

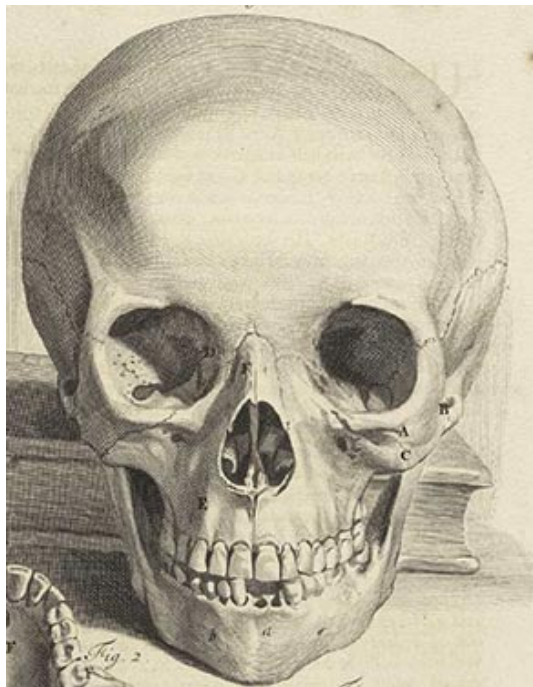
“On the Inequality of the Corresponding Regions of the Skull”

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Typical skull possessing unequal corresponding regions

“On the Inequality of the Corresponding Regions of the Skull”

Messieurs, during my studies that I have pursued for a long time concerning the variations of the brain’s size and shape that one observes among individuals belonging to the same race—studies whose findings I intend to soon entertain you with—I have had occasion to investigate whether the different parts of the cerebral hemispheres on the right side and on the left side habitually possess the same size.

Not being able to easily obtain a determination of the weight of the brain and its associated parts, I was obliged to effectuate my research upon the skull itself. My measurements have been taken on nearly 300 skulls belonging to different series in the collection of the Museum of Anthropology, which were graciously placed at my disposal by Doctor Broca.

For a long time anatomists have wondered whether the two cerebral hemispheres are quite alike. The most widely-held opinion has been that of Bichat, who considered that a lack of symmetry of these organs must be accompanied by a lack of sound judgment. The autopsy of this famous anatomist, whose own skull proved to be most irregular, demonstrates how little this opinion is well-founded.

With man, the majority of the organs are generally more developed on the right side than on the left; but, considering that the left portion of the brain presides over the functions of the right part of the body, one might deduce that it is the left hemisphere of the brain which must be the most developed. A professor in Bordeaux, Doctor H. Fleury, recently affirmed a similar opinion, based on his contention that blood circulation is more active in the brain’s left hemisphere than in the right hemisphere, because of the dissymmetrical divisions of the aortic arch.

Notwithstanding their rational appearance, these theories have not been confirmed by observation. With respect to the 287 skulls that I have measured, in choosing as a reference mark the vertical plane passing through the external occipital protuberance and the extension of the middle ridge of the nose bone, I have procured the following results:

Skulls where the right side predominates over the left side 125

Skulls where the left side predominates over the right side 111

Skulls whose various bones are unequal, but whose inequalities offset each other, so that the right half is nearly the same as the left half . . . 51

There is, as you can see, an advantage on behalf of the right side, but it is slight; and, in reality, the skull is sometimes more developed on the right—then again, sometimes on the left—without it being possible to assign solid reasons for this inequality of development.

From the very first I have believed that the inequality of development of the homologous parts of the skull would be found more frequently on the left than on the right side among intelligent subjects; and observations made with the conformator (that is, the hatmakers' head-measuring instrument) on more than 200 living heads led me to instantly be persuaded in the accuracy of this hypothesis. But, I have discovered since then that by reason of the difficulty of successfully positioning the large axis of this instrument, one cannot rely upon its indications. I have in the meantime preserved in an album, which is available to anyone who might find it interesting, 200 drawings taken upon the living with the aid of a conformator.

What regions of the skull show the unequal development that I have pointed out? *A priori*, it will seem that it must manifest itself in the same sense for all the bones belonging to the same side; but observation will once again contradict this hypothesis. When, for example, the frontal bone predominates on the right, one very often sees the parietal predominating on the left, and vice versa. Whenever it happens that the parietal and the frontal predominate on the same side, one can be fairly certain that the occipital will predominate on the other.

Whenever the two halves of the skull seem equal, as in the third case mentioned in the preceding table, it is because the inequality of certain bones on one side have been compensated for by inequalities on the opposite side; the predominance of the parietal on the right, for example, will be offset by the predominance of the occipital on the left half, and the two halves of the skull will appear symmetrical; but, in none of the nearly 300 skulls that I

have measured have I ever found all the corresponding parts of the right and left side equally developed.

The preceding observations demonstrate that the skull, and probably the brain as well whose shape it has reproduced from its own, presents a lack of constant symmetry *that is not of the same sense for each of its parts*. For now, messieurs, I shall confine myself to establishing this important anatomical fact, without trying to draw at this time any physiological inferences.