A CAST OF THE VENTRICLES OF THE HUMAN BRAIN

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TWO FIGURES

It is the purpose of this paper to describe a method employed in making a Wood's metal cast of the ventricles of the human brain for the use of this laboratory, and to record some results of a comparison of casts made from several different brains.

The casts consist of the lateral ventricles joined by the foramina of Monro to the third ventricle, which is connected with the fourth ventricle by the aqueduct of Sylvius.

A profile view of the cast, fig. 1, shows several impressions and recesses. On the floor of the anterior horn and body of the lateral ventricle may be seen the impression of the caudate nucleus, the groove for the vein of the corpus striatum and the tenia semi-circularis, and the impression of the optic thalamus. On the outer side of the body of the lateral ventricle, and extending along the anterior edge of the outer surface of the trigone, is a series of shallow depressions formed by the radiations of the transverse fibres of the corpus callosum, and by the tapetum. On the roof of the inferior horn may be seen, at its extremity, the depression made by the amygdaloid tubercle. The third ventricle shows anteriorly a notch for the anterior commissure, inferiorly the optic recess and the infundibular recess, and posteriorly a notch for the posterior commissure and the suprapineal and pineal recesses. Seen from above, fig. 2, the cast shows the cross striations on the roofs of the bodies of the lateral ventricles.

FIG. 1. Profile view of a cast of the ventricles of the brain. Drawn from a photograph corrected to conform with the average. **R. Sp.**, Suprapineal recess; **R. P.**, Pineal recess; **A. S.**, Aqueduct of Sylvius; **I. C.**, Intermediate commissure; **F. M.**, Foramen of Monro; **O. R.**, optic recess; **I. R.**, Infundibular recess; **T. S.**, Tenia semicircularis; **O. T.**, Optic thalamus.

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FIG. 2. View from above of a cast of the ventricles of the brain. **R. Sp.**, Supra-pineal recess; **A. S.**, Aqueduct of Sylvius; **C. F.**, Columns of fornix; **L. R.**, Lateral recess.

The method of making the cast was the following: A brain of average size, hardened in formalin, was chosen, and placed in a basin of warm water, where it was allowed to remain for several minutes or until it had become warmed throughout. This procedure was adopted to prevent the premature hardening of the molten metal before it had penetrated the recesses and smaller cavities of the ventricles. Then the brain was removed to a cutting board and cut with a brain knife into four slices by coronal sections through the tips of the anterior horns, the middle of the bodies of the lateral ventricles and the middle of the third ventricle, and the middle of the trigones and anterior end of the fourth ventricle. Parts of the occipital and temporal lobes were cut away to expose the tips of the posterior and inferior horns. The slices were then carefully laid on the board, and with a pair of fine-tipped forceps the chorioid plexuses were removed from the cavities of the ventricles, and the walls of each cavity were thoroughly dried with absorbent cotton. Then the slices were superimposed in their proper order with the brain resting on the occipital poles. The molten Wood's metal was poured slowly from a ladle into the anterior tips of the cavities. When the brain-tissue had been carefully cut away from the cast, irregularities in the metal were smoothed off with a hot iron.

By this method six casts from different brains were made; and from five of these measurements were taken with calipers, the results and averages being recorded in the accompanying table. The dimensions of each part of the cast are in every case the greatest. The casts differ widely among themselves in size and shape; and the two sides of the same cast show wide variations. It will be noticed that the average dimensions of the anterior horn and body of the left lateral ventricle exceed those of the right side. The dimensions of the posterior horns were measured close to the trigones, where they are greatest; and at this point they are greater for the right side than for the left. But four out of the five casts show the left posterior horn to be more extensive than the right, which is in accordance with previous

TABLE 1

Recording Measurements in Millimeters of the Ventricles of the Brain. D, depth; W, width; L, length

												AVERAGE	
		L	R	L	R	L	R	L	R	L	R	L	R
Ant. Horn	D	6.0	6.0	11.5	7.5	11.0	10.0	6.5	6.5	5.5	6.0	8.1	7.2
	W	15.5	15.0	22.0	17.5	27.0	17.5	19.0	19.0	21.0	17.0	20.3	17.2
Body	D	7.5	6.5	8.5	7.5	13.0	14.0	5.5	3.0	3.5	4.5	7.6	7.1
	W	14.0	12.0	22.0	20.0	24.0	25.5	17.0	17.0	19.0	18.0	19.2	18.5
Post. Horn	D	10.0	8.0	11.0	12.0	10.5	10.0	7.0	10.0	12.5	14.0	10.2	10.8
	W	6.0	5.5	6.5	11.5	14.0	16.0	4.5	7.0	8.0	9.5	7.8	9.9
Inf. Horn	D	3.0	5.0	5.0	3.0	4.5	5.0	3.5	3.5	5.0	1.5	4.2	3.6
	W	15.0	18.5	19.0	17.5	*5.5	21.0	14.0	16.0	20.0	16.0	17.0	17.0
	L	25.0		28.0		24.5		25.0		27.0		25.9	
3rd Vent	D	16.0		16.0		8.0		16.0		12.0		13.6	
	W	3.5		11.0		12.0		5.0		6.5		7.6	
Aqueduct	L	19.0		19.5				17.5		17.5		18.4	
4th Vent	D	8.0		6.0				8.5				7.5	
	W	13.5		18.0				17.0				16.2	

* Not averaged.

observations.¹ In two or three of the brains, the cavities of the right posterior horns were so extremely narrow as to prevent the entrance of the metal in casting; and the casts, therefore, show a blunt posterior horn on the right side, which was the only portion available for measurement. Measurements of the inferior horns show that in two cases the right side exceeds the left, and in two cases the left side exceeds the right. The fifth cast was imperfect, and the measurements obtained from it are not averaged.

¹ Testuté Traite: d'anatomic humaine, vol. ii, p. 706.