A NOTE ON MENTAL TESTS FOR NORMAL BOYS

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In the hope that mental tests might prove to be of value in teaching normal boys, groups of serial tests, similar to those used by Wallin, were given at the beginning and close of the school year to the boys of the Thatcher School. These boys were of high school age, supposedly normal in intellectual ability, with perhaps more than the average cultural advantages. The result of the tests was to establish norms which conform to those quoted by Whipple in his *Manual of Mental and Physical Tests*, but are in general above them. The improvement shown by different boys during the year was of interest and value to the teachers, as the tests themselves will probably be when we have had more experience in interpreting them. As it was, our judgments were in many cases confirmed or assisted by the results of the tests. A third advantage appears in the keen and wholesome interest awakened in some of the boys in improving their minds, similar to the interest which the physical tests, which we have been giving for some years, arouse in improving their bodies. There follow accounts of the several tests given.

I *Association test*—write as many words as possible in three minutes.

Age	No	Average	Fall		Average	Spring	
			Best	Worst		Best	Worst
17-18	15	63 3	79	50	70	90	54
16	14	54 3	76	43	64 1	76	41
15	12	57 2	78	39	60.1	78	46
14	7	46 3	55	39	53	74	35

These results are considerably higher than the published results of Pyle for normal boys. There is a distinct correlation with age and with what teachers would call brightness. The younger boys and the poorer boys were found to make much use of rhymes in making their tests. Of course, the most valuable part of the test was the character of the words in individual tests. It was interesting, for instance, to notice that the only boys who mentioned girls were the ones who in their daily life have least to do with them.

II *Cancellation Test*—crossing out A's from Stoelting's forms No. 55051-E. Time 135 seconds:

Age	Average
17-18	159 out of 162
16	143 out of 148
15	138 out of 141
14	125 out of 130

This test shows direct correlation with age, also with what in individual cases, we call careful work. The boys who were poor in studies were also slow in this test. On the other hand, some good boys were

also slow. The test is a good indication of the careful or "sloppy" boy. It also suggested in one case eye trouble.

III *Word Building*—write as many words as possible in five minutes from given letters.

Age	Fall—aeobmt			Spring—aeirlp		
	Average	Best	Worst	Average	Best	Worst
17-18	17.9	27	13	23	29	16
16	15	23	9	19.1	24	12
15	16	22	10	18	24	13
14	12	19	3	16.3	23	9

These results are notably better than Pyle's.

There was clear improvement during the year, and an obvious correlation with age, but no certain correlation with excellence in studies.

IV *Sentence Building*—write as many sentences as possible in five minutes, using three given nouns (Masselon method).

Age	Fall (<i>citizen, horse, decree</i>)		Spring (<i>bell, ground, owner</i>)	
	No. of Sentences	Character of Sentences	No. of Sentences	Character of Sentences
17-18	6	19.0	8.8	21.6
16	4	13.6	6.8	15.4
15	3.8	14.2	6.9	16.1
14	3	16.4	5.6	14.0

The character of the sentences was determined by the number of words representing separate ideas. This test was valuable in individual cases to show the use of English and power of imagination. Some of the good boys, however, did poorly in this test. As in several others, the boys of sixteen did no better than the boys of fifteen.

V *Addition*—Six sums of three five-digit numbers. Time 53 seconds, determined by the first to finish.

Age	Number solved right	Number attempted	Accuracy
17-18	2.1	3.2	65%
16	1.3	2.6	50%
15	1.0	2.0	50%
14	.66	1.6	41%

There is a very noticeable correlation with age; a much less one with studies, though of value in distinguishing the mathematical type of boy.

V *Immediate Memory*—Memory span for digits, as in Whipple (p. 155, auditory method).

Age	Score in Mistakes
17-18	6.4
16	9.
15	12.3
14	7

VI *Deferred Memory Test*—The subjects in the spring were asked to make a list of all the tests which had been given in the fall. The result showed a surprising correlation with school work, but little or no correlation with age. The boys who were poor in studies were all of them very low in this test. Some boys, however, doing excellent school work, were only average in the test.

VII. *Antonym Test*—Twenty words selected from those in Whipple. Time 57 seconds, determined by the first to finish.

Age	Average No.	Best Record	Worst
17-18	16 4	19	12
16	17 7	19	11
15	13 6	18	9
14	12 7	17	8

There is a very exact correlation with age; to a certain extent also with excellence in studies. But the way the test was given worked against the slower, but not necessarily duller, boys.

VIII *Immediate Memory (method of right associates)*—A list of twenty pairs of words was first read, then the first of each pair, the second to be written by the subject

Age	Fall Av.	Best	Worst	Spring Av.	Best	Worst
17-18	16	20	12	17 2	20	12
16	14.3	18	9	15 4	19	10
15	15 7	19	10	15 9	20	10
14	16	19	12	16 1	18	14

This test did not show any correlation with age. Some of the younger boys did as well as many of the older ones. The boys who are poor in studies all did badly in this test

IX *Form Board (Goddard visual method)*

Age	Time First Trial	Time Third Trial
16-18	16 5	13 5
14-15	17 5	14 4

Of the fourteen-year-old boys 100% had improved after eight months
 Of the fifteen-year-old boys 55% had improved after eight months.
 Of the sixteen-year-old boys 74% had improved after eight months.
 Of the 17-18-year-old boys 47% had improved after eight months.

The correlation between this test and excellence in studies is very difficult to see. More surprising still is that it seems to have no connection with excellence in baseball. It is, however, of personal value in determining the nervous, quick, or deliberate boys.

X *Mirror Drawing (Tracing a star)*

Age	1st trial av.	Fastest	Slowest	5th trial av.	Fast	Slow
17-18	63 sec.	18	91	24	13	43
16	79	35	183	23	14	35
15	85	30	189	29	18	60
14	137	69	310	42	22	80

As a personal study this test was very interesting, showing traits of nervousness, carefulness, persistency, or lack of concentration. Its relation to intellectual ability seems, however, to be most uncertain. Boys who tried the test a sixth time after an interval of a day or two were invariably faster than they had been in their fastest trial.

The general result of these tests has been to encourage the belief that there are great possibilities in the study of normal boys. A knowledge of mental testing may become as important to a teacher as any other part of his preparation.