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A Study of the Temperature in Twenty-five
Cases of General Paralysis of the Insane

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presented by the authors

A STUDY OF THE TEMPERATURE IN TWENTY-FIVE CASES OF GENERAL PARALYSIS OF THE INSANE.

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IT has long been a matter noted by alienists that there are great oscillations of temperature in general paralytics. Diurnal oscillations, variations from day to day, asymmetrical axillary temperature and general subnormal or hyper-normal temperature have been ascribed to these cases by some authors. Thus Clouston, in Tuke's "Dictionary of Psychological Medicine," states that the general temperature is highest in general paresis, of all insanities. Kiernan (JOURNAL NERV. AND MENT. DIS., April, 1878, article by A. E. Macdonald, *Am. Jour. Insanity*, April, 1877, and also in a recent article on the diagnosis of different forms of general paresis) claims that a prominent clinical feature of such cases is the temperature; that it is usually subnormal, with extraordinary daily variations (agreeing with Rottenbiller, whom he quotes), and that there is asymmetry of the axillary temperature. Rottenbiller (*Allg. Zeitschr. f. Psych.*, 1885) gives similar testimony and cites instances of remarkable daily oscillations, in one case of nearly six degrees. Kroemer (Halle) in the *Allg. Zeitschr. f. Psych.*, xxxvi, 2te and 3te Heft, in an analysis of observations in thirty-four cases, claims that the average general bodily temperature in general paresis is lower than normal; that in the last stages there are great variations daily; and that paralytic accidents are accompanied by a rise of temperature.



It occurred to us that if these observations were correct, it might be well worth while to study the matter more fully, in order, if possible, to throw some light upon the origin of such remarkable variations from the normal. Theoretically it seemed that the facts being what they are stated to be, and the pathological changes being chiefly of a cortical nature, there might be some relation between the morbid changes and certain supposed thermo-taxic centres in the cortex. These thermo-taxic cortical centres have been located chiefly in the anterior lobes of the brain in lower animals, about the cruciate and Sylvian fissures (Eulenburg and Landois, Isaac Ott, etc., vide "Modern Antipyretics," by Ott, 1892). The question is then, are the supposed variations of temperature of general paresis explicable upon the grounds of a meningo-encephalitis affecting thermo-taxic cortical centres?

The authorities quoted above would seem almost sufficient to establish as facts these temperature variations. At the same time we thought it most important to carry out thoroughly a series of observations upon a considerable number of cases, thus enabling us to base any conclusions we might reach upon wholly original facts. To this end we selected twenty-five suitable cases of general paresis from among the large numbers of such in the Hudson River State Hospital for the Insane, and in each case made careful thermometric observations every two hours for one week. In ten of the cases, additional observations were made for the same length of time, every two to four hours, with thermometers in both axillæ, in order to determine the question of axillary asymmetry. The temperatures were taken in the axilla, and with carefully selected thermometers of the most approved type.

The following are the exact figures in all of these cases, each case being accompanied by a brief note of the clinical condition of the patient.

CASE I.—V.C.; age 46; male; married; clerk. Good habits. Born in New York. Duration of insanity five years. Has been confined to bed for the past three

months. Gait tottering and staggering. Is very tremulous. Both pupils are contracted, but $r > l$. Knee-jerk absent on both sides. Articulation and deglutition difficult. Has had delusions of wealth and grandeur, but mind is now almost a complete blank. Is profoundly demented. Is in the last stages of general paresis.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1 P.M.	99.4	98.8	97.8	98.6	98.4	98.8	98.4
3 "	99	98.8	98	98.2	98.4	98	98
5 "	98.8	97.6	98.2	98.8	98	98.4	98
7 "	98.8	98.2	97.8	98.2	98.4	98.4	98
9 "	98.4	98.2	98.4	98	98.6	98.4	98.2
11 "	97.6	98.2	98	97.6	98.4	98.2	98.2
1 A.M.	98	98	97.8	97.8	98.2	98.2	98
3 "	98	97.8	98.2	97.8	98	98	98.2
5 "	97.6	97.8	98	97.2	98	98	98
7 "	97.4	97.4	97.2	97.4	98	97.6	98
9 "	97.6	97.6	97.6	97.4	97.4	98.2	98.2
11 "	97.6	97.4	97.8	97.8	98.6	98.2	98.2
Widest daily variation.	2.	1.4	1.2	1.6	1.2	1.2	.4

CASE I.—V. C. The following observations were taken about six weeks after the preceding ones; no very special change occurring in the patient's condition during this time.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.
CASE I.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1 P.M.		R 98.4 L 98.2					
3 "		R 98.6 L 98.4	R 98.2 L 98.2	R 98.4 L 98.3	R 98.2 L 98	R 98.2 L 98.1	R 98 L 98
5 "		R 98.5 L 98.8					
7 "		R 98.8 L 99	R 98.2 L 98.2	R 98.2 L 98.4	R 98.2 L 98.2	R 98.2 L 98	R 98 L 98
9 "		R 97.8 L 97.9					
11 "		R 98.2 L 98.4	R 97.9 L 97	R 98 L 97.9	R 97.6 L 97.6	R 97.8 L 97.7	
1 A.M.		R 98.9 L 98.6					
3 "		R 98.6 L 98.4	R 98.6 L 98.4	R 97.6 L 97.9	R 97.4 L 97.2	R 97.7 L 97.7	
5 "		R 97.8 L 97.6					
7 "		R 97.8 L 97.8	R 98.6 L 98.2	R 97.8 L 98	R 97.4 L 97.2	R 97.8 L 97.8	
9 "		R 98 L 98					
11 "	R 98.4 L 98.2	R 98 L 98.2	R 98.4 L 98.2	R 98.2 L 98	R 98 L 97.9	R 97.8 L 97.8	
		Widest axillary asymmetry = .9					
		Average axillary asymmetry = .15					

CASE II.—I. B.; age 52; male; married; carpenter, born in Canada; intemperate habits. Duration of insanity nearly five years. Is in the last stages of general paresis. Is in bed; cannot stand. Is very tremulous. Knee-jerks slightly exaggerated on both sides, but more so on the left than on the right; pupils unequal
 $l > r$.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1 P.M.	99.2	99.4	98.8	98.6	98.8	98.4	98.8
3 "	98.8	99.4	99	97.8	98.8	98.8	98.6
5 "	98.8	99.2	98.8	98	99.6	98.4	98.6
7 "	98.6	98.6	99.4	97.8	99.6	98.6	99.4
9 "	98.8	99	98.6	97.8	98.4	99.6	98.2
11 "	98.4	98.6	98.6	97.8	99	98.4	99
1 A.M.	98.4	98.2	98.4	98	98.2	98.4	98.6
3 "	98.6	98.4	98	98	98.2	98.2	99
5 "	98.2	98.2	98.2	98	98	98.2	98.6
7 "	98.6	98.8	98	97.8	98	98	98.4
9 "	99	98.4	98.2	97.8	98	98.6	98.4
11 "	99.2	98.8	98.8	98	97.8	98.6	98.6
Widest daily variation.	1.	1.2	1.4	.8	1.8	1.6	1.2

CASE II.—I. B. About two weeks after the preceding observations were taken, patient had paretic convulsions followed by paralysis of the right side. At that time the temperatures were R 102.8, L 102.4.

About six weeks intervened between the preceding observations and the following. The patient is in bed and quite feeble.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.
 CASE II.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	*6th day.
2 P.M.		R 101 L 100.6	R 102.3 L 102	R 102.8 L 102.2	R 104 L 103.8	L 103.8 L 103.4
4 "		R 101.4 L 101.4				
6 "		R 100.2 L 100	R 101.4 L 101.2	R 103.8 L 103	R 103.8 L 103.4	
8 "		R 101.4 L 101.3				
10 "		R 101 L 100.9	R 102.6 L 102.4	R 102.2 L 102	R 102.8 L 102.7	
12 "		R 100.6 L 100.4				
2 A.M.		R 100 L 99.7	R 99.4 L 99	R 100.2 L 100	R 102.8 L 102.7	
4 "		R 100 L 99.8				
6 "		R 99.8 L 99.8	R 99.8 L 99.2	R 100.4 L 100.2	R 102.6 L 102.4	
8 "		R 101.6 L 101.1				

10	"	R 100.4	R 101.8	R 102.4	R 100.8	R 103.7
		L 100.3	L 101.8	L 102	L 100.4	L 103.8
12	"	R 100.4				
		L 100.2				

* Pneumonia developing, died in the evening of the sixth day.
 Widest axillary asymmetry = .8
 Average axillary asymmetry = .24

CASE III.—J. O. C.; age 50; male; single; farmer; temperate habits; born in New York. Hereditary history unknown. Duration of insanity five years. Is now confined to his bed. Is in the very last stages of general paresis. Mind is now a complete blank, but has had delusions of the greatest wealth and exaltation. Pupils contracted, l > r. Knee-jerk absent on both sides.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1 P.M.	97	97.4	97.2	96.8	99.6	98.2	98.4
3 "	97.6	97.2	97.2	97.2	98.8	98.6	97.8
5 "	97	97.2	97	97.2	100.4	99	97.6
7 "	97.2	97.2	97.2	98	100	98.8	97.8
9 "	97.8	96.8	97	97.8	99	98.6	97.8
11 "	97.2	96.8	97	97.4	99	98.2	98
1 A.M.	97	96.8	97	97.2	98.2	98.2	97.8
3 "	97.2	96.8	97	97.2	98	98	97.8
5 "	98	96.8	97.2	97.2	98	98.2	98.2
7 "	97.4	97.2	97.2	96.8	98.2	98.4	98.2
9 "	97.6	97	97.2	97.2	98.4	98.4	98.2
11 "	97.4	97.2	97	98.6	98.6	98.6	98.4
Widest daily variation.	1.	.6	.2	1.8	2.4	1.	.8

Twelve days after the above examination the patient died.

CASE IV.—A. F. L.; male; age 39; single; baker; good habits; born in New York. Duration of insanity about three years. Now in the advanced stages of general paresis. Articulation very difficult. Is hardly able to say a word intelligibly. Gait staggering. Past few months has been losing control of his sphincters. Is very demented but happy. Pupils unequal r > l. Knee jerk greatly diminished on both sides, but is less diminished on the right side than on the left side.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.30 P. M.	98	98	98.4	97.4	98.8	98	98.4
3.30 "	98.2	97.8	98	98	98.2	9.4	98.6
5.30 "	98.2	99.2	97.6	98.2	100	99	98.4
7.30 "	98	98.4	97.8	97.8	98.4	98.4	98
9.30 "	98.2	97.8	97.6	97.8	98.2	98.2	98.2
11.30 "	98	97.6	97.2	97.8	98.2	98.4	98.2
1.30 A. M.	98.2	97.6	97.2	97.8	97.8	98.2	98
3.30 "	98	97.4	97.2	97.8	97.8	98.2	98.2
5.30 "	98	97.4	97.2	97.2	97.6	98	98
7.30 "	97.4	98.4	97	97.8	97.8	98.2	98.2
9.30 "	97.8	98.4	97.8	97.8	97.8	98.2	98.4
11.30 "	97	98	97.6	98.4	98	98.2	98.4
Widest daily variation.	1.2	1.8	1.4	1.2	2.4	1.	.6

CASE IV.—A. F. L. The following observations were taken about six weeks after the preceding ones, no very special change occurring in the patient's condition during this time.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.
CASE IV.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2.30 P.M.		R 100.6 L 100.4	R 98.2 L 98.2	R 98.3 L 98.2	R 98 L 97.8	R 99.3 L 99	R 98.1 L 98
4.30 "		R 100.4 L 100.2					
6.30 "		R 100.4 L 100.3	R 98.6 L 98.6	R 98.8 L 98.6	R 98 L 97.9	R 98.2 L 98	R 98 L 97.9
8.30 "		R 98.4 L 98.6					
10.30 "		R 100 L 99	R 98 L 98	R 98.4 L 98.4	R 97.3 L 97.4	R 98.4 L 98.4	
12.30 "		R 99 L 99					
2.30 A.M.		R 99.2 L 99	R 99 L 97.8	R 98.2 L 98	R 98.4 L 98.4	R 97.8 L 97.8	
4.30 "		R 97.9 L 97.6					
6.30 "		R 98 L 97.6	R 98.2 L 98.2	R 98.2 L 98	R 98.1 L 98.2	R 97.8 L 97.8	
8.30 "		R 98.2 L 98					
10.30 "	R 98.8 L 98.8	R 97.4 L 97.4	R 98.2 L 98.2	R 98.4 L 98.3	R 98.4 L 98.3	R 98 L 98	
12.30 "	R 99.8 L 99.6						

Widest axillary variation = 1.
Average axillary variation = .13

CASE V.—W. L.; male; age 42; married; two children; civil engineer; temperate habits. Academic education. Duration of insanity three years. Has had delusions of the greatest wealth and exaltation, some of which he still has. For the past six months has been very much demented. Is filthy and destructive in habits. Gait somewhat staggering. Tongue, lips and fingers tremulous. Pupils unequal, $r > l$. Knee-jerk more marked on the left side than on the right.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.45 P.M.	97.8	98	98	97.8	99	98.2	98.4
3.45 "	97.8	98.2	97.6	98	98.4	98.4	98.6
5.45 "	97.8	98.4	98.2	98.4	100	98.6	98.4
7.45 "	98.6	98	98.2	98.2	98.4	98.4	98.6
9.45 "	98.6	98.6	98.4	98	98.4	98.4	98.4
11.45 "	98.4	98.4	98.4	98.4	98.6	98.2	98.4

1.45 A.M.	98.2	98.2	98.2	98.4	98.4	98	98.4
3.45 "	98.4	98.2	98.2	98	98.2	98.2	98.4
5.45 "	97.2	97.4	98	98	97.8	98	98.
7.45 "	97.6	98.6	98	97.8	98	98	98.2
9.45 "	98.2	98	98.6	99	98	98	98.2
11.45 "	97.8	97.8	98	98.2	98	98.4	98.4
Widest daily variation.	1.4	1.2	1.	1.2	2.2	.6	.6

CASE V.—W. L. The following observations were taken about six weeks after the preceding ones, no very special change occurring in the patient's condition during this time.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.
CASE V.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day
2.50 P.M.		R 98.8 L 98.4	R 98.2 L 98.4	R 98.4 L 98.2	R 99.2 L 99.4	R 98.6 L 98.5	R 99.6 L 99.4
4.50 "		R 98.8 L 98.7					
6.50 "		R 99.6 L 99	R 99.6 L 99.5	R 98.8 L 99	R 100 L 97.6	R 100.2 L 100	R 99.4 L 99.2
8.50 "		R 98.7 L 98.5					
10.50 "		R 98.6 L 98.5	R 98.4 L 98.6	R 98.6 L 98.4	R 99.6 L 99.2	R 98.7 L 98.5	
12.50 "		R 99 L 98.8					
2.50 A.M.		R 97.9 L 98	R 98.4 L 98.4	R 97.8 L 97.9	R 98.4 L 98.5	R 98.4 L 98.4	
4.50 "		R 97.2 L 97.6					
6.50 "		R 97.8 L 97.8	R 98.6 L 98.6	R 98 L 98	R 98 L 97.8	R 98.2 L 98.2	
8.50 "		R 98 L 97.8					
10.50 "	R 98.8 L 98.6	R 97.8 L 98	R 98.4 L 98.2	R 98.8 L 98.8	R 98.6 L 98.4	R 99.6 L 99.2	
12.50 "	R 98.8 L 98.6						

Widest axillary variation = 2.4
Average axillary variation = .22

CASE VI.—W. P.; male; age 39; married; three children; laborer; habits very intemperate; common school education; born in Ireland. Duration of insanity about three years. Patient is in the last stages of general paresis. Speech thick and articulation is almost impossible; destructive and filthy in habits; very tremulous and paretic; very demented; mind almost a com-

plete blank. Staggers in walking and is now in bed much of the time. Pupils unequal $l > r$. Knee-jerk somewhat exaggerated on both sides, but more so on the left than on the right.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day
1.45	P.M.	98.2	98.4	99.4	99	98.8	98.6	98.8
3.45	"	98.6	98.6	98.6	98.8	98.6	98.6	99
5.45	"	98.6	98.4	98.2	98.4	99	98.6	99
7.45	"	98.4	97.8	99	98.8	98	98.6	99
9.45	"	98.8	98.4	99	98.2	98.2	98.4	98.8
11.45	"	98	98.2	98.4	98	98	98.2	98.6
1.45	A.M.	98	98	98	98.2	98	98.2	98.4
3.45	"	97.6	98	98	98.4	98	98	98.2
5.45	"	97.6	98.6	98.4	97.8	98.2	97.8	98.4
7.45	"	98.2	98.2	98.4	97.4	98.2	98.4	98.6
9.45	"	97.6	98.8	99	97.6	98.2	98.8	98.6
11.45	"	98.6	99.2	98.6	98.6	98.4	98.8	98.8
Widest daily variation		1.2	1.4	1.2	1.6	1.	1.	.8

CASE VI.—W. P. The following observations were taken about six weeks after the preceding ones, no very special change occurring in the patient's condition during this time.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.
CASE VI.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2.20	P.M.		R 101.1 L 101	R 100.4 L 100	R 100.4 L 100	R 99.8 L 99.2	R 99.3 L 99	R 99 L 98.9
4.20	"		R 100.8 L 100.6					
6.20	"		R 100.4 L 100.2	R 99.6 L 99.4	R 100.6 L 100.4	R 99.6 L 99.2	R 99.4 L 98.6	R 98.9 L 98.8
8.20	"		R 100.4 L 100.2					
10.20	"		R 100 L 98.8	R 99.4 L 99.2	R 99 L 99.1	R 98.8 L 99.5	R 99.4 L 99.1	
12.20	A.M.		R 98.8 L 99.4					
2.20	"		R 99.8 L 99.9	R 98.6 L 98.2	R 98.8 L 98.9	R 99.4 L 99.2	R 98.9 L 98.8	
4.20	"		R 99.6 L 99.2					
6.20	"		R 99.6 L 99.4	R 98.6 L 98.2	R 99 L 99	R 99.4 L 99.3	R 99 L 98.9	
8.20	"		R 99.8 L 99.4					
10.20	"	R 100.8 L 99.4	R 100.6 L 98.8	R 100.2 L 100	R 99.2 L 99.2	R 99 L 98.9	R 98.8 L 98.8	
12.20	P.M.	R 100.4 L 100.3						

Widest axillary variation = 1.8

Average axillary variation = .34

CASE VII.—J. R.; male; age 34; married; two children; horse jockey; very intemperate habits. Born in New York. Duration of insanity about three years. Patient is now very demented. Speech thick and hesitating. Tongue and lips tremulous. Has delusions of wealth and exaltation. Always happy. Mind is almost a complete blank. Staggers when walking. Is generally paretic. Pupils unequal, $r > l$. No patella reflex on the right side, and much diminished on the left.

Hours.	1st. day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2 P.M.	99.4	98	98.6	98.8	98.6	99	99.2
4 "	99	98.6	98	98.6	98.4	98.8	98.8
6 "	99.2	100.6	98.4	98.4	100	100	99.6
8 "	99	98.6	99	98.4	98.8	99.2	99
10 "	98.6	98.4	99	98.4	98.8	99.2	99
12 "	99	98.4	98.8	98.2	98.6	99	99
2 A.M.	98.8	98.2	99	98.2	98.2	99	98.8
4 "	98.2	98.4	98.4	98	98	98.8	98.8
6 "	97.8	98.4	97.8	98.4	98	98.2	98.2
8 "	97.8	98.8	99	98.4	98.8	98.6	98.8
10 "	99	98.4	99	99	98.6	98.8	98.8
12 "	98.4	98.4	99	98.8	98.6	99	98.8
Widest daily variation.	1.6	2.6	1.2	1.4	2.	1.8	1.4

CASE VIII.—C. S.; age 50; married; two children; reads and writes. Intemperate habits. Carpenter. Born in England. Duration of insanity nearly four years. Is very demented, but still has delusions of wealth and importance. Dirty in habits. Speech slow and difficult. Very paretic and tremulous. Gait unsteady and tottering. Has mitral insufficiency murmur. Has had several paretic attacks.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2 P.M.	98.4	98.4	98.4	99.2	98.8	98.6	99
4 "	98.2	99	97.6	98.8	98.2	98.8	99.2
6 "	98.4	99.8	98	98.8	98.4	98.2	99.8
8 "	98.2	97.8	98.6	97.8	97.8	98.4	98.4
10 "	98.2	98.2	98.4	97.8	97.8	98.2	98.2
12 "	98.2	98	98.2	97.8	97.8	98.2	98.2
2 A.M.	98	98.2	98	97.8	98	98.2	98.2
4 "	98.2	98	98	97.8	97.8	98	98.4
6 "	97.6	97.4	97.6	97.8	98.2	98	98.4
8 "	97.6	98	98.6	98.8	98.4	98.8	98.6
10 "	98.6	97.6	98.8	97.8	98.2	99	98.8
12 "	98.4	98	98.8	98.2	98.4	99	99
Widest daily variation.	1.	2.4	1.2	1.4	1.	1.	1.6

CASE VIII.—C. S. The following observations were taken about six weeks after the preceding ones, no very special change occurring in the patient's condition during this time.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.
 CASE VIII.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.20	P.M.		R 98.6 L 98.4					
3.20	"		R 98.6 L 98.4	R 99.2 L 99.2	R 98.8 L 98.6	R 98.4 L 99	R 99.2 L 98.9	R 98.8 L 98.6
5.20	"		R 98.6 L 98.6					
7.20	"		R 99 L 98.6	R 99.4 L 99	R 99 L 98.6	R 98.4 L 98.3	R 99 L 98.6	R 98.8 L 98.7
9.20	"		R 99 L 99.2					
11.20	"		R 99.2 L 99	R 98 L 97.6	R 97.8 L 97.5	R 98.5 L 98.6	R 99.2 L 99	
1.20	A.M.		R 99 L 99					
3.20	"		R 99.2 L 99.4	R 97.9 L 97.8	R 98 L 97.8	R 98 L 98.1	R 98.7 L 98.6	
5.20	"		R 97.4 L 97.4					
7.20	"		R 97.8 L 97.6	R 98.2 L 98.2	R 98.3 L 98.2	R 98 L 98	R 98.9 L 98.6	
9.20	"		R 98.2 L 98					
11.20	"	R 98.2 L 98.2	R 98.6 L 98.6	R 98.4 L 98.4	R 98.4 L 98.4	R 98.2 L 98.2	R 99 L 98.8	

Widest axillary variation = .6.
 Average axillary variation = .16.

CASE IX.—A. M.; age 62; male; married; father of ten children; painter; common school education. Born in Germany. Duration of insanity about three years. Is in the last stages of general paresis. Is in bed. Very demented. Has no control over sphincters of bladder and rectum. No knee-jerk on right side; on the left it is slightly exaggerated but in a few minutes disappears, the centre becoming exhausted, but after a few minutes rest is again present for a short time.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2.15	P.M.	97.4	98.4	99	98	98.4	98.6	98.4
4.15	"	98	97.8	98.4	97.4	99.2	97.8	98.4
6.15	"	98	97.8	98.8	98.4	98.6	99	97.8
8.15	"	98.2	98	98.8	98.4	98.6	99.2	98.8
10.15	"	97.6	98	98.6	98.2	98.2	99	98.8
12.15	"	98.6	97.8	98	98.2	98.2	99	98.4
2.15	A.M.	98.2	97.8	98.2	98	98.2	98.8	98.4
4.15	"	98.2	97.6	98	98	98	98	98.4
6.15	"	96.6	97.8	97.8	97.4	97.8	98	98.4
8.15	"	98	98.6	98	98	97.8	98.4	98.6
10.15	"	98	97.8	98.2	98	98	98.4	98.4
12.15	"	97.8	98	98.2	98.6	97.8	98.6	98.4
Widest daily variation.		1.2	1.	1.2	1.2	1.4	1.4	1.

CASE X.—H.; age 41; male; single; salesman; academic education; good habits. Born in New York. Duration of insanity three and one half years. Pupils irregular and unequal. Knee-jerk subnormal. Is in bed. Very tremulous and paretic. Has had delusions of the greatest wealth and exaltation. Is extremely demented and mind is now a complete blank. Has no control over his sphincters. Has trophic changes in skin over trochanters and heels; has also a bed sore over the sacrum. Is in the last stages of general paresis.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2.15 P.M.	99.6	98.6	99.4	98.4	99.4	101.2	100.2
4.15 "	99.2	98.6	99	98.4	100.4	101.8	100.8
6.15 "	99	99.2	99.2	99.2	100.2	101.4	100.2
8.15 "	98.8	98.8	99.4	99	100	100.8	99.8
10.15 "	98.6	98.4	98.4	99	99.4	100.2	99.8
12.15 "	98.2	98.4	98.6	98.6	98.4	99.6	99.6
2.15 A.M.	98	98.6	98	98.4	98.6	99.2	99.6
4.15 "	97.6	98.2	98.8	98.2	98.4	99.8	99.4
6.15 "	98	97.6	97.8	97.8	98.4	98.4	99.4
8.15 "	98.2	99	98.2	98.2	99.4	99.8	98.4
10.15 "	98.6	98.4	98.6	99.2	100.6	99.4	98.8
12.15 "	99	100.2	98.6	98.2	101	100.2	99.4
Widest daily variation.	2.	2.6	1.6	1.4	2.2*	3.4	2.4

About three weeks after these observations the patient died at his home.

CASE XI.—E. M. C.; male; age 44; married; father of six children; common school education; carpenter; intemperate habits; has had syphilis. Born in New York. Duration of insanity about twenty months. Is tremulous, paretic. Gait somewhat feeble. Has hallucinations of hearing. Is demented. Pupils unequal, $l < r$. Both knee-jerks exaggerated, but the left more so than the right.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2.30 P.M.	98.2	98.6	98.2	97.8	98		98.4
4.30 "	98.2	98	98	98	99.6	98.6	98.8
6.30 "	98.4	98	98.4	98	99	99	98.4
8.30 "		98.6	98.8	98.4	99	99.4	99
10.30 "	98.8	98.4	98.8	98.4	98.8	99.2	98.6
12.30 "	99	98.4	98.4	98	98.2	98.8	98.8
2.30 A.M.	98.8	98.4	98.2	98.2	98.2	98.6	98.6
4.30 "	98.4	98	98.2	98	98.2	98.4	98.4
6.30 "	97.6	98.8	97.8	97.8	98.2	97.8	98.4
8.30 "	98	99	97.8	98.4	98.4	98.4	98.4
10.30 "	97.4	98.2	97.6	98.4	98.8	98.2	98.4
12.30 "	98.4	97.8	98	98.4	98.4	98.4	98.4
Widest daily variation.	1.9	1.2	1.2	.6	1.6	1.8	.6

CASE XII.—C. J. H.; male; age 40; married; six children; hack driver; common school education; habits always very intemperate. Has probably been given to sexual excess. Born in New York. Father died insane. Duration of insanity about one year. Is now very demented. Pupils dilated, but irregular and unequal, $l > r$. Knee-jerks subnormal. Has lost control of his sphincters. Is very tremulous and paretic. Gait staggering.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2 30 P.M.	98.6	99.8	98.4	98.2	98.8	98.4	98.8
4.30 "	98.6	98.4	98.4	98.4	98.8	98.6	99
6.30 "	98.8	98.4	98.8	98.8	98.4	98.8	98.6
8 30 "	98.2	97.6	98.2	98.4	98.2	98.6	98.6
10.30 "	98	98	98	98.2	98.2	98.6	98.6
12.30 "	98.2	97.6	98	98.4	98	98.4	98.4
2.30 A.M.	98	97.8	97.6	98	98	98.4	98.2
4 30 "	98.4	97.8	97.6	97.6	98	98.2	98.2
6.30 "	97.2	97.6	98.6	98.6	98	98	99.2
8.30 "	97.4	97.8	98.4	98.6	98.6	98.6	99.2
10.30 "	98.8	97.8	98.4	99	98.6	98.6	99.4
12.30 "	98.2	98.6	98.6	99.2	98.4	99.2	99.4
Widest daily variation.	1.6	2.2	1.2	1.6	.8	1.2	1.2

CASE XIII.—C. B. L.; male; age 44; married; boatman; no education; intemperate habits. Born in New York. Duration of insanity three years. Is now very demented, but happy. Is tremulous and paretic. Gait staggering. Pupils unequal, $l > r$. Knee-jerks slightly exaggerated, left more so than the right.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2.45 P.M.	98	97.4	97.6	98	98.4	98.2	98.4
4 45 "	98.2	97.4	97.4	98.4	97.8	98	98.2
6.45 "	98.2	97.2	97.4	97.6	97.8	98.2	99
8.45 "	98	97.4	98	97.8	98	98.2	98.8
10.45 "	98	97.8	97.8	97.8	98	98	98.4
12.45 "	97.8	97.8	98	97.8	98	98.8	98.2
2.45 A.M.	97.6	97.8	97.6	97.4	97.8	98	98.4
4.45 "	97.6	97.6	97.4	97.4	97.6	98	98.4
6.45 "	97.4	97.4	97.2	97.8	97.8	97.8	98.4
8.45 "	97.6	97.4	97.8	98.4	97.8	98.4	98.4
10 45 "	97.8	97.2	97.4	98	98	98.2	98.4
12.45 "	97.4	97.4	97.6	98.4	98	98.4	98.4
Widest daily variation.	.8	.6	.8	1.	.8	1.	.8

CASE XIV.—J. H.; male; age 48; married; father of six children; clerk; temperate habits, but has had syphilis. Common school education. Born in Ireland.

Duration of insanity about eighteen months. Is now quiet, but has delusions of wealth and grandeur; is becoming demented. Mentalization slow. Is dull, confused, but at times very emotional. Pupils are irregular, sluggish and unequal, $r > l$. Speech is indistinct, hesitating and stuttering. Gait is unsteady. Has general muscular tremors. Both knee-jerks very much exaggerated.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.30	P.M.	97.8	97.8	97.6	98	98.4	99	98.8
3.30	"	98.2	97.6	98.6	98.4	99	98.4	99
5.30	"	97.8	97.8	98.4	98.6	98	99.4	99
7.30	"	97.8	98	98.8	98.4	98.6	99	99.6
9.30	"	97.8	98	98	98	97.8	99	98.8
11.30	"	97.8	97.6	98	98	98	99	98.8
1.30	A.M.	97.6	97.8	98	98.2	98	99.6	99
3.30	"	97.4	98	98.4	98	97.8	99.4	99
5.30	"	97.8	97.6	97.8	97.8	98	99.2	99
7.30	"	97.8	97.6	97.6	97.8	97.8	97.8	97.4
9.30	"	97.6	97.8	98.2	98.2	98.4	98	98
11.30	"	97.8	97.8	97.8	97.8	98.4	98	97.6
Widest daily variation.		.8	.4	1.2	.8	1.2	1.8	2.2

CASE XV.—T. P.; male; age 37; single; carpenter; habits temperate. Common school education. Born in Massachusetts. Is in the third stage of general paresis. Has delusions of the greatest wealth and exaltation, but is demented. Dirty in habits. Is very tremulous. Gait unsteady. Articulation slow and difficult. At times emotional. Pupils unequal, $l > r$. Knee-jerks and ankle clonus exaggerated on both sides.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.45	P.M.	98.2	98.6	99	98.8	100.2	98.6	99
3.45	"	100	97.8	99.4	99	100.8	99	99.
5.45	"	99.8	98.4	100	99.4	101	100	99.4
7.45	"	99	98.8	99	100.2	99	99.2	99.8
9.45	"	99	97.8	98	100.2	98	98	99
11.45	"	98	98.8	97.8	99.2	99.4	98.4	99.2
1.45	A.M.	98.4	99	98	98	99.2	99.4	99.4
3.45	"	98	98	97.6	98.6	99	99.2	98.4
5.45	"	98	98	97.6	98.8	99	99.2	98
7.45	"	97.8	100	98.4	98.6	99.2	98.6	97.8
9.45	"	98.8	98.4	98.8	98.4	99.2	99	98.4
11.45	"	98	98.6	99	99	99	98.6	98
Widest daily variation.		2.2	2.2	2.4	2.2	3.	1.6	2.

CASE XV.—T. P. The following observations were taken about six weeks after the preceding ones, no very special change occurring in the patient's condition during this time.

PARALYSIS OF THE INSANE.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.

CASE XV.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2.40	P. M.		R 99.2 L 99.4	R 99 L 98.6	R 99.8 L 99.6	R 98.4 L 98.4	R 99.4 L 99.3	R 99 L 98.8
4.40	"		R 99.4 L 99.4					
6.40	"		R 99 L 99.2	R 99.7 L 99.4	R 99 L 99.2	R 99.4 L 99.2	R 98.2 L 98.2	R 98.4 L 98.8
8.40	"		R 98.4 L 99.2					
10.40	"		R 99 L 99	R 100.4 R 100.1	R 99.6 L 99.8	R 98.9 L 98.6	R 99.5 L 99.6	
12.40	"		R 98.4 L 99.5					
2.40	A. M.		R 98.4 L 98.4	R 99.8 L 99.7	R 99 L 98.7	R 98.9 L 98.7	R 99 L 98.9	
4.40	"		R 99 L 99.2					
6.40	"		R 99 L 99	R 99.8 L 99.6	R 99 L 98.8	R 98.6 L 98.5	R 98.8 L 98.6	
8.40	"		R 99.2 L 99.2					
10.40	"	R 98.4 L 98.6	R 99.8 L 98.4	R 99.8 L 99.6	R 99.2 L 99	R 99.2 L 99	R 98.8 L 98.6	
12.40	"	R 99.2 L 99.4						

Widest axillary variation = 1.9.
Average axillary variation = .23.

CASE XVI.—M. L. P.; male; aged forty-one; married; two children; farm laborer; common school education. Intemperate habits. Born in New York. Duration of insanity about twenty months. Has delusions of the greatest wealth and importance. Has auditory hallucinations. Is very emotional. Stammers and hesitates in speech. Gait very unsteady. Is quite demented. Of late has gained considerable in flesh. Pupils are unequal, $r > l$. Knee-jerk diminished on both sides, but less on the left than on the right.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2	P. M.	98.8	98	98.4	98.4	98.8	99.6	98.8
4	"	98	98.8	99	97.8	98	98.4	98
6	"	98	98	98.2	99	98	98.4	98
8	"	97.6	98	97.8	99	97.8	98	97.8
10	"	97.6	97.8	97.6	98.4	97.6	98.2	97.8
12	"	97.6	97.6	97.6	97.8	97.6	98	97.8
2	A. M.	98.2	97.6	98	97.8	97.6	97.6	97.4
4	"	97.8	97.6	97.6	97.8	97.8	97.6	97.4
6	"	97.6	98	97.6	98	97.6	97.8	97.6
8	"	98	98	97.8	98	98.4	98.4	98.4
10	"	96	98	98.2	98.2	98.2	99.2	99
12	"	98.8	99	98	98.2	99	98.4	98.4
Widest daily variation.		1.4	1.4	1.4	1.2	1.4	2.	1.6

CASE XVII.—J. E. C.; male; age 43; married; two children; book-keeper; good habits. Born in New York. Father was insane. Duration of insanity about four years, there being a partial remission of a few months after the first two years of insanity. The patient is now very much elated and has delusions of the greatest wealth and importance. Pupils are dilated, irregular and unequal, $r > l$. Tongue and lips tremulous. Articulation much impaired. Gait staggering and unsteady. Is very emotional. Knee-jerk absent on both sides.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day
1.45	P.M.	100.6	98	98.4	99	98.4	98.8	98.4
3.45	"	101.2	98.8	98.4	99	98.4	97.6	99.4
5.45	"	100.4	100	98.8	99.2	99	99.2	101.6
7.45	"	101	99.8	98.4	99	98	98.4	98.4
9.45	"	101.2	99	97.8	99.2	99	98.6	99
11.45	"	100.6	98	97.8	98.8	97.8	98.2	98
1.45	A.M.	99	97.8	97.8	97.8	97.8	97.8	98
3.45	"	99	97.4	97.8	98	97.8	97.8	98
5.45	"	98.2	97.8	97.8	98.4	98	98.4	98
7.45	"	98	98.4	98.8	98.4	98.8	98.4	98.8
9.45	"	98.4	98.6	99	98.4	98.4	97.6	98.4
11.45	"	98.4	98.4	98	98.8	98.2	98.8	97.8
Widest daily variation.		3.2	2.6	1.4	1.4	1.4	1.6	3.8

CASE XVII.—J. E. C. The following observations were taken about six weeks after the preceding ones, no very special change occurring in the patient's condition during this time.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.

CASE XVII.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1	P.M.		R 99 L 99.2					
3	"		R 98 L 98.5	R 98.8 L 98.8	R 99.8 L 99.8	R 99.4 L 99	R 98.6 L 98.3	R 98.2 L 98
5	"		R 98.2 L 98.4					
7	"		R 98.4 L 98.5	R 98.4 L 98.8	R 99.2 L 98.4	R 99.6 L 99.6	R 98.2 L 98.9	R 98.3 L 98.1
9	"		R 98.4 L 98.4					
11	"		R 97.8 L 98.2	R 100 L 98.7	R 98.9 L 98.6	R 98.9 L 98.8	R 98 L 98.1	
1	A.M.		R 98.6 L 98.2					
3	"		R 99 L 99	R 98.9 L 99	R 98 L 98	R 98.6 L 98.4	R 97.8 L 97.9	
5	"		R 97.6 L 97.5					

7	"		R 98	R 98.8	R 99.4	R 98.2	R 98
			L 98	L 98.8	L 99.2	L 98	L 98
9	"		R 98.2				
			L 98				
11	"	R 98.4	R 98.4	R 98.8	R 99.6	R 98.6	R 98.2
		L 98.4	L 98.2	L 98.8	L 99.4	L 98.4	L 98

Widest axillary variation = 1.3
Average axillary variation = .21

CASE XVIII.—W. F. V.; male; age 40; married; father of two children; salesman; common school education; habits temperate. Born in England. Duration of insanity about eighteen months. The patient is now having a partial remission and has become quite fleshy. At one time was quite noisy, loquacious, exalted, had delusions of the greatest wealth and importance. For the past six months has been quiet, but somewhat demented. Is happy. Tongue, lips and fingers tremulous. Articulation impaired. Pupils unequal, irregular and contracted, but $l > r$. Knee-jerk exaggerated. Has a hæmatoma auris.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.30	P.M.	98	98	98	98.2	98.8	98	98.8
3.30	"	98.4	97.4	97.8	98.8	99.4	98	98.8
5.30	"	98	97.6	98.2	98.6	98.4	99	99
7.30	"	97.6	98	98.2	98.6	98	98	98.2
9.30	"	97.8	97.8	97.8	98	98.4	98.2	98.4
11.30	"	97.8	97.8	98	97.6	98	98.2	98.4
1.30	A.M.	97.5	97.8	98	97.6	98.4	98.8	98
3.30	"	97.5	97.8	97.8	98	98	98	98
5.30	"	98.4	97.8	97.4	97.6	97.8	97.8	98
7.30	"	97.5	97.8	97.4	97.8	97.8	97.8	97.2
9.30	"	97.6	97.8	97.6	98	98.4	97.6	97.6
11.30	"	97.4	97.4		97.4	97.8	98	97.4
Widest daily variation.		1.	.6	.8	1.4	1.6	1.4	1.8

CASE XIX.—A. V.; male; age 39; married; two children; laborer; common school education; temperate habits. Born in Canada. Duration of insanity two years. Is now demented, but happy; is very forgetful, and frequently does not remember his own name. Hesitates in speech; staggers in walking. Both pupils are dilated, irregular and unequal, $r > l$. Knee-jerk greatly diminished on both sides; almost nil on the left.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.30 P.M.	99.2	98	98	98.4	97.8	97.8	98.2
3.30 "	98.2	97.8	97.4	98.8	98	97.6	98.4
5.30 "	98.6	98.4	98.6	97.8	98.4	99.8	98.4
7.30 "	98.8	97.6	97.6	97.4	98	98.4	97.4
9.30 "	98.6	97.8	97.8	97.4	97.4	97.6	97.8
11.30 "	97.8	97.8	97.4	98	97.4	97.6	97.8
1.30 A.M.	97.6	97.5	97.8	97.4	97.4	97.4	97.8
3.30 "	97.8	97.4	97.4	97.2	97.8	97.4	97.4
5.30 "	97.8	97.8	97.4	97.6	97.8	97.8	97.4
7.30 "	97.8	98.2	98	98	98	98.4	98.4
9.30 "	98	97.6	97.8	98	98.4	98	98
11.30 "	97.8	98.2	98.4	97.8	98.4	98.2	97.8
Widest daily variation.	1.6	1.	1.2	1.6	1.	2.4	1.

CASE XX.—E. P. C.; male; age 35; married; three children; tinsmith; intemperate habits. Born in New York. Duration of insanity fifteen months. Has been noisy, incoherent, homicidal; has had, and still has, delusions of the greatest wealth and exaltation, but is now becoming quieter and more demented. Gait unsteady and staggering. Articulation slow and difficult. Speech thick and hesitating. Tongue and lips tremulous. Pupils are somewhat contracted, irregular and unequal, $r > l$. Knee-jerk slightly diminished on both sides.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2 P.M.	98	97.4	97.6	98.6	98	98.6	98.6
4 "	98.4	97.6	98.4	98.4	98	98.8	97.8
6 "	99.2	97.4	98.8	100	98.6	99	98.8
8 "	98	98.2	98.6	99	98.4	98.8	98.6
10 "	97.8	98	98.6	98	98	98	98.4
12 "	97.8	98.4	98.6	98.4	98.4	98.6	99
2 A.M.	97.8	98.4	98	98.4	99	99	99
4 "	97.8	98.2	97.8	98	98	97.9	98.4
6 "	97.8	97.4	97.6	97.8	97.8	98	97.8
8 "	97.8	97.4	97.6	97.6	97.4	97.6	97.8
10 "	97.8	97.6	97.8	97.4	97.8	98	98
12 "	97.6	97.8	97.8	97.6	97.8	97.6	97.6
Widest daily variation.	1.6	1.	1.2	2.6	1.6	1.4	1.4

CASE XX.—E. P. C. The following observations were taken about six weeks after the preceding ones, no very special change occurring in the patient's condition during this time.

TABLE CONTRASTING BOTH AXILLARY TEMPERATURES.

CASE XX.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.30 P.M.		R 98.6 L 98.5					
3.30 "		R 98.2 L 98	R 98.2 L 98	R 98.8 L 98.6	R 98.2 L 98	R 98.4 L 98.3	R 98.6 L 98.3

5.30	"	R 98.4 L 98.4					
7.30	"	R 99.2 L 99.8	R 98.8 L 98.6	R 98.4 L 98.8	R 98.2 L 98	R 99.2 L 98.8	R 98.5 L 98.2
9.30	"	R 99 L 98.8					
11.30	"	R 97.8 L 97.6	R 98.8 L 99	R 98.4 L 98.4	R 99 L 99	R 98.6 L 98.5	
1.30	A.M.	R 98.6 L 98.4					
3.30	"	R 98.4 L 98.4	R 98 L 97.8	R 98.1 L 98.2	R 98.8 L 98.6	R 98.4 L 98.4	
5.30	"	R 98.2 L 98.4					
7.30	"	R 98.4 L 98.4	R 98.2 L 98	R 98.4 L 98.4	R 98.2 L 98	R 98.4 L 98.3	
9.30	"	R 98.6 L 98.4					
11.30	"	R 98.4 L 98.2	R 98.6 L 98.7	R 98.6 L 98.3	R 98.4 L 98.6	R 98.4 L 98.3	R 98.4 L 98.3

Widest axillary variation = .6

Average axillary variation = .16

CASE XXI.—E. S.; male; age 40; single; collector; common school education. Good habits. Born in New York. Duration of insanity about four years and a half. Is now much demented, but has hallucinations of sight and hearing. Filthy and destructive in habits. Is tremulous and paretic, but is up and about. Pupils irregular and unequal, $l > r$. Knee-jerk diminished on both sides, but is slightly stronger on the left than on the right.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1 P.M.	99.4	99.6	99.8	99.6	98.4	99	99
3 "	99.8	99.2	100	99	98.6	99	99.2
5 "	99.8	99.2	100.2	99.2	99	99.8	99.2
7 "	99.4	99	99.8	99	99	99.8	99
9 "	99.2	99.4	99	98.4	98.4	98.2	99
11 "	99.2	99.2	98.8	98.2	98.4	98	98.6
1 A.M.	99	99	99	98.2	98	97.6	98.2
3 "	99.2	98.8	98	97.8	97.6	97.4	98.2
5 "	99	99	98.2	97.6	97.2	99.4	98
7 "	99.4	98.8	99.2	98	98.8	98.8	98.2
9 "	99.6	99	99.4	98.4	98.8	98.6	98.6
11 "	*99.8	99.2	99	98.2	98.8	99	98.8
Widest daily variation.	.8	.8	2.2	2.	1.8	2.4	1.2

CASE XXII.—J. C. B.; male; age 52; married; father of five children; confectioner; common school education; intemperate habits. Born in England. Duration of insanity fifteen months. Is now demented but happy. Pupils contracted and do not respond to light. Tongue, lips and fingers tremulous. Gait un-

steady. Speech thick and hesitating. Articulation difficult. Patella reflex absent on both sides.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2 P. M.	98	98	98.2	98.4	99.6	98	97.8
4 "	98.2	98	97.4	99	98.6	97.4	97.8
6 "	98.4	99	97.8	98.2	98.4	98.6	98
8 "	97.4	98.4	98.4	98.2	99	98.4	99.2
10 "	98.4	98.6	97.8	98.8	98.4	98.4	98.4
12 "	98.4	98	98	99.4	98	98.4	98.4
2 A M.	97.8	98.6	98	99	99	98.8	98
4 "	98	99.2	98.4	98.8	98.4	98.8	98.4
6 "	98	98	99	97.6	98.4	98	98
8 "	97.8	98.2	98	98.6	98.2	98.4	98
10 "	97.8	97.8	97.6	97.8	97.6	98.4	98.2
12 "	97.8	97.8	98.2	98	98.4	98.6	98
Widest daily variation.	1	1.4	1.6	1.8	2.	1.4	1.4

CASE XXIII.—E. P. B.; male; age 32; divorced; clerk; common school education. Intemperate habits. Born in New York. Heredity; father insane. Duration of insanity probably between four and six months. Is now restless, noisy, very talkative; has delusions of the greatest wealth and importance; extremely emotional; hesitates in speech; tongue and lips tremulous; reflexes exaggerated.

Hours.	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1.30 P. M.		97.8	98	98.8	98.8	98	98.8
3.30 "	99.4	98.4	98.2	98.2	98.6	98.6	98.6
5.30 "	99.6	99.2	99.4	98.6	100	99.4	100.2
7.30 "	99	99.8	99.6	98.4	99.8	98.8	99.8
9.30 "	98.6	99.2	98.8	98	98.2	98.8	99
11.30 "	97.8	99.4	97.8	98	98.4	98.4	99.8
1.30 A M.	97.8	98.8	98	97.8	98.4	97.8	98.2
3.30 "	98.2	97.8	97.8	97.6	98	98	97.8
5.30 "	97.8	97.8	97.6	97.8	98.2	98.2	97.8
7.30 "	97.8	98.6	97.8	97.8	98.8	97.8	98.2
9.30 "	97.8	99.2	98.4	98.8	99.2	97.8	97.8
11.30 "	97.8	99.4	98.2	98.6	98.2	98.6	97.8
Widest daily variation.	1.8	2.	2.	1.2	2.	1.6	2.4

CASE XXIV.—E. A. D.; male; age 48; married; father of three children; carpenter; common school education; temperate habits but has had syphilis. Born in New York. Duration of insanity eighteen months. Has been exceedingly violent and excited, but is now becoming quieter and demented. Has delusions of the most enormous wealth and importance, e. g., that he is building houses and decorating them with diamonds, that he is sending many ships to California to be loaded with gold, etc., etc. Is now untidy and slovenly. Appetite enormous. Tongue, lips and fingers tremulous. Gait tottering and feeble. Both

pupils are contracted and irregular, but unequal, $r > l$; no patella reflex.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
1 45	P.M.	98.4	98.2	97.8	98.8	98.2	98.8	98.8
3-45	"	98	98.2	98.6	98	98.2	98.8	98.4
5-45	"	98.4	98.2	99	98.2	98.4	99	98.8
7 45	"	99	98.2	98.4	98	98.4	98.4	98
9-45	"	99	98	97.8	99	98.8	98.2	98.8
11 45	"	98	98	98	99	98.2	98.2	98.4
1 45	A.M.	97.8	98	97.6	98	98.4	98	98
3 45	"	99	97.8	98	98.4	98	98	98
5-45	"	98.6	97.8	97.8	97.8	98	98	97.8
7-45	"	97.8	98	97.8	97.8	98	98	97.8
9-45	"	99	98.4	98	98	97.8	98.2	97.8
11 45	"	98.8	98.8	98.2	97.8	97.8	98.6	98.4
Widest daily variation.		I. 2	I.	I. 4	I 2	I.	I.	I.

CASE XXV.—W. C. W.; male; age 40; married; six children; machinist; common education. Intemperate habits. Born in New York. Duration of insanity between two and three years. Is now very demented; happy. Has all the physical symptoms of the last stages of general paresis. About three weeks ago had a paretic attack, and has been in bed since, but is now rallying. Somewhat more paralyzed on the left side than on the right. Is very tremulous. Speech thick and indistinct; articulation difficult. Pupils irregular and unequal. Patella reflex exaggerated.

Hours.		1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
2	P.M.		R 99.6	R 98.2	R 98.6	R 98.6	R 98.6	R 98.4
			L 99.4	L 98.6	L 98.4	L 98.2	L 98.3	L 98.2
4	"		R 98.8					
			L 99.6					
6	"		R 98.8	R 98.8	R 99.5	R 98.6	R 98	R 98.4
			L 98.4	L 98.8	L 99.5	L 98.2	L 98.2	L 98.2
8	"		R 99					
			L 98.8					
10	"		R 98.6	R 98.2	R 98.6	R 97.8	R 98.7	
			L 98.8	L 97.9	L 98.6	L 97.6	L 98.6	
12	"		R 98.1					
			L 97.8					
2	A.M.		R 98.2	R 97.6	R 98.2	R 97.8	R 98.5	
			L 98	L 96.6	L 98.1	L 97.9	L 98.3	
4	"		R 97.8					
			L 97.6					
6	"		R 98.2	R 97.8	R 98.2	R 98.2	R 98.4	
			L 98	L 97.8	L 98	L 98	L 98.2	
8	"		R 98.4					
			L 98.2					
10	"	R 98.8	R 99.4	R 98.2	R 98.4	R 98.4	R 98.3	
		L 98.6	L 98.6	L 98.2	L 99.2	L 98.2	L 98.2	
12	"	R 99						
		L 98.8						

Widest axillary variation = .4

Average axillary variation = .18

As regards the average general bodily temperature of cases of general paresis, we have determined from this and previous studies that there is no variation from the normal. The following comparative table of temperatures in various forms of insanity made by one of us (L.), for the elder Seguin ("Medical Thermometry and Human Temperature," New York, 1876) shows that in acute mania only do we have any particular variation from the normal mean (slight hyperpyrexia):

Acute mania	99.02
Subacute mania.	98.66
Chronic mania	98.68
Epileptic mania.	98.70
Alcoholic Insanity	98.70
General paresis	98.45
Melancholia	98.37
Dementia	98.55

The following table is derived from the thermometric observations in our twenty-five cases, and shows the greatest single diurnal oscillations noted on some one day, the average of such oscillations for one week, and the axillary variations in our ten cases:

Cases.	Greatest oscillation on a single day.	Average daily oscillation for one week.	Greatest axillary asymmetry single observation.	Average axillary variation for one week.
1	2.	1.2	.9	.15
2	1.8	1.2	8	.24
3	2.4	1.1		
4	2.4	1.3	1.	.13
5	2.2	1.1	2.4	.22
6	6	1.1	1.8	.34
7	2.6	1.7		
8	2.4	1.3	6	.16
9	1.4	1.2		
10	3.4	2.2		
11	1.8	1.2		
12	2.2	1.4		
13	1.	.8		
14	2.2	1.2		
15	3	2.2	1.9	.23
16	2	1.4		
17	3.8	2.2	1.3	.21
18	1.8	1.2		
19	2.4	1.4		
20	2.6	1.5	.6	.16
21	2.4	1.6		
22	2.	1.5		
23	2.4	1.8		
24	1.4	1.1		
			.4	.18
Averages.	2.3	1.4	1.17	.20

That there are marked oscillations of temperature will be seen in an examination of the table. These single day oscillations are quite marked, in cases ten and seventeen as high as 3.4 and 3.8 degrees. But it is perhaps fairer to contrast the average daily oscillation for the week in each case with the normal. Now Ogle gives the normal diurnal oscillation as 1.5° Fahr., and Alvarenga, Bärensprung, Jürgensen, Jäger and Huguenin place the figure at even more,—upwards of 2° Fahr. The lowest average diurnal oscillation in any one of our cases of general paresis was $.8^{\circ}$; the highest, 2.2° . The total average for all of the cases was 1.4, which we may consider, therefore, as not at all deviating from the normal. The following table will make the observations as to diurnal oscillations more clear:

No. of Cases.	Average daily oscillation for one week.
In 1 Case.	8
“ 4 “	1.1
“ 6 “	1.2
“ 2 “	1.3
“ 3 “	1.4
“ 2 “	1.5
“ 1 “	1.6
“ 1 “	1.7
“ 1 “	1.8
“ 3 “	2.2
“ 24 “	average 1.4

The axillary temperatures of the two sides were taken simultaneously. The smallest average axillary asymmetry was $.13^{\circ}$, the greatest $.34$, but among single observations there were many instances of exact correspondence; while in one case, one observation showed a difference of 2.4° . The mean of greatest single axillary deviations in the ten cases was 1.17. We have been unable to find tables of normal axillary asymmetry, and thus cannot contrast our measurements with physiological tables, but it is a fact that under normal conditions there are variations between the two sides of the body; and as regards the head, for instance, the differences noted by various observers have been fully as appreciable as these observations of ours in the axillæ of paretics. There is then no good reason for supposing that there are remarkable and abnormal differences in axillary temperatures in paretics.

We would sum up our conclusions, after careful investigation of the bodily temperatures of paretics, as follows:

1. As regards the average bodily temperature, we find it to correspond to physiological norms. The statements of our predecessors as to hyperpyrexia or subnormal averages cannot be sustained.

2. The diurnal oscillations of temperature in paretics also correspond to physiological norms. The statements to be found in literature as to extraordinary daily variations being frequent in these cases are absolutely erroneous.

3. Asymmetrical axillary differences are so small that they cannot be considered as abnormal, and certainly not of any diagnostic significance.

4. When unusual variations of temperature occur in general paretics, their cause must be sought for in conditions not related to the pathological phenomena of paralytic dementia, but depending upon thermogenic features unrecognized by the physician, or "masked" by the mental state of the patient. Thus, in case two of our series, an increasing hyperpyrexia was noted during the second week's observations, but the pneumonia causing it was "masked" until the fifth or sixth day, the patient dying on the sixth day. Again in case ten, where the highest single daily oscillation was 3.4° and the average daily oscillation for the week 2.2° , the patient suffered from bed-sores which undoubtedly produced some septicaemia. That variations of temperature may take place in connection with the paralytic and convulsive seizures of these cases we do not gainsay, but have made no observations under such circumstances.

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