a white who is idiotic from an arrest of cerebral development."

In the Philosophical Transactions of the Royal Society for 1864 is a most interesting and valuable Memoir, by Mr. Marshall, F.R.S., Surgeon to University College Hospital, on the Brain of a Bushwoman, which had been sent to him from Cape Town by a former pupil, Mr. Dyce, and which had reached him in a state of perfect preservation. In this interesting communication, well worthy of the most careful study of every physiological anthropologist, Mr. Marshall has compared the fissures, lobes, and convolutions of this preserved brain with the same parts in the brain of the European—the brain of the Hottentot Venus, so far as that was possible, as well as with the brain of the higher anthropoid apes; and finally, he says the establishment of the conformable development of the brains of the Bushwoman and Hottentot Venus (herself believed by G. Cuvier to have been a Bushwoman of small stature) is a step gained in cerebral anatomy, and their decided and common inferiority to the European brain may justify the expectation that future inquiries will show characteristic peculiarities in degree of convolitional development in the leading races of mankind.

Most heartily do I join with Mr. Marshall in the hope that a more searching and scrutinising examination and comparison than has hitherto been made will be instituted into the convolitional developments of the typical races, with a view to their psychical significance, and especially in reference to the superadded convolutions of the cerebrum, believing, as I am greatly inclined to do, that the higher and more complex of our psychical operations of comparing perceptions and the formation and elaboration of ideas have their seat in the vesicular matter of these superadded convolutions, forming as they do such extensive intermediate tracts of convolutions, which receive no fibres from either crus, central ganglia, or corpus callosum, but are at once the most characteristic convolutions of the human brain, and constitute the difference of one brain from another, and a broad line of demarcation between the human and Simian brains. Again, while the perception of sensations and the emission of motor impulses are psychical operations of the simplest cha-

racter, and are common to man and the lower animals—it is evident, on the one hand, that the sensations transmitted upwards must impinge upon those parts of the surface of the grey matter in which the fibres of the sensory tract or ganglia end; and, on the other hand, that wherever volitional power originates, the downward starting point of the ideo-motor impulse must be in some convolutions connected by fibres with the motor ganglia or tract.

And hence, the withdrawal of the nerve cells in the superadded convolutions alike from all fibres, from either crus, central ganglia, or corpus collosum, is most significant, and if they are the seat of our higher and more complex mental activities, for reasoning and reflection, how interesting and important becomes the duty to study and compare these different superadded convolutions as to the degree of complexity in their relations with other parts and in all the typical races.

One thing is certain, that alike in the brain of the Negro and of the Hottentot the cerebral organisation falls far short of that fulness of development and elaboration and complexity of structure which characterises the brain of the Indo-European, and hence is not the reason abundantly manifest why the large-brained European differs from and so far surpasses the small-brained savage in the complexity of his manifestations, both intellectual and moral? But I need dwell no longer on the psychological significancy and importance of the palpable and obvious structural differences which we meet with among the convolutions of the brain of civilised and savage man. But I must say I do look forward to the future revelations of the microscope, in reference to the differences in the ultimate structure of the vesicular matter in the three great divisions of the brain among the typical races of man and in the superadded convolutions, as promising the most interesting and instructive results. Already my friends Dr. Beale and Dr. Lockhart Clarke have proved to demonstration that perceptible differences exist in the minute anatomy of the grey matter in the convolutions in the brain of man and that of the monkey and the highest anthropoid apes. Nay more, that among the inferior animals themselves of distinct or different species, as the dog, the cat, and the sheep, the structural differences in the grey matter are so clear and well defined, that if a specimen from any one of these be placed in the field of the microscope, they can at once, and without hesitation, name the animal from which it has been taken.

I cannot, however, conclude this paper without referring to the interesting experimental researches of Dr. Ferrier into the functions of different parts of the brain. I had the pleasure of hearing Dr. Ferrier himself give an account of them at the Bradford meeting of the British Association last year, and my

friend, Dr. Carpenter, in an appendix to his valuable treatise on Mental Physiology, recently published, has given an able exposition on these experimental researches and of their physiological bearings. Dr. Ferrier's plan was to uncover and Faradise particular parts of the encephalon, and then to note the movements which followed. Or, to use the words of Dr. Carpenter, "Dr. Ferrier's researches were made by the localised application of an electric current to different parts of the cortical substance of the cerebrum, and to other ganglionic centres, forming part of the brain, the animal having been previously rendered insensible by chloroform, so that the movements excited by the stimulation may be regarded as the direct products of the physical changes induced." We are told that Dr. Ferrier has made a series of experiments on monkeys, but the details of which have not yet been published. To their publication we must all look forward with the greatest interest, on account of the close conformity which the simple arrangement of the convolutions in the brain of the monkey bears to their complicated disposition in the human cerebrum. But it is not to be forgotten that the animals are narcotised by chloroform before Faradisation, and what influence that state may have in veiling or otherwise affecting their psychological manifestations is not to be overlooked. I quite agree with Dr. Hughlings Jackson that Dr. Ferrier's experiments are a starting point for what may be called a comparative physiology of the convolutions, and that they bear very closely on the methodical investigation of epilepsy and epileptiform convulsions in men. Dr. Hughlings Jackson says truly: It would be difficult to exaggerate the significance of researches, which show us how and where the clinical physician's physiological part of his work may be made as it were continuous with physiology, usually so called. Dr. Ferrier's researches prove this much, that the individual convolutions are separate and distinct centres, and the anterior portions of the cerebral hemispheres are the chief centres of voluntary motion and for the active outward manifestations of intelligence.

We must all look forward hopefully for further revelations from the experimental researches of Dr. Ferrier into the functions of the brain, though I cannot conceal my own misgivings as to their throwing much light on the organography of our psychical faculties. And, in conclusion, let me say, in the words of Dr. Broadbent, to whom we are so much indebted for our knowledge of the structure of the brain: "It is to be hoped that a fuller knowledge of the structure of the cerebral hemisphere, the instrument of thought, will give greater precision to our speculations on the physiology of thinking; it will certainly afford a firmer basis for the application of pathological facts to the elucidation of physiological problems."