

**Tables of the weights of the brain and of some other organs of the human body / by Thos. B. Peacock.**

**Contributors**

Peacock, Thomas B. 1812-1882.  
University of Glasgow. Library

**Publication/Creation**

London : [Richard Barrett, Printer], 1861.

**Persistent URL**

<https://wellcomecollection.org/works/rdejg473>

**Provider**

University of Glasgow

**License and attribution**

This material has been provided by This material has been provided by The University of Glasgow Library. The original may be consulted at The University of Glasgow Library. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>

CxR ✓

TABLES

(12)

OF THE

WEIGHTS OF THE BRAIN AND OF SOME OTHER  
ORGANS OF THE HUMAN BODY.

By THOS. B. PEACOCK, M.D.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS ; PHYSICIAN TO ST. THOMAS'S HOSPITAL,  
AND TO THE HOSPITAL FOR DISEASES OF THE CHEST, VICTORIA PARK.

---

[REPRINTED FROM THE "MONTHLY JOURNAL OF MEDICAL SCIENCE,"]  
VOL. VII., (N. S., Vol. I.,) 1847.

---

LONDON:  
RICHARD BARRETT, PRINTER, 13, MARK LANE.

1861.

# TABLES

## WEIGHTS OF THE BRAIN AND OF SOME OTHER ORGANS OF THE HUMAN BODY

LONDON:  
RICHARD BARRETT, PRINTER,  
MARK LANE.



# T A B L E S

OF THE

## WEIGHTS OF THE BRAIN AND OF SOME OTHER ORGANS OF THE HUMAN BODY.

---

AN extended series of "weights of some of the most important organs of the human body," together with elaborate tables compiled from them, were published, by Professor Reid, in this Journal for April, 1843. The data now recorded form a continuation of Professor Reid's observations, and were collected by myself at the Royal Infirmary of Edinburgh, during the years 1842 and 1843. Though fully conscious of their imperfection, both as regards number and completeness, I am induced to publish them from the belief, that they possess considerable value in connexion with the series recorded by Professor Reid.

To the 195 observations, including 105 weights of the encephalon, contained in the present communication, I have appended various tables, compiled, at the suggestion of Professor Reid, from his previous data, together with those now published, so that the tables which will be given in the second part are based on 356 weights of the encephalon ; a series which, though large, is still very defective in the weights of the brain in young persons, owing, as remarked by Professor Reid, to the small number of children admitted into the Royal Infirmary. The method of ascertaining the weight of the encephalon, and of its several portions, adopted in the collection of the present observations, was similar to that pursued by Professor Reid. The weight employed is avoirdupois.



TABLE I.—Weights of Healthy Organs.  
The letter D is inserted when the organs are diseased.  
MALES.

No.	Age.	Occupation.	WEIGHT				AMOUNT		WEIGHT					Disease causing Death.—Remarks.
			Of whole body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum with Pons Varoli and Medulla Oblongata.	Of Fluid in the Ventricles.	Of Fluid beneath the Arachnoid.	Of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	
	Yrs. mos.		lbs.	oz. dr.	oz. dr.	oz. dr.	...	slight	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
1	1 11	...	34	38 0	...	...	...	...	...	...	...	...	...	Marasmus, 6 weeks.
2	2 6	...	...	41 11½	36 8	5 3½	...	...	...	...	...	...	...	Pneumonia after measles, 3 months.
3	3 6	...	...	44 1¼	39 3½	4 13¾	...	...	...	...	...	...	...	Cereb. 4½ 11½, Pons and Med. 8½ 3.
4	6 0	...	...	39 12	35 0	4 12	...	...	...	...	...	...	...	Pertussis, convulsions. Cerebellum 4½ 4½, Pons and Med. 9½ 3.
5	11 0	...	42	55 0	...	...	...	...	8 8	22 0	...	3 8	3 4	Fever, gangrene of lungs.
6	14 0	...	...	...	...	...	...	...	9 0	...	...	D.	D.	Fever, 13th day; lungs congested.
7	16 0	...	...	...	...	...	...	...	7 0	...	...	...	...	Amputation of great toe for caries; diseased kidneys.
8	16 0	...	47	...	...	...	...	...	5 8	...	...	...	...	Phthisis and intercurrent pneumonia
9	17 0	Sailor	...	50 0	43 8	6 8	...	...	8 8	59 0	7 8	4 0	4 8	Phthisis.
10	19 0	...	...	40 4	34 0	6 4	...	...	11 0	...	14 0	6 8	6 0	Fever, with intestinal disease, 8th day
...	...	Average...	...	45 2	38 12	6 6	...	...	8 0	...	10 12	5 4	5 4	Fever, 11th day. Lungs congested.
11	28 0	Mason	108	54 0	...	...	...	...	8 8	47 0	6 0	4 8	5 0	...
12	27 0	...	...	56 8	...	...	...	...	...	...	...	...	...	Fever, 19th day.
13	26 0	Labourer	...	38 0	...	...	...	...	D.	D.	...	5 0	5 0	Fever.
14	26 0	Tavern waiter	130	46 0	...	...	...	slight	13 0	...	2 8	6 0	6 0	Diseased heart and liver (71½); bronchitis and emphysema.
15	25 0	Labourer	125	51 0	...	...	...	slight	10 8	...	...	4 8	8 12	Delirium tremens; slight opacity of aortic and mitral valves.
16	24 0	Brassfounder	...	57 0	...	...	...	...	10 0	...	11 0	9 0	9 0	Fever; pneumonia, 14th day.
17	28 0	Book-keeper	97	52 0	...	...	...	...	7 8	...	4 8	D.	D.	Fever, 12th day; lungs congested.
														Phthisis, 3 months; gran. dis. of kid.







TABLE I.—(continued.)

## MALES.

No.	Age.	Occupation.	WEIGHT				AMOUNT		WEIGHT					Disease causing Death.—Remarks.
			of whole body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum with Pons Varoli and Medulla Oblongata.	Of Fluid in the Ven- tricles	Of Fluid beneath the Arach- noid.	of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	
	Yrs. mos.		lbs.	oz. dr.	oz. dr.	oz. dr.	℥jss	...	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
47	38 0	Juggler	79	50 0	...	...	℥jss	...	...	...	...	...	...	Diseased heart, aorta, and kidneys ; congestion of lungs.
48	37 0	Sawyer	112	45 0	...	...	℥j	slight	8 0	...	...	...	...	Fever, 20th day.
49	33 0	Clerk	...	55 0	...	...	℥ivss	slight	10 0	...	...	...	...	Delirium tremens; double pneumonia
50	38 0	Flesher	145	46 8	...	...	℥jss	consid.	13 0	D.	...	7 8	...	Fever ; pneumonia ; old dis. of liver.
51	35 0	Fireman of steam-boat	...	58 8	...	...	...	...	12 8	...	...	...	...	Fever.
52	38 0	...	100	51 12	45 12	6 0	℥jss	slight	10 12	62 8	...	6 12	5 12	Fever ; bronchitis ; 17th day.
53	32 0	Mason	107	49 12	42 12	7 0	...	...	12 8	...	8 8	5 8	5 8	Phthisis, 10 months.
54	38 0	Watchmaker	...	40 8	...	...	...	...	8 8	...	...	4 12	4 4	Erysipelas ; delirium tremens ; con- gestion of lungs.
55	35 0	...	...	61 0	...	...	...	...	...	...	...	...	...	Compound fracture of humerus and leg ; purulent deposits ; 3 weeks.
56	30 0	...	...	44 8	38 8	6 0	...	slight	13 8	...	...	5 8	5 12	Bronchitis ; emphys. pulm.
57	36 0	Sailor	...	46 0	40 4	5 12	℥j	slight	12 0	...	...	...	...	Fever, 13th day ; lungs congested.
58	32 0	...	...	48 0	41 4	6 12	...	...	9 0	56 0	D.	...	...	Icterus, from arrest of secretion.
59	32 0	Policeman	111	52 8	46 8	6 0	℥ij	...	11 0	...	...	D.	...	Diseased kidneys.
60	38 0	Printer	...	62 0	54 8	7 8	...	...	11 8	...	...	...	...	Delirium tremens.
61	32 0	Carpenter	146	59 8	52 4	7 4	℥vij	...	D.	...	...	...	...	Valvular disease of heart.
62	34 0	...	171	56 12	50 0	6 12	...	...	14 8	...	2 8	5 4	5 0	Fever ; lungs much congested.
63	30 0	Sailor	157	48 0	...	...	...	...	D.	...	5 0	7 0	5 0	Intercurrent pneumonia, heart (145 45) and liver (705) diseased.
64	33 0	Typefounder	...	45 0	...	...	℥jss	...	...	...	...	...	...	Fever, 9th day ; chr. dis. of knee.
65	38 0	Bill Sticker	107	...	...	...	...	...	12 0	...	...	5 0	6 8	Pneumonia.
66	34 0	...	115	...	...	...	...	...	D.	...	...	6 8	7 8	Fever ; hypertrophy of heart (165).







TABLE I.—(continued.)

## MALES.

No.	Age.	Occupation.	WEIGHT				AMOUNT		WEIGHT					Disease causing Death.—Remarks.
			Of whole body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum with Pons Varoli and Medulla Oblongata.	Of Fluid in the Ventricles.	Of Fluid beneath the Arachnoid.	Of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	
			lbs.	oz. dr.	oz. dr.	oz. dr.			oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
95	40 0	...	...	...	...	...	...	...	11 8	D.	D.	7 4	8 0	Disease of liver and spleen.
96	44 0	...	...	...	...	...	...	...	D.	48 0	12 0	...	...	Chr. bronchitis and emphys. pulm.; heart 175 45; pericarditis.
97	45 0	...	149	...	...	...	...	...	D.	...	...	...	...	Pneumonia; heart 175 43.
...	...	Average...	...	50 15½	44 12	6 7½	...	...	11 4½	53 2½	7 8	6 10½	6 14½	...
98	40 0	Negro from Congou	...	46 2½	40 2½	6 0½	...	...	12 0½	65 0	11 0	8 0	8 0	Fever with bronchitis.
99	51 0	Tailor	121	54 0	...	...	5ij	...	13 12	...	...	...	...	Fever, 9th day; lungs congested.
100	59 0	Mason	...	51 0	...	...	...	...	D.	64 0	6 8	6 8	6 8	Dis. of heart and aorta; pneumonia
101	56 0	...	...	44 8	39 0	5 8	5ij	...	11 8	68 8	2 12	6 0	5 6	Cut throat, 8th day; pneumonia.
102	54 0	Baker	...	50 8	44 8	6 0	5iss	...	9 0	...	5 12	4 3	3 8	Pleurisy and peritonitis; dis. of aorta.
103	54 0	Flesher	146	46 8	41 0	5 8	5ij	slight	11 8	...	...	D.	D.	Stricture of ureth. and dis. of kidneys
104	52 0	Soldier, latterly a tailor	...	...	...	...	...	...	12 0	...	...	...	...	Phthisis.
105	51 0	...	...	...	...	...	...	...	9 12	59 8	3 0	5 8	6 8	Pleurisy.
106	52 0	...	...	...	...	...	...	...	10 8	36 8	D.	5 8	...	Chr. bronchitis and emphys. pulm.
107	53 0	...	115	...	...	...	...	...	10 8	51 0	5 8	...	3 8	...
108	56 0	...	84	...	...	...	...	...	7 0	...	...	...	...	Phthisis; intercurrent pneumonia.
109	53 0	...	108	...	...	...	...	...	5 0	D.	...	D.	D.	Disease of liver and kidneys.
110	57 0	...	...	...	...	...	...	...	13 0	...	...	...	...	Cut throat; pneumonia.
111	55 0	...	80	...	...	...	...	...	8 8	...	...	...	...	Secondary syphilis.
112	57 0	...	...	...	...	...	...	...	D.	...	...	...	...	Phthisis; bronchitis; diseased heart and aorta (heart 165.)







TABLE II.—Weights of Healthy Organs.

## FEMALES.

No.	Age.	WEIGHT				AMOUNT		WEIGHT					Disease causing Death.—Remarks.
		Of whole Body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum with Pons Veroelli and Medulla Oblongata.	Of Fluid in the Ventricles.	Of Fluid beneath the Arachnoid.	Of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	
	Yrs. mo.	lbs.	oz.	dr.	oz.	dr.	oz.	dr.	oz.	dr.	oz.	dr.	
1	1 8	11	30	12½	26	14½	3	14	...	...	...	...	Strumous pneumonia of 1 month's duration; cerebellum only 3½ 8½ and 12 gr.; pons and med. 5½ 13 gr.
2	2 3	...	35	5½	31	1½	4	4	...	...	...	...	Pneumonia and diphtherite after measles; cerebellum only 3½ 12½; pons and medulla 7½ 5.
3	3 0	20	41	2	37	2	4	0	10	4	1	0	Fever, fatal on the 6th day; lungs congested.
4	6 0	...	34	8	29	7	5	1	...	...	...	...	Phthisis, supervening on pertussis.
5	7 0	32	...	...	...	...	...	...	3	6	2	0	Dothinenteritis.
6	8 0	48	37	12	32	12	5	0	6	4	3	12	Scarlatina, 6th day.
7	14 0	95	...	...	...	...	...	...	11	12	...	...	Disease of kidneys.
8	16 0	...	...	...	...	...	...	...	11	8	...	...	Bronchitis and emphysema pulmonum.
9	16 0	...	44	8	...	...	...	...	...	...	...	...	Fever, 9th day.
10	17 0	96	44	0	...	...	...	...	...	...	...	...	Fever, 12th day; lungs congested; slight thickening of the folds of mitral valve.
11	17 0	129	46	0	...	...	...	...	...	...	...	...	Pleurisy and pneumonia; slight pericarditis.
12	17 0	59	...	...	...	...	...	...	4	8	3	8	Phthisis, necrosis of the tibia.
13	18 0	...	...	...	...	...	...	...	...	...	...	...	Scarlatina.
14	18 0	113	47	8	42	8	5	0	...	...	...	...	Fever, 10th day; lungs much congested.
15	18 0	...	42	8	36	0	6	8	...	...	...	...	Acute tuberculous.
16	25 0	66	39	0	...	...	...	...	8	0	...	...	Diseased uterus and kidneys; great enlargement of the liver, which weighed 96½.
17	28 0	97	46	0	...	...	...	...	9	8	4	0	Fever, 12th day; some congestion of the lungs.
18	23 0	85	44	8	...	...	...	...	6	12	4	12	Phthisis, 2 years.
19	25 0	117	43	12	38	0	5	12	9	0	7	12	Variola, with purpura hemorrhagica, 8th day.
20	29 0	...	42	8	37	0	5	8	9	8	...	...	Icterus; disease of liver (79½), and spleen (23½).



21	21	0	...	47	8	42	0	5	8	7jss consid.	D.	D.	...	7	12	7	0	Delirium cum tremore; diseased liver; heart loaded with fat.				
22	21	0	106	49	0	43	0	6	0	...	10	8	11	8	D.	D.	D.	Granular disease of kidneys and pneumonia.				
23	24	0	109	44	12	39	0	5	12	...	...	...	D.	D.	D.	D.	D.	Granular kidneys and enlarged spleen (153 43).				
24	25	0	86	...	...	...	...	...	...	...	9	12	...	...	...	...	...	Gangrene of Lungs.				
25	24	0	...	...	...	...	...	...	...	...	11	0	61	0	5	8	5	8	Bronchitis.			
26	21	0	86	...	...	...	...	...	...	...	5	12	D.	6	8	4	8	4	Phthisis; fatty and congested liver, 91 1/2.			
27	20	0	90	...	...	...	...	...	...	...	9	0	...	...	...	...	...	...	Phthisis.			
28	28	0	...	...	...	...	...	...	...	...	7	4	D.	...	D.	D.	D.	D.	Disease of liver and kidneys.			
29	21	0	97	...	...	...	...	...	...	...	10	0	...	...	...	...	...	...	Phthisis.			
30	20	0	...	...	...	...	...	...	...	...	7	4	...	...	...	...	...	...	Varicella.			
31	22	0	58	...	...	...	...	...	...	...	5	8	36	0	8	8	...	...	Phthisis.			
...	Avr...	...	...	44	10	39	12 1/2	5	11 1/2	...	8	7 1/2	41	0	5	8 1/2	5	9 1/2	...			
32	28	0	Negras.	46	0	...	...	...	...	...	12	0	57	8	11	0	D.	D.	Granular disease of kidneys; coma; slight effusion of blood in membranes of brain.			
33	36	0	129	46	0	...	...	...	...	...	10	12	...	12	0	...	...	...	Fever, 13th day; slight thickening of folds of mitral valve.			
34	36	0	117	54	0	...	...	...	...	...	12	0	...	...	8	0	8	0	Fever, 15th day; lungs congested.			
35	34	0	103	54	0	...	...	...	...	...	11	0	...	...	...	...	...	...	Chronic phthisis.			
36	33	0	84	38	0	33	12	4	4	...	8	8	...	...	...	...	...	...	Fever, following parturition, 10th day.			
37	31	0	89	47	8	...	...	...	...	...	9	12	63	0	D.	D.	D.	D.	Fever, 10th day; gangrene of lungs; granular kidneys; spleen, 17 1/2.			
38	39	0	...	44	0	...	...	...	...	...	8	8	D.	D.	D.	D.	D.	D.	Scrofulous abscess of liver opening into stomach; disease of kidneys; cartilaginous mass in spleen.			
39	39	0	95	40	0	...	...	...	...	...	9	0	...	...	...	...	...	...	Phthisis; pneumonia; puerperal mania 3 months before death.			
40	38	0	79	...	...	...	...	...	...	...	11	0	47	0	5	0	3	6	4	8	Phthisis.	
41	34	0	88	...	...	...	...	...	...	...	7	8	45	8	7	0	6	8	7	4	Phthisis.	
42	34	0	...	...	...	...	...	...	...	...	12	8	...	...	...	...	...	...	...	...	...	
43	39	0	...	...	...	...	...	...	...	...	10	0	...	...	...	...	...	...	...	...	...	
44	36	0	...	49	0	42	12	6	4	...	13	12	D.	...	D.	D.	D.	D.	D.	D.	...	
45	34	0	71	38	12	34	0	4	12	...	6	8	...	...	...	...	...	...	...	...	...	
46	32	0	107	38	0	32	12	5	4	...	9	12	D.	...	D.	D.	D.	D.	D.	D.	...	
...	Avr...	...	...	44	14 1/2	35	13	5	2	...	10	0 1/2	51	0	8	0	5	13 1/2	6	5	...	...
																		Fever; enlarged liver (74 1/2).				







TABLE III.—Weights of Diseased Brains.  
MALES.

No.	Age.	Occupation.	WEIGHT				AMOUNT		WEIGHT					Disease causing Death.—Remarks.
			Of whole Body.	Of Encephalon.	Of Cerebrum.	Of Cerebellum, with Pons V. and Medulla Oblong.	Of Fluid in Ventricles.	Of Fluid beneath Arachnoid.	Of Heart.	Of Liver.	Of Spleen.	Of Right Kidney.	Of Left Kidney.	
1	Yrs. mo 22 0	Flesher	lbs. ...	oz. dr. 49 8	oz. dr. ...	oz. dr. ...	...	oz. dr. ... *	oz. dr. ...	oz. dr. ...	oz. dr. ...	oz. dr. ...	oz. dr. ...	Clots of blood in the hemispheres and lymph on the membranes, especially at the base. Duration of disease 10 days. Softening of the grey matter on anterior lobe of cerebrum; pneumonia.
2	38 0	Cabinetmaker.	108	52 8	46 8	6 0	3jss	...	11 0	...	...	...	...	Softening of corpus striatum and cerebellum. Mitral valvular disease; anasarca.
3	36 0	Shoemaker	...	46 8	...	...	3jss	consid.	17 8	54 0	9 8	6 0	5 0	Clot in substance of left hemisphere; fibrous masses in spleen; cirrhosis hepatis; mottled kidneys; cerebral disease of one month's duration.
4	41 0	Blacksmith	111	45 8	39 0	6 8	3ij	consid.	11 0	84 8	42 8	6 12	6 0	Fracture of the base of the skull, and extravasation; death 14 days after the injury.
5	51 0	...	74	44 12	...	...	...	...	...	...	...	...	...	Softening of hemispheres; aneurism of asc. aorta; diseased heart and kidneys.
6	60 0	Native of Bombay, of mixed descent	76	35 8	...	...	3ij	slight	D.	...	...	D.	D.	Meningeal apoplexy; softening of hemispheres; pneumonia.
7	60 0	...	...	41 8	36 8	5 0	...	...	...	...	...	...	...	
FEMALES.														
1	11m 19d	...	...	28 5½	24 11	3 10½	...	...	...	...	...	...	...	Phthisis; large tubercular masses imbedded in substance of brain.
2	19 yrs	...	...	49 0	...	...	...	...	...	...	...	...	...	Lymph on surface of hemispheres; turbid serum in ventricles.
3	50 0	...	79	37 0	31 0	5 8	3jv	...	...	...	...	...	...	Flattening of convolutions, and effusion in ventricles. Patient long bed-ridden and insensible.
4	60 0	...	85	37 8	...	...	...	...	...	...	...	...	...	Fract. of left temporal bone, and effusion; death two days after the injury.
5	63 0	...	79	35 0	...	...	3ss	consid.	18 0	...	...	D.	D.	Injury of head and effusion; fract. of leg & thigh; cysts in kidneys; dis. of aorta.



TABLES IV. and V., exhibiting the ratio of the Encephalon, and of the Cerebellum with the Pons Varolii and Medulla Oblongata, to the weight of the whole body, together with the ratio of the Cerebellum and Pons Varolii and Medulla Oblongata, to the Encephalon in the observations previously given.

TABLE IV.—MALES.

Age.	Ratio of Encephalon to Body.	Of Cerebellum, &c., to Body.	Of Cerebellum, &c., to Encephalon.	
Yrs. mo.				
1 11	1 to 14.3	...	...	...
3 6	...	...	1 to 9.3	...
6 0	...	...	1 to 8.36	...
11 0	1 to 12.2	...	...	...
17 0	...	...	1 to 7.7	...
19 0	...	...	1 to 6.44	...
21 0	...	...	1 to 7.8	...
22 0	1 to 39.8	...	...	...
23 0	1 to 45.1	1 to 276.8	1 to 6.0	Negro.
23 0	1 to 35.3	1 to 303.1	1 to 8.5	...
25 0	1 to 39.2	...	...	...
26 0	1 to 45.2	...	...	...
27 0	1 to 36.5	1 to 274.2	1 to 7.5	...
28 0	1 to 32.	...	...	...
28 0	1 to 29.8	...	...	...
28 0	1 to 35.2	...	...	...
29 0	...	...	1 to 7.3	...
30 0	...	...	1 to 7.4	...
30 0	1 to 52.3	...	...	...
32 0	1 to 34.4	1 to 244.5	1 to 7.1	...
32 0	1 to 33.8	1 to 296.	1 to 8.7	...
32 0	1 to 37.8	1 to 322.	1 to 8.2	...
32 0	...	...	1 to 7.1	...
34 0	1 to 79.8	1 to 405.	1 to 8.4	...
36 0	...	...	1 to 8.	...
37 0	1 to 39.8	...	...	...
38 0	1 to 49.8	...	...	...
38 0	1 to 25.2	...	...	...
38 0	1 to 30.9	1 to 266.6	1 to 8.6	...
38 0	...	...	1 to 8.2	...
40 0	1 to 42.2	...	...	...
40 0	...	...	1 to 7.6	Negro.
40 0	...	...	1 to 8.	...
40 0	...	...	1 to 7.7	...
40 0	...	...	1 to 7.8	...
42 0	1 to 49.7	...	...	...
44 0	...	...	1 to 8.	...
44 0	1 to 33.7	...	...	...
44 0	1 to 30.4	...	...	...
44 0	1 to 36.2	...	...	...
47 0	1 to 27.8	...	...	...
50 0	...	...	1 to 8.4	Lithuanian.
51 0	1 to 35.8	...	...	...
54 0	1 to 50.2	1 to 424.7	1 to 8.4	...
54 0	...	...	1 to 8.4	...
60 0	1 to 44.3	...	...	...
60 0	1 to 32.9	...	...	...
60 0	1 to 35.5	1 to 281.6	1 to 8.4	...
62 0	1 to 32.3	...	...	...
65 0	1 to 43.1	...	...	...
66 0	...	...	1 to 9.	...
80 0	...	...	1 to 8.	...

The average proportion of the Cerebellum with the Pons Varolii and Medulla Oblongata, to the Encephalon, in 17 males, between 25 and 55 years of age, is 1 to 7.93

TABLE V.—FEMALES.

Ages.	Ratio of Encephalon to Body.	Of Cerebellum, &c., to Body.	Of Cerebellum, &c., to Encephalon.
Yrs. mo.			
1 8	1 to 5·7	1 to 45·3	1 to 7·9
2 3	...	...	1 to 8·3
3 0	1 to 7·7	1 to 80·	1 to 10·
6 0	...	...	1 to 6·9
8 0	1 to 20·3	1 to 153·6	1 to 7·55
17 0	1 to 34·5	...	...
17 0	1 to 44·8	...	...
18 0	1 to 37·	1 to 361·6	1 to 9·5
18 0	...	...	1 to 7·3
21 0	...	...	1 to 8·6
21 0	1 to 32·6	1 to 266·6	1 to 8·16
23 0	1 to 30·5	...	...
24 0	1 to 38·9	1 to 325·5	1 to 7·6
25 0	1 to 27·	...	...
28 0	1 to 33·7	...	...
29 0	...	...	1 to 7·6
31 0	1 to 29·9	...	...
32 0	1 to 45·	1 to 326·	1 to 7·9
33 0	1 to 35·3	1 to 316·2	1 to 8·2
34 0	1 to 29·3	1 to 339·1	1 to 8·9
34 0	1 to 34·6	...	...
36 0	1 to 44·8	...	...
36 0	1 to 34·6	...	...
36 0	...	...	1 to 7·8
39 0	1 to 38·	...	...
39 0	...	...	1 to 7·2
40 0	...	...	1 to 8·
40 0	1 to 24·1	1 to 213·3	1 to 8·8
41 0	...	...	1 to 7·6
42 0	1 to 28·5	1 to 219·8	1 to 7·6
50 0	1 to 30·3	1 to 259·	1 to 8·5
52 0	1 to 24·8	...	...
63 0	...	...	1 to 9·2
64 0	...	...	1 to 7·2
65 0	...	...	1 to 7·3
76 0	...	...	1 to 7·8

The ratio of Cerebellum with Pons Varolii and Medulla Oblongata, to the Encephalon, in 12 females between 25 and 55 years of age, is 1 to 7·98



TABLE VI.

Exhibiting the Weights of the Heaviest and Lightest Encephalon, Cerebrum, and Cerebellum with the Pons Varolii and Medulla Oblongata, together with their average weights, in MALES, at different periods of life. The calculations contained in this and the following Tables, are founded on the whole of the data collected by Dr. Reid and myself.

AGES.	NUMBERS WEIGHED.			HEAVIEST.			LIGHTEST.			AVERAGE.		
	Encephalon.	Cerebrum.	Cerebellum.	Encephalon.	Cerebrum.	Cerebellum, &c.	Encephalon.	Cerebrum.	Cerebellum, &c.	Encephalon.	Cerebrum.	Cerebellum, &c.
	1	1	1	27 8	24 8	3 0	38 0	35 0	4 8	42 15 <sup>3</sup> / <sub>4</sub>	38 1 <sup>1</sup> / <sub>2</sub>	4 14 <sup>3</sup> / <sub>4</sub>
9 months.	2	1	1	39 12	35 4	4 8	39 8	35 0	4 8	42 10 <sup>3</sup> / <sub>4</sub>	37 7 <sup>1</sup> / <sub>2</sub>	5 3 <sup>1</sup> / <sub>4</sub>
1 to 2 years.	5	5	5	45 4	39 14	5 6	39 12	35 0	4 9	46 2 <sup>1</sup> / <sub>2</sub>	40 8 <sup>3</sup> / <sub>4</sub>	5 10 <sup>3</sup> / <sub>4</sub>
2 to 5	4	4	4	47 10 <sup>1</sup> / <sub>2</sub>	41 11	6 0	40 12	36 1	4 10	50 1 <sup>1</sup> / <sub>2</sub>	42 11 <sup>1</sup> / <sub>2</sub>	5 12
5 to 7	6	6	7	52 14	47 3	5 11	43 8	38 2	5 6	47 8 <sup>3</sup> / <sub>4</sub>	42 2	6 1 <sup>1</sup> / <sub>2</sub>
7 to 10	4	3	3	55 0	45 0	6 2	43 10	38 0	5 10	50 12 <sup>3</sup> / <sub>4</sub>	43 8 <sup>1</sup> / <sub>2</sub>	6 5 <sup>1</sup> / <sub>2</sub>
10 to 13	4	4	4	50 2	44 2	6 8	40 4	34 0	5 8	52 2 <sup>3</sup> / <sub>4</sub>	45 10 <sup>1</sup> / <sub>2</sub>	6 6 <sup>1</sup> / <sub>2</sub>
13 to 16	5	4	4	56 0	47 8	7 2	47 0	38 0	5 12	49 9 <sup>1</sup> / <sub>2</sub>	43 7 <sup>1</sup> / <sub>2</sub>	6 1 <sup>1</sup> / <sub>2</sub>
16 to 20	8	7	7	61 2	54 0	7 2	47 0	35 9	5 4	51 0 <sup>3</sup> / <sub>4</sub>	45 1 <sup>1</sup> / <sub>2</sub>	6 5 <sup>1</sup> / <sub>2</sub>
20 to 25	16	10	11	56 8	49 0	7 0	38 0	37 13	5 6	49 3 <sup>1</sup> / <sub>4</sub>	43 5 <sup>1</sup> / <sub>2</sub>	6 4 <sup>3</sup> / <sub>4</sub>
25 to 30	24	15	15	62 8	54 8	8 8	40 8	36 6	5 8	48 1 <sup>1</sup> / <sub>2</sub>	42 8 <sup>1</sup> / <sub>2</sub>	5 13
30 to 40	41	28	28	62 12	49 0	7 10	34 0	39 0	4 14	48 8	43 8 <sup>1</sup> / <sub>2</sub>	5 13 <sup>1</sup> / <sub>2</sub>
40 to 50	44	32	32	59 0	51 15	8 4	42 2	34 8	5 4	49 13 <sup>1</sup> / <sub>4</sub>	43 10	6 3 <sup>1</sup> / <sub>4</sub>
50 to 55	22	20	21	52 14	46 12	6 14	39 0	38 4	4 14	48 1 <sup>1</sup> / <sub>2</sub>	42 8 <sup>1</sup> / <sub>2</sub>	5 13
55 to 60	10	8	8	60 4	51 13	7 4	40 0	38 4	5 4	49 13 <sup>1</sup> / <sub>4</sub>	43 10	6 3 <sup>1</sup> / <sub>4</sub>
60 to 70	18	10	12	54 10	48 2	6 8	43 8	40 12	5 14	48 1 <sup>1</sup> / <sub>2</sub>	43 10	6 3 <sup>1</sup> / <sub>4</sub>
70 to 80	5	5	5	52 0	45 8	6 8	40 12	40 12	5 14	48 1 <sup>1</sup> / <sub>2</sub>	43 10	6 3 <sup>1</sup> / <sub>4</sub>
80 to 90	3	3	3									
Total	218	162	167									

The average weight of the Encephalon in 131 males, between 25 and 55 years of age, is 50 oz. 3<sup>3</sup>/<sub>4</sub> dr., or 3lbs. 2oz. 3<sup>25</sup>/<sub>4</sub> dr.

The extremes between these ages being 62 oz. and 12 dr., or 12 oz. 8<sup>75</sup>/<sub>4</sub> dr., above the average.

and 34 oz. ... 16 oz. 3.25 dr. below.

The average weight of the Encephalon in 19 persons between 10 and 20 years of age is 49 oz. 10<sup>6</sup>/<sub>4</sub> dr.

... 36 ... 55 and 90 ... 48 7<sup>05</sup>/<sub>4</sub>

The average weight of the Cerebrum in 95 males, between 25 and 55 years of age, 44 oz. 3<sup>4</sup>/<sub>4</sub> dr.

... 14 ... 10 and 20 ... 43 0<sup>4</sup>/<sub>4</sub>

... 26 ... 55 and 90 ... 42 15<sup>8</sup>/<sub>4</sub>

The average weight of the Cerebellum, with the Pons Varolii and Medulla Oblongata :—

... in 96 males, between 25 and 55 years of age, 6 oz. 4<sup>05</sup>/<sub>4</sub> dr.

... in 14 ... 6 2<sup>5</sup>/<sub>4</sub>

... in 28 ... 5 15<sup>3</sup>/<sub>4</sub>

Average weight of Cerebellum only, in 57 males, between 25 and 55 years of age, 5 oz. 3<sup>6</sup>/<sub>4</sub> dr.

... 8 ... 5 2<sup>6</sup>/<sub>4</sub>

... 15 ... 5 0<sup>7</sup>/<sub>4</sub>



Exhibiting the weights of the Heaviest and Lightest Encephalon, Cerebrum and Cerebellum with Pons Varolii and Medulla Oblongata, and their average weights at different ages in FEMALES.

AGE.	NUMBERS WEIGHED.			HEAVIEST.			LIGHTEST.			AVERAGE.		
	Encephalon.	Cerebrum.	Cerebellum.	Encephalon.	Cerebrum.	Cerebellum.	Encephalon.	Cerebrum.	Cerebellum.	Encephalon.	Cerebrum.	Cerebellum.
1 yr. 9 months.	1	1	1	30 12½	26 14½	3 14	...	...	...	37 11½	33 8	...
2 to 5 years.	8	8	8	42 0	37 8	4 10	32 0	30 5	3 15	38 5	33 10½	4 3½
5 to 7 ...	4	4	4	41 8	37 0	5 2	34 8	29 7	4 0	41 4½	36 8½	5 3½
7 to 10 ...	4	4	4	43 14	38 5	5 9	37 12	32 12	5 0	...	...	...
10 to 13 ...	1	1	1	43 8	37 6	6 2	...	...	...	...	...	...
13 to 16 ...	1	1	1	41 0	35 8	5 8	...	...	...	...	...	...
16 to 20 ...	13	9	9	49 12	43 8	6 8	40 14	35 13	5 1	44 13½	39 0½	5 11½
20 to 25 ...	13	10	10	50 0	43 4	6 1	44 0	38 0	4 12	46 12½	41 6½	5 11½
25 to 30 ...	13	11	11	50 0	43 14	6 2	39 0	35 8	4 12	43 2½	37 11½	5 11½
30 to 40 ...	33	25	25	54 0	45 2	6 8	38 0	32 12	4 4	45 3½	39 1½	5 9½
40 to 50 ...	23	18	18	53 0	47 0	7 0	36 12	32 8	4 4	45 2½	40 0½	5 15½
50 to 55 ...	5	4	4	48 6	42 14	5 15	43 14	38 1	4 13	46 0	40 6	5 6
55 to 60 ...	2	2	2	44 0	38 12	5 4	43 4	38 2	5 2	43 10	35 10	5 3
60 to 70 ...	14	14	14	48 12	41 2	6 0	36 2	31 2	5 0	43 3½	37 10½	5 9
70 to 80 ...	2	2	2	46 0	40 0	6 0	39 0	34 0	5 0	42 11	37 0	5 8
80 to 90 ...	1	1	1	31 1	26 12	4 5	...	...	...	...	...	...
Total.....	138	115	115									

The average weight of the Encephalon in Females between 25 and 55 years of age, calculated from 74 observations, is 44 oz. 14½ drachms, or 2 lb. 12 oz. 14½ drachms.

The extremes between these ages, being 54 oz. or 9 oz. 17 dr. above the average, and 36 oz. 12 dr., or 8 oz. 2½ dr. below.

Average weight of the Encephalon in 15 females between 10 and 20 years of age, 44 oz. 8½ drachms.

Average weight of the Cerebrum in 58 ... 19 ... 55 and 90 ... 42 8½ ... 39 3½ ... 38 8½ ... 36 9 ...

Average weight of the Cerebellum in 58 ... 11 ... 10 and 20 ... 55 and 90 ... 25 and 55 ... 10 and 20 ... 55 and 90 ...

Average weight of the Cerebrum, with Pons Varolii and Medulla Oblongata, in 58 females between 25 and 55 years of age, 5 oz. 10½ drachms.

Average weight of the Cerebellum, alone in 34 females between 25 and 55 years of age, 4 oz. 12½ drachms.

The average weight of the Cerebrum alone in 34 females between 25 and 55 years of age, 5 oz. 12½ drachms.

The average weight of the Cerebellum alone in 34 females between 25 and 55 years of age, 4 oz. 12½ drachms.

The average weight of the Cerebrum alone in 34 females between 25 and 55 years of age, 5 oz. 12½ drachms.

The average weight of the Cerebellum alone in 34 females between 25 and 55 years of age, 4 oz. 12½ drachms.

The average weight of the Cerebrum alone in 34 females between 25 and 55 years of age, 5 oz. 12½ drachms.

The average weight of the Cerebellum alone in 34 females between 25 and 55 years of age, 4 oz. 12½ drachms.



TABLE VIII.

Exhibiting the different Weights of the Encephalon, in Males and Females, between 25 and 55 years of age.

MALES.				FEMALES.			
Weights.		Number weighed.	Ratio per Cent.	Weights.		Number weighed.	Ratio per Cent.
oz.	oz. dr.			oz.	dr. oz.		
34	...	1	0.76	36	12 to 40	9	12.2
38	...	1	0.76	40	0 to 45	31	41.8
40 to 45	0	9	6.8	45	0 to 50	27	36.4
45 to 50	0	51	38.93	50	0 to 55	7	9.4
50 to 55	0	46	35.1				
55 to 60	0	19	14.5				
60 to 62	12	4	3.05				
		131				74	

TABLE IX.

Exhibiting the Average Weights of the Encephalon, Cerebrum, and Cerebellum with the Pons Varolii and Medulla Oblongata, at different ages, in the two sexes.

AGES.	ENCEPHALON.		CEREBRUM.		CEREBELLUM, WITH PONS VAROLII AND MED. OBLONG.	
	Males.	Females.	Males.	Females.	Males.	Females.
2 to 5	42 15 <sup>3.7</sup> / <sub>5</sub>	37 11 <sup>7.5</sup> / <sub>8</sub>	38 1 <sup>1</sup> / <sub>10</sub>	33 8	4 14 <sup>3.25</sup> / <sub>5</sub>	4 3 <sup>1</sup> / <sub>2</sub>
5 to 7	42 10 <sup>3</sup> / <sub>4</sub>	38 5	37 7 <sup>1</sup> / <sub>2</sub>	33 10 <sup>1</sup> / <sub>4</sub>	5 3 <sup>1</sup> / <sub>4</sub>	4 10 <sup>3</sup> / <sub>4</sub>
7 to 10	46 2 <sup>4</sup> / <sub>10</sub>	41 4 <sup>1</sup> / <sub>2</sub>	40 8 <sup>3</sup> / <sub>5</sub>	36 8 <sup>3</sup> / <sub>4</sub>	5 10 <sup>5</sup> / <sub>7</sub>	5 3 <sup>3</sup> / <sub>5</sub>
10 to 16	46 10 <sup>5</sup> / <sub>5</sub>	42 4	42 6	36 7	5 15 <sup>1</sup> / <sub>7</sub>	5 13
16 to 20	50 12 <sup>3</sup> / <sub>8</sub>	44 13 <sup>1</sup> / <sub>13</sub>	43 8 <sup>4</sup> / <sub>5</sub>	39 0 <sup>3</sup> / <sub>5</sub>	6 5 <sup>2</sup> / <sub>7</sub>	5 11 <sup>5</sup> / <sub>8</sub>
20 to 25	52 2 <sup>3</sup> / <sub>4</sub>	46 12 <sup>1</sup> / <sub>13</sub>	45 10 <sup>4</sup> / <sub>10</sub>	41 6 <sup>1</sup> / <sub>15</sub>	6 6 <sup>4</sup> / <sub>11</sub>	5 11 <sup>3</sup> / <sub>10</sub>
25 to 55	50 3 <sup>3.4</sup> / <sub>131</sub>	44 14 <sup>2.8</sup> / <sub>71</sub>	44 3.4	39 3.3	6 4 <sup>0.5</sup> / <sub>105</sub>	5 10 <sup>1</sup> / <sub>4</sub>
55 to 60	48 1 <sup>6</sup> / <sub>10</sub>	43 10	42 8 <sup>1</sup> / <sub>8</sub>	35 10	6 3 <sup>1</sup> / <sub>8</sub>	5 3
60 to 70	48 8	43 3 <sup>5</sup> / <sub>14</sub>	43 8 <sup>4</sup> / <sub>10</sub>	37 10 <sup>5</sup> / <sub>14</sub>	5 13	5 9
70 to 80	48 1 <sup>3</sup> / <sub>5</sub>	42 11	42 3 <sup>3</sup> / <sub>5</sub>	37 0	5 13 <sup>3</sup> / <sub>5</sub>	5 8

Weight of Encephalon between 25 and 55 years of age—Males... 50 3<sup>3.4</sup>/<sub>131</sub> 25  
Females... 44 14<sup>2.8</sup>/<sub>71</sub> 3

Difference..... 5 4.95

Ratio of Female to Male Encephalon..... as 1 to 1.11

Weight of Cerebrum ..... Males..... 44 3.4  
Females..... 39 3.3

Difference..... 5 0.1

Ratio of Female to Male Cerebrum ..... as 1 to 1.12

Weight of Cerebellum, with Pons and Medulla..... Males..... 6 4.05  
Females..... 5 10.5

Difference..... 9.55

Ratio of Female to Male Cerebellum, &c. .... as 1 to 1.10

Weight of Cerebellum only... Males..... 5 3.6  
Females..... 4 12.4

Difference..... 7.2

Ratio of Female to Male Cerebellum... as 1 to 1.09



TABLES X. and XI., exhibiting the the proportion of the Weights of the Encephalon and of the Cerebellum with the Pons Varolii and Medulla Oblongata, to the Weight of the whole Body at different ages.

TABLE X.—MALES.

Ages.	Numbers weighed.	Encephalon to Body.	Numbers weighed.	Cerebellum, &c., to Body.
9 months	1	1 to 7·8	1	1 to 72·
1 year and 11 months	1	1 to 14·3	...	...
3 years	1	1 to 8·	1	1 to 71·1
4 to 5 years	2	1 to 8·9	2	1 to 80·
5 ...	2	1 to 9·8	2	1 to 74·8
7 ...	2	1 to 10·3	2	1 to 87·3
11 ...	1	1 to 12·2	...	...
13 to 15 ...	3	1 to 19·1	3	1 to 140·8
18 ...	1	1 to 37·	1	1 to 322·9
20 to 25 ...	9	1 to 35·2	7	1 to 301·5
25 to 30 ...	13	1 to 40·4	7	1 to 259·
30 to 40 ...	15	1 to 38·3	10	1 to 298·5
40 to 50 ...	20	1 to 34·	12	1 to 212·3
50 to 55 ...	10	1 to 37·8	8	1 to 317·4
55 to 60 ...	2	1 to 40·2	2	1 to 341·4
60 to 70 ...	8	1 to 39·7	4	1 to 365·9
89 ...	1	1 to 27·4	1	1 to 236·2

Ratio of Encephalon to body in 58 Males between 25 and 55 years of age.....1 to 37·2

Extremes\*.....1 to 79·8 and 1 to 25·2

Ratio of Cerebellum with Pons Varolii and Medulla Oblongata to body in 44 Males, between 25 and 55 years of age.....1 to 277·1

Extremes\*... ..1 to 424·7 and 1 to 244·5

TABLE XI.—FEMALES.

Ages.	Numbers weighed.	Encephalon to Body.	Numbers weighed.	Cerebellum, &c., to Body.
1 year and 8 months	1	1 to 5·7	1	1 to 45·3
2 to 3 years	3	1 to 8·1	3	1 to 66·1
3 to 4 ...	3	1 to 8·2	3	1 to 83·3
7 to 8 ...	4	1 to 14·8	4	1 to 116·9
12 ...	1	1 to 26·1	1	1 to 194·9
16 to 20 ...	6	1 to 34·5	4	1 to 268·1
20 to 25 ...	6	1 to 30·9	4	1 to 268·5
25 to 30 ...	5	1 to 35·9	3	1 to 306·6
30 to 40 ...	16	1 to 35·	9	1 to 289·1
40 to 50 ...	7	1 to 32·2	6	1 to 284·9
50 to 55 ...	2	1 to 21·1	1	1 to 293·2
55 to 60 ...	2	1 to 36·5	2	1 to 307·6
60 to 70 ...	4	1 to 35·2	4	1 to 274·1
At 75 ...	1	1 to 36·8	1	1 to 282·6
At 90 ...	1	1 to 51·5	1	1 to 371·0

Ratio of Encephalon to body in 30 Females between 25 and 55 years of age, 1 to 33·5

Extremes\*.....1 to 44·8 and 1 to 24·1

Ratio of Cerebellum with Pons Varolii and Medulla Oblongata, to body, in 19 Females between 25 and 55 years of age.....1 to 290·7

Extremes\*..... 1 to 326 and 1 to 213·3

\* Tables IV and V.



TABLE XII.

RATIO of the Weight of the Cerebellum, and of the Cerebellum with the Pons Varolii and Medulla Oblongata, to the Encephalon, in the two sexes, at different periods of life, in 170 and 278 persons respectively.

## MALES.

Ages.	Numbers weighed.	Cerebellum to Encephalon.	Numbers weighed.	Cerebellum, &c., to Encephalon.
4 months	1	1 to 11	1	1 to 9.16
1 year	1	1 to 9.93	1	1 to 8.33
2½ years	1	1 to 9.53	1	1 to 7.99
3 ...	1	1 to 9.87	1	1 to 8.77
3½ ...	1	1 to 10.29	1	1 to 9.07
4 ...	1	1 to 9.73	1	1 to 8.41
4½ ...	1	1 to 11.09	1	1 to 9.59
5 to 7 ...	3	1 to 9.74	4	1 to 8.20
7 to 10 ...	4	1 to 9.42	6	1 to 8.04
10 to 13 ...	3	1 to 9.47	3	1 to 8.82
13 to 16 ...	1	1 to 9.09	4	1 to 7.91
16 to 20 ...	4	1 to 9.42	7	1 to 7.58
20 to 25 ...	5	1 to 9.68	10	1 to 8.18
25 to 55 ...	55	1 to 9.58	95	1 to 8.05
55 to 90 ...	15	1 to 9.94	28	1 to 8.10
	97		164	

## FEMALES.

1 year and 8 months	1	1 to 8.79	1	1 to 7.94
2½ years	1	1 to 9.30	1	1 to 8.31
2½ ...	4	1 to 10.00	4	1 to 8.48
3 ...	...	...	1	1 to 10.28
3 ...	...	...	1	1 to 9.33
3½ ...	1	1 to 10.07	1	1 to 9.33
5 and 6 ...	2	1 to 10.64	3	1 to 8.71
7 and 8 ...	3	1 to 9.47	4	1 to 7.88
12 ...	1	1 to 8.48	1	1 to 7.10
15 ...	1	1 to 9.11	1	1 to 7.45
16 to 20 ...	6	1 to 9.12	9	1 to 7.97
20 to 25 ...	4	1 to 7.57	10	1 to 7.25
25 to 55 ...	34	1 to 9.34	58	1 to 7.87
55 to 90 ...	15	1 to 9.31	19	1 to 7.80
	73		114	

Ratio of the several portions of the Encephalon in the two sexes, in persons between 25 and 55 years of age :—

	Males. 1000	Females. 1000
Encephalon .....		
Cerebrum .....	875.8	872.9
Cerebellum .....	104.3	107.
Pons Varolii and Medulla Oblongata ...	19.9	20.1

## CONCLUSIONS.

*1st*, The encephalon in the adult male weighs, on an average, 50 oz. 3.25 dr., or 3 lb. 2 oz. and  $3\frac{3}{4}$  drachms avoirdupois, and exceeds in weight that of the female by 5 oz. 4.95 dr., the latter weighing on an average 44 oz. and 14.3 dr., or 2 lb. 12 oz.  $14\frac{3}{4}$  dr.

Of 131 male brains weighed, the heaviest was 62 oz. 12 dr., or 12 oz. 8.75 dr. above the mean; the lightest was 34 oz., or 16 oz. 3.25 dr. below it.

Of 74 female brains, the extremes were 54 oz., or 9 oz. 1.7 dr. above the average, and 36 oz. 12 dr., 8 oz. 2.3 dr. below it.

Of the male encephala, 8.3 per cent. were under 45 oz. in weight, 74.04 per cent. weighed between 45 and 55 oz., and 17.5 per cent. exceeded 55 oz. in weight.

Of the female encephala, 54 per cent. weighed under 45 oz., 45.9 per cent. were between 45 and 55 oz. in weight, and none exceeded 55 oz.

*Note.*—A comparison of these averages with those deduced by Dr. Reid, will show that they correspond very closely, though the numbers on which the calculations are based are considerably extended. They do not differ, also, very greatly from the conclusions of Sir William Hamilton, Dr. Sims, and Dr. Clendinning. Sir W. Hamilton estimated the weight of the adult male encephalon at 3 lb. 8 oz. troy, and the female at 3 lb. 4 oz., which are nearly 48 oz. 5 dr., and 43 oz. 15 dr. avoirdupois. On calculating the weights of the brain in the two sexes separately, from the observations published by Dr. Sims, I find the male brain, in 54 persons between 20 and 60 years of age, to average 47 oz. 13 dr., and the female brain, in 58 persons, 44 oz. and 10 dr. Dr. Clendinning states the male brain in persons between 21 and 60 years of age to average



45·85 oz., and the female 41·25 oz. These several averages, together with those deduced by Professor Reid and myself, range between  $45\frac{3}{4}$  oz. and  $50\frac{1}{4}$  oz. for the male, and  $41\frac{1}{4}$  oz. and nearly 45 oz. for the female.

Tiedemann,<sup>1</sup> whose actual observations amount to only 52 (35 males and 17 females), states the weight of the adult European encephalon to vary in the male between 3 lb. 2 oz. and 4 lb. 6 oz. troy, or 41 oz. 12 dr. and 59 oz. 5 dr. avoirdupois, and in the female, between 2 lb. 8 oz. and 3 lb. 11 oz. troy, or 35 oz. 2 dr. and 51 oz. 11 dr. avoirdupois.

The want of accurate information as to the number of observations on which their calculations are based, of the weights employed, and of the ages of the persons, render the statements of the older anatomists as to the weight of the encephalon of little value. Soemmerring states,—  
 “Cerebrum et cerebellum, resecta medulla spinali statim pone nervum lingualem medium pondo sunt librarum duarum ad tres libras; sunt enim alia cerebra pondere librarum duarum et unciarum quinque cum dimidia, alia librarum trium et unciarum trium cum tribus quartis. Aliis (referring to the weights of brain assigned by Haller, *Elementa Physiologiæ*, t. iv., p. 10) observata sunt cerebra libræ unius cum dimidia, aliis pondus librarum quinque superantia, quod posterius vero haud verisimile videtur, nisi forte diverso hexagio res rite interpretari possit.” (De Corporis Humani Fabrica, t. iv., f. 38.) He adds, in a note, “In universum quidem Hallerus cerebrum pondere esse librarum quinque autumat, rectius certe quatuor, si de pondere pharmaceutico Germanico sermo est. Certe enim inter plura quam ducenta cerebra, à me disquisita nullum inveni quod quatuor sit librarum.” From this it appears that Soemmerring employed the German or Nuremberg pound of 5524·8 grains, and the weights which he gives consequently vary between 31 oz. and 41 oz. 14 dr. avoir-

<sup>1</sup> Phil. Trans., vol. cxxvii., p. 749.



dupois, much below the estimates of more recent observers ; but as he imagined the brain to attain its full development at three years of age, and has not specified that the weights referred to were those only of adults, we may infer that he included in his calculation the brains of persons in early life. The estimate of the Wenzels seems more nearly correct :—" *Pondus encephali humani, quale id de quinto vitæ anno ad summam usque hominis senectutem plerumque invenitur, pondus viginti quatuor millium granorum non superat. \* \* \* Totius cerebri pondus inter viginti et viginti duo millia ; cerebri strictius dicti inter octodecem et viginti millia granorum plerumque variat.*" (De Penitiori Structura Cerebri Hominis et Brutorum, f. 267.) The weight of the encephalon thus given is from 45 oz. 12 dr. to 50 oz. 5 dr. avoirdupois ; and, as including persons in early and advanced life, and of both sexes, is sufficiently exact. The weight of the encephalon is estimated by Portal at 48 oz. 3½ dr. avoirdupois ; and by Meckel, if his weight be the German lb., at 43 oz. and 11 dr. avoirdupois. M. Lélut<sup>1</sup> estimates the weight of the encephalon of the male adult at 1320 grammes, or 46 oz. 10 dr. avoirdupois ; and M. Parchappé<sup>2</sup> at 1323 grammes, or 46 oz. 11 dr., and that of the female at 1210 grammes, or 42 oz. 11 dr. avoirdupois.

*2nd*, The human encephalon appears ordinarily to attain its maximum of development at from the 20th to the 25th year ; throughout the middle period of life it displays little variation, but a very marked decrease in weight obtains in advanced age. This conclusion is uniformly borne out by the weights of the encephalon at different ages in both sexes ; nor do the tables afford any support to the opinions

<sup>1</sup> Gazette Médicale de Paris, 2me serie, t. v., 1837, p. 146.

<sup>2</sup> Ibid. See also M. Parchappé's Memoir, t. x., 1842, p. 650, where he gives the weight of the encephalon in males, 1352 grammes ; and in females, 1229.



of Soemmering, the Wenzels, and Sir W. Hamilton, that the brain arrives at perfection in or before the 7th year. Though it may occasionally happen that the brain of a person in early life shall be found as heavy as are ordinarily the brains of adults, yet the average of the weights of several brains between 10 and 20 years of age, is uniformly less than that afforded by the brains of persons between 25 and 55 years of age.<sup>1</sup>

*Note.*—The gradual increase in the weight of the encephalon up to adult age, accords with the conclusions of Dr. Sims, and with the views of Gall and Spurzheim. Soemmering, however, from one observation, inferred that the brain attained its full weight at 3 years of age, and the Wenzels at 7. The latter age has also been regarded by Sir W. Hamilton as the probable term of growth of the brain. The present observations further confirm the inference, that, contrary to the supposition of the Wenzels and Sir W. Hamilton, the encephalon decreases in weight in advanced life. In reference to Sir W. Hamilton's observations, it may be remarked that the actual weights of human brains can alone form just data for conclusions; and that it seems scarcely possible that any method of ascertaining the size of the brain from examination of the skull can be free from fallacy<sup>2</sup>—an objection especially applicable to estimates so formed of the weight of the brain in advanced age, when, as is well known, the ventricular cavities and subarachnoidal cellular tissue often contain much fluid.

*3rd,* The excess of weight of the male over the female encephalon, is observed at an early age, and continues

<sup>1</sup> These results accord with Dr. Reid's previous inferences. The decrease in the weight of the encephalon in advanced life, is, it will be observed, much more marked in females than in males.

<sup>2</sup> Sir W. Hamilton states his observations to have been founded "on inductions from above 61 human brains, and from nearly 300 human skulls of determined sex, the capacity of which, by a method I devised, was taken in sand, and the original weights of the brain thus recovered"—*Monro's Anatomy of the Brain*, 1831.



throughout the course of life. This inference is applicable after the commencement of the second year; before that period the data are too imperfect to allow of any conclusions being founded upon them.

*4th*, The average weight of the cerebrum in adult males, is 44 oz. 3·4 dr., and in females, 39 oz. 3·3 dr., the cerebrum of the male therefore exceeds in weight that of the female by 5 oz. 0·1 dr.

*5th*, The cerebellum with the pons Varolii, and medulla oblongata, averages in adult males, 6 oz. 40·5 dr.; in females, 5 oz. 10·5 dr.—the excess in the male being 9·55 dr.

*6th*. The cerebellum alone, calculated from Professor Reid's observations, averages in the adult male 5 oz. 2·6 dr., and in the female 4 oz. 12·4 dr.—the difference being 6·2 dr.

*7th*, It has been seen that the encephalon may be regarded as attaining its maximum of development at from the 20th to the 25th year, and declines in weight in advanced life. The same law obtains in reference to the development and decline of its several portions. It would, however, appear probable that the cerebellum with the pons Varolii and medulla oblongata, arrive at their full growth somewhat earlier than the cerebral hemispheres. This surmise is supported by the fact that the weights of the former portions of the brain, between 10 and 20 years of age, exceed in females their weight in the adult, and are in males very slightly less than their weight in the adult. The results given in the tables, are however, unfavourable to the idea of Sir W. Hamilton, that the cerebellum attains its maximum of development at about the 7th year—an opinion opposed also by the weights of the cerebellum alone, as given by Professor Reid.

*8th*, The excess which obtains in the weight of the encephalon of the male over that of the female, exists also in each of the several portions of the brain,—the cerebrum,



the cerebellum with the pons Varolii and medulla oblongata, and the cerebellum alone, being uniformly heavier in the male than in the female. The excess in the weight of each of these portions of the brain in the male over their weight in the female, maintains a very similar ratio, a fact opposed to the conclusion of Sir W. Hamilton, "that almost the whole difference in the weight of the male and female encephali lies in the brain proper, the cerebella of the two sexes absolutely being nearly equal; the preponderance being rather in favour of the female."

*9th*, The relative proportion of the encephalon to the whole body undergoes a gradual decrease from infancy to adult age; and averages in males, at from 25 to 55 years of age, 1 to 37.2, presenting during this period a range of from 1 to 79.98 to 1 25.2, according to the state of emaciation or corpulence of the body weighed.

In females the average during adult life is 1 to 33.5, and the extremes 1 to 44.8 and 1 to 24.1. It will be seen, that, as before remarked by the Wenzels and Tiedemann, the female brain, though absolutely lighter than that of the male, maintains a higher proportion relatively to the weight of the body.

*10th*, The proportions, relatively to the whole body, of the cerebellum with the pons Varolii and medulla oblongata, and of the cerebellum alone (as shown by Dr. Reid's observations), also gradually decrease from infancy, and at adult age the former averaged in males 1 to 277.1, presenting the extremes of 1 to 424.7 and 1 to 244.5.

The proportion in adult females is 1 to 290.7, and the extremes 1 to 326. and 1 to 213.3.

Tiedemann found the relative proportion of the encephalon to the body in adults as 1 to 35 and 1 to 45, and the extremes 1 to 22 and 1 to 50 to 100.

*11th*, The proportion which, in the adult, the cerebellum with the pons Varolii and medulla oblongata bears to the



whole encephalon is 1 to 7·8, and is nearly the same in the two sexes, being as 1 to 8·057 in the male and 1 to 7·87 in the female.

Dr. Reid had been led to infer that the cerebellum with the pons Varolii and medulla oblongata, was, relatively to the encephalon, heavier in a somewhat higher proportion, in the female than in the male, being as 1 to 7·9 and 1 to 8·6 respectively. His calculations are, however, founded only on the weights of 53 male and 34 female brains, while the present tables include 96 and 58 weights. From my own observations separately, the proportions are as 1 to 7·98 in females, and 1 to 7·93 in males.

*12th*, The ratio of the weight of the cerebellum alone to that of the whole encephalon, between 50 and 55 years of age, is, in the male, 1 to 9·58, and in the female 1 to 9·34.

*13th*, The relative proportion of the cerebellum to the cerebrum in adults of the two sexes, as calculated from Dr. Reid's data, is in males 1 to 8·37; in females 1 to 8·28. Sir W. Hamilton states, "that the cerebellum in the female is in general considerably larger in proportion to the brain proper than in the male; in the female it is as 1 to 7·6, in the male as 1 to 8·4." The calculations now given show the weights of the cerebellum with the pons Varolii and medulla oblongata, and of the cerebellum alone, to be relatively to that of the whole encephalon, somewhat higher in females than in males. This inference is not, however, confirmed by the observations of M. Parchappé; and the difference which, from the present data, appears to exist, is much less than was supposed by Sir W. Hamilton. It is, therefore, very questionable how far the excess of weight in females can be regarded as constituting a general rule.

*14th*, Though the data now published are defective in weights of the whole encephalon and its several portions, in infants and young persons, they render it most probable that the ratio of the cerebellum alone, or with the pons



Varolii and medulla oblongata, to the cerebrum and encephalon, undergoes but little change during the whole period of life, after the expiration of the first year. Further observations are required on this point;—the facts at present recorded are, however, opposed to the surmise, that the cerebellum attains its complete state of development at a period much anterior to that of the rest of the brain.

Average Weight of the Brain at different periods of life calculated from the observations of Dr. REID and myself; extracted from a paper containing additional observations, published in the *London Journal of Medicine*, vol. iii., 1851.

## MALES.

Ages.	Numbers weighed.	Average weight.	
		oz.	dr.
1 to 2 years	3	39	7
2 to 3 ...	4	44	1
3 to 5 ...	6	44	13.16
5 to 7 ...	4	45	4.25
7 to 10 ...	6	46	14.33
10 to 15 ...	13	47	15.2
15 to 20 ...	11	49	5
20 to 25 ...	21	50	13.9
25 to 50 ...	123	50	3.8
50 to 90 ...	53	48	9.4
	244		

## FEMALES.

Ages.	Numbers weighed.	Average weight.	
		oz.	dr.
1 to 2 years	3	31	1.3
2 to 3 ...	9	37	5
3 to 5 ...	4	41	0.5
5 to 7 ...	5	41	4
7 to 10 ...	2	40	6
10 to 15 ...	3	40	10.6
15 to 20 ...	18	45	4.1
20 to 25 ...	15	46	1.8
25 to 50 ...	69	45	0.6
50 to 90 ...	23	43	0.3
	151		