

Brain, Mind, and the External Signs of Intelligence

Bernard Hollander



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Brain, Mind, and the External Signs of Intelligence

Born in Vienna in 1864, Bernard Hollander was a London-based psychiatrist in the early twentieth century. He is best known for being one of the main proponents of the interest in phrenology at that time. This title originally published in 1931 looks at the different regions of the brain and their various functions in relation to intelligence. From the preface: "The records of cases collected by the author, including some of his own, point to there being at least three main regions of totally different functions.... Of these three regions, the frontal is by far the largest in man and the most important, being the region for the manifestation of the highest intellectual abilities." Back in print this is a chance to read all about the study of the brain, mind and external signs of intelligence from the early twentieth century.

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BRAIN, MIND, AND THE EXTERNAL
SIGNS OF INTELLIGENCE

by

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Medicine of Madrid*

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P R E F A C E

Of all the organs in the human body, the brain is of the greatest interest, and ranks highest in importance; yet a survey of the views of the recognised authorities of the present day, as given in this book, tends to show that, whereas other branches of medical science have made great advances during the past hundred years, the physiology of the brain presents such difficulties that our knowledge of the *mental* functions is still obscure.

One of the reasons for this lack of progress is that brain research has hitherto been hampered by psychological dogmas almost as effectively as it was by theological dogmas in earlier times.

Consequently, we have not got beyond the vague statement that the brain is *the organ of the mind*, and there is no agreement as to what is meant by the term "mind", or what is its relation to the brain.

It is only a little more than a century since the search for the seat of the "soul" in the brain has been given up; and only about sixty years since the brain has ceased to be regarded as a uniform organ, on the ground of the unity of the "ego" and the indivisibility of the mind.

Even to-day many investigators still regard mind as if it consisted exclusively of the lofty intellect of man, and completely ignore the emotions and instinctive dispositions for the preservation of self and the species, which also are part of the mind, and which indeed in animals form almost the entire mind—their intellect being only rudimentary.

Sixty years ago it was confidently anticipated that experiments on the exposed brains of living animals would speedily disclose the nature of the mind and the inner

working of the brain, and make mental disorders disappear for ever. But, as is well known, these extravagant hopes have not been fulfilled.

All that experimental physiology succeeded in doing was to localise centres in the brain, where sensations are received and the response is given to muscular movements; but the mind, which makes use of these centres, has, so far, escaped discovery.

It is now realised that neither electrical stimulation nor the destruction of portions of an animal's brain—which were the two accepted methods of investigation—could ever shed light on the diversity of human talents and dispositions, or the variety of mental derangements.

It has been found, moreover, that the sensory and motor centres, that had been successfully localised, are not—as was originally believed—cortical, i.e. on the surface of the brain, but subcortical. For the paralysis which ensues upon the destruction of their respective areas—whether done experimentally or following accident or disease—is only temporary. It is not surprising, therefore, that this method of research has now been given up.

In consequence of these failures, many experts have reverted to the old view of a century ago, which regarded the brain as being a uniform organ, and localisation of function therefore impossible.

Great results were also expected from the study of the microscopical anatomy of the cortex of the brain; but, though we have learnt much about the configuration of the various layers of brain cells, and their arrangement in structurally differentiated territories, there still prevail conflicting opinions as to the significance of these discoveries.

The fact is that neither thought nor feeling can be lifted

with the scalpel; nor will a brain section held under the magnifying lens reveal its living function.

Instances will be quoted of the brains of men of renown having been cut into as many as thirty thousand minute sections, a wonderful feat in itself; yet we have learnt very little from it, not knowing what signs to look for as indicating individual greatness.

Notwithstanding a vast amount of research, nothing is known why one man's genius should take the direction of a Newton, while that of another develops into a Shakespeare or a Michel Angelo. Nothing is known to explain why one man should become saintly in character, while another develops into a genius of crime.

But, because the investigations hitherto pursued have proved unsatisfactory, this is no reason why we should rest content with our present knowledge or lack of knowledge; for there may be other methods more fruitful of results.

Now that experiments on animals have apparently reached their limit of usefulness, a more promising method for advancing our knowledge of the mental functions of the brain would be the collection of clinical and pathological data, such as are given with abundant detail in this book: by observing the effects of cerebral injury and circumscribed disease on man; since he alone can communicate his feelings, sensations, and thoughts, by means of speech.

Usually, in such circumscribed lesions, one or more mental powers become deranged, while in other respects the individual remains perfectly sound; and, whenever the injury or disease affects the same locality, the same mental power suffers.

The records of cases collected by the author, including some of his own, point to there being at least three main

regions of totally different functions: the frontal, parieto-occipital, and lower temporo-sphenoidal. Of these three regions, the frontal is by far the largest in man and the most important, being the region for the manifestation of the highest intellectual abilities.

Indeed, the evidence shows that, just as there are specific types of genius, so there are specific types of frontal brain: for mechanical science, philosophy, poetry, mathematics, music, and so forth.

Of course, not every man possessing such a type of brain will necessarily manifest that particular capacity. The gift alone is not enough. Among other conditions, he may lack the training, or may not possess the character qualities which urge men to work hard for the acquisition of knowledge.

The development of the frontal lobes, as the illustrations show, may be estimated in the living head. True, until recent years it was believed that the size and shape of the skull had no relation to the size and shape of the brain. Now, however, there is not an anatomist in existence who would deny that, for all practical purposes, skull and brain conform in outline.

But, if this is so, then it is highly desirable, without committing anyone to the tenets of any particular doctrine, that more attention be paid to the shape of the head.

We have expert histologists and pathologists—that is to say, experts of the post-mortem appearances of the brain—and even experts of prehistoric skulls; but, so far, the living head has had so little interest for medical men, that one would expect that the organ of the mind might be anywhere but in the cavity of the cranium.

Indeed, no one seems to know, nor has it ever been

scientifically explained, what is a good or a bad head; or what are the signs which indicate special intellectual abilities or definite character dispositions.

It was by the observation of living heads that the author discovered thirty years ago, among other important facts mentioned in this book, that a large number of feeble-minded children, though of normal parentage, were mentally deficient in consequence of injuries to their brain at birth, as the result of difficult labour, having malformed heads or bearing the marks of a badly applied forceps.

It is only within the last ten years that this has been more commonly recognised. Systematic investigation at Institutions for the Feeble-minded has revealed that 10 per cent. of the inmates were the victims of such injuries, and the evidence of brain surgeons will be quoted that if such lesions were attended to shortly after birth, subsequent mental and moral deficiency might be prevented.

However, it is not on craniology, but on clinical evidence that the author bases his deductions. Such clinical observations have never been made systematically. The cases recorded in medical journals are so few that it requires a survey of the world's literature in order to obtain sufficient material; the paucity of reports being due, principally, to the common belief that localisation of *mental* functions in the brain is not possible.

Consequently—as will be shown by many examples quoted in this book—no definite psychological examination of the patient is made; and, often, the locality of the lesion is but vaguely described. It is not surprising, therefore, that destruction of large areas of the brain is sometimes recorded “without any mental change”.

The evidence which will be given is not that of isolated

instances, but of hundreds of cases, incontrovertible in fact—including many which have been treated surgically with marked success.

These cases have not been chosen merely because they support the author's theories. Adverse facts and cases have been reported with equal fidelity.

Possibly some of the examples are not as perfect as can be desired; but they are the average that can be found in the world's medical literature.

Nor does the author claim, as some critics have stated, that all insane can be cured by surgical operation. Insanity is due to a variety of causes; sometimes it is of bodily origin. The operable cases refer only to head injury, circumscribed inflammation or haemorrhage, and brain tumours.

Altogether, it is not the author's wish that anything contained in this book should be taken for granted. It was written solely for the purpose of giving an impetus to a general inquiry into the whole problem of brain functions, on new lines. Research is needed: research by new methods, unhampered by dogma or false preconceptions.

For this purpose it is necessary that the future investigator should be acquainted with the failures of the past, in order to avoid repetition of the same errors; to this end, the historical and critical account of the chief theories and actual investigations should be of help, even to those who do not agree with the author's conclusions.

Unfortunately, such a history cannot be written—as, indeed, no new or partially known truth can be advocated—without opposing some “authority” or proving the failure of some branch of science, even when based on experiment or on the application of a recognised method of research.

Still, considering the present confusion with reference

to the most elementary problems of brain functions, such independent inquiry—though it has some faults and is opposed to current views—should not suffer the usual fate of being ignored, or treated off-handedly, if we have the advancement of knowledge genuinely at heart.

Anyone who has studied the history of medicine will know that medical opinions despised by one generation have often become the dogma of a later one.

Every attempt should be made to solve this problem of the functions of the brain. If this were done, on the lines adopted by the author in this work, new light would be shed on the whole subject of mental disorders—and on other disturbances of the brain, such as epilepsy, which the evidence shows to be most frequent in lesions of the temporal lobes.

The author, speaking with the knowledge derived from a lifelong study of the subject, feels convinced that the treatment of insanity will not be perfect until proper research has disclosed the localisation of the mental functions of the brain, and that such knowledge can hardly fail also to lead to the elucidation of some of the most difficult and interesting psychological, educational, and social problems.

Psychologists, if they wish to arrive at a real "science of mind", or to found a real "science of character"; teachers who want to draw out and make the most of the native abilities of the young; even social reformers anxious for the reduction of poverty, misconduct, vice, and crime—should possess an elementary knowledge of the brain and its functions, i.e. of the organic basis of the instincts, emotions, and higher mental attributes, in order to know what is innate in man and what is acquired, and to be able to distinguish

the mentally deficient from the normal and those gifted in special directions.

Indeed, every man should know something of the brain mechanism with which he is endowed, to enable him to make the best use of it.

57 WIMPOLE STREET
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(See also POSTSCRIPT, page 274)