

*Supplementary Notes on "Prehension" in Idiots.*

By FRANCIS GALTON, F.R.S.

Prof. Bain and myself paid a visit of  $4\frac{1}{4}$  hours' duration to the Earlswood Asylum for Idiots, on June 18, 1886, where we were received by Dr. Cobbold, who gave us every assistance. There were 566 idiots in the asylum, and he picked out those who were the most suitable for our inquiries.

He told us, and we had abundant evidence of the truth of the statement, that, as a general rule, idiots are incapable of the simplest arithmetic. Usually they cannot even add two figures together, though they may know the multiplication table by rote. On the other hand, a very few cases are to be met with in which idiots have a tenacious memory for dates. We determined to apply the test of the number of figures that can be orally repeated after having heard them read out once distinctly, to (1) the better class of idiots generally; (2) those who had the special power of recollecting dates, and to test the latter in other ways as well.

I. Nine of the best girls were selected by Dr. Cobbold out of the class-room. They could all read and write a little, and were intelligent enough to do some house work. They were aged apparently from 16 or 17 to 25. They all failed in adding two figures together, such as 3 to 5, 4 to 7, &c. Their performances in the numeral-test are given below at A.

Six other girls were then taken by Dr. Cobbold from the same class not quite indiscriminately, as our wish at that moment was to find girls who were intelligent enough to answer quickly, and who were nevertheless unable to repeat many figures. The result was, however, that given at B.

	Number of cases.	Greatest number of Figures that could be recollected.		Number of Figures at which the memory first wholly broke down.
		Perfectly.	Imperfectly.	
A	1	2	5	3
	1	3		4
	1	4		5
	2	4		6
	4	5		6
B	1	2		3
	2	3		4
	1	4		5
	1	5		6
	1	6		7

Having thus obtained two girls, one from each batch, who could not repeat more than two figures without mistake, 23 trials were made with them with three figures in each, and their errors were classified. In 17 cases the last figure was rightly repeated; in 10, the second; and in 7, the first. The last uttered figure is therefore most easily repeated.

There was no obvious tendency to transposition. One of the girls had a peculiar trick of duplicating a numeral and giving an answer of 4 instead of 3 figures, thus 1216 for 216, 0808 for 408.

II. Three men idiots were brought to us who were remarkable for their memory of dates; their initials were J. M., W. C. and G. M.

The speciality of J. M. was his acquaintance with Magnall's *History*. I had seen him some years ago when I visited the Asylum in company with Mr. Romanes, previous to Dr. Cobbold's appointment. He had then a well-thumbed volume, printed to the best of my recollection in small type; he now has a new volume of 419 pages, small 8vo, and in large type, but does not profess to know the whole of it by heart. He was tested at the lives of Copernicus, Columbus and elsewhere, and repeated with considerable exactitude. Where he substituted words they made good sense, and where he omitted words or passages the omissions did not spoil the sense. He repeated much that we did not find in the book, but which I ascribed to his recollection of the more diffuse edition of the work. He was asked about astronomical measures and gave abundance of correct numerical data, and when questioned as to their signification answered sensibly enough. His memory cannot be visual, as he does not know in what part of the page the recollected passages lie. Of the sermons he had heard, he could remember the texts of many and the dates when they were preached, but not the sermons themselves. His power of learning new sentences seemed small; he

was tried with one of three lines out of a local guide-book that lay on the table, which was written in much the same magniloquent language as Magnall's *History*, but after five readings he failed to recall more than a few words.

On trying the numeral-test, he was right four times out of six with three figures, but wholly broke down at four.

W. C. has a minute recollection of dates of deaths, visits, holidays and other events in the asylum. He was tried in many cases familiar to Dr. Cobbold and in others verified by his journal, and his answers were pronounced to be exact. He also had a considerable knowledge of the day of the week on which any day of a month would fall in the present or in recent years, and was particular about leap years. I tried him from my pocket almanac. He correctly gave Monday as the day on which May 10 fell this year. The 13th of April puzzled him a little; he recollected that the 12th was a Wednesday, but calculated at first wrongly from that premiss; however he at last got the answer out correctly. When I pronounced the names of a month, day and year to him, as "October the twelfth, 1883," he could not recollect it, apparently from want of interest in abstract figures.

The numeral-test was a complete failure with him. We could not get him to repeat even three figures by rote. He seemed unable to understand what was wanted, and gave some fancy results.

G. M. had a memory for dates resembling that of W. C., but less good. They often conferred together about them. He was quite unable to add, saying that 2 and 3 made 4, 3 and 2 made 6, &c.

The numeral-test was a complete failure; he did not seem to understand what was wanted.

The impression left by these three men, based on what they said, and otherwise confirmed, was that their memory was chiefly due to their habit of mentally reiterating certain events and phrases that happened to interest them, so that their memory was peculiar in its limitations rather than strong. It would follow that if they happened to take a fancy to the numeral-tests, future results might not be so complete a failure as these were.

Prof. Bain has read the rough draft of this, and approves.

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On June 30, 1886, Mr. Sully and I spent four hours at the Asylum for Idiots at Darenth, near Dartford. Dr. Fletcher Beach had kindly made preliminary experiments there for us, and when we arrived he gave us every assistance.

Most of the Darenth inmates are merely imbecile. Those reckoned as "first-class" struck me as far superior in intellect to any I had seen at Earlswood, and those of the second-class as distinctly superior to the first-class at Earlswood. They were

taught some simple arithmetic. In the lower classes it seemed that the children were better able to seize what was wanted when tested with the names of letters than with those of numerals, so in the later experiments letters were employed; otherwise the mode of testing was exactly the same as that used at Earlswood. The names of the numerals (or letters) were distinctly uttered at estimated intervals of half a second, and after I had quite done the child began to repeat them.

Below, the figures *on* lines are intermediate estimates; thus in the case of one idiot who was not successful with 3 figures, we had reason to think the mistake possibly due to other causes than incapacity, so the entry was made on the line dividing 2 from 3.

	Span of Prehension.									
	2	3	4	5	6	7	8	9	10	
Class I. The four sharpest children; ages 9, 12, 13 and 15. The quickest of these, who repeated 9 figures, was only "morally imbecile".				1		2		1		
Class II. Ages, 9-16.		1	1	1	2	1				
Class III. Three of those whose span was only 2 had been removed from school for nearly 12 months. Their ages are 18, 18, and 19. The others range from 11 to 15.	4	2	5	2						
Class IV. Ages 11-15.		2	1							

It was very noticeable that the last uttered word was the best repeated, and after this the first. Also that there was much tendency to the transposition of adjacent words. The children were usually slow of utterance and apparently of thought. They tired very quickly; sometimes after only three or four attempts. In other cases there was an improvement within brief limits, due apparently to their better understanding what was required. They did not show signs of inattention (by looking away, &c.), but upon this Dr. Fletcher Beach remarks that the faculty of attention is one of the first to be trained. If the children should be made familiar with these experiments, and be tested when quite fresh, at and a little beyond the limits of their previously ascertained span, it is probable that better results could be obtained. They seemed to take pleasure in the tests and to show emulation.

I submitted a rough draft of the foregoing to Mr. Sully, and afterwards to Dr. Fletcher Beach, whose remarks are now incorporated in it.