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REPORT OF AN INTELLIGENCE SURVEY OF THE
STATE TRAINING SCHOOL FOR GIRLS AT
MITCHELLVILLE, IOWA

GLADYS PALMER

At the request of Miss Ray M. Hanchett, Superintendent of the Girls Training School at Mitchellville, an intelligence survey of the institution was undertaken last December. The writer went to Mitchellville and spent from December 2 to 20, 1927, there, living in Cottage No. 1, where the negro girls, then thirteen in number, were housed.

A brief description of the school may not be out of place. It is situated on the outskirts of Mitchellville, a small town of about seven hundred population, sixteen miles east of Des Moines. It overlooks gently rolling farming country. The institution itself owns about 70 acres of land, on which is produced a good share of the food required. Fruit and vegetables are raised, and cattle and chickens are kept. Almost all of the farm work is done by men hired for the purpose. The girls do some of the lighter garden work and partly care for the chickens.

Grouped about a central campus or plaza which is beautified by fine old trees and in summer by flower beds, are seven or eight substantial brick buildings. One of these is the school, another the administration building, another the hospital, still another frame residence is the superintendent's home; and there are four large brick dormitories called "cottages," though some of them are three stories high. In addition, there are smaller buildings, a greenhouse, a laundry, a bakery, beside the farm buildings. The girls never leave the grounds except under supervision, and conform to a rather strict routine.

Miss Hanchett and her staff coöperated in every way possible. Thanks are due to the teachers who helped in scoring the group tests, a task which could not have been handled single-handed.

Of the 176 girls in the school December 2, all but four (who were either ill or in punishment) were given the group tests, and of these 172 girls, 63 or about one-third were given a further individual test for more accurate rating.

The ages of the girls tested ranged from 10 years and 7 months

to 21 years. The average age was 17 years and 8 months. The middle 50 per cent of the group fell between 15 years 10 months and 18 years.

It might be stated at this point that the function of a group intelligence test is only that of roughly classifying subjects into upper, middle and lower quartiles, and that no group test can in the nature of the case give as accurate results as an individual examination, for the reason that in testing a group it is impossible for the examiner to know whether each subject is exerting himself to the best of his ability, whether he has fully understood the instructions, whether he has received help from another, etc. — factors which can be determined with a fair degree of certainty in individual testing.

The Group Tests. — The Otis Group Intelligence Scale, advanced form, was first given to all the girls, in four groups of approximately fifty each. Form A was used with Groups 1 and 2, Form B with Groups 3 and 4. The groups were examined in succession, so that there was little or no opportunity for “coaching.” Scores on the group tests were transmuted into intelligence quotients, hereafter for the sake of brevity, referred to as “IQ’s.” It is interesting to note that the highest score on the group test was made by one of the negro girls.

The median, or mid-point, score on the group test is 91.29 IQ. The scores range from 122 down to 61, and the middle half of the scores fall between 82.6 and 99.02.

As it was impossible in the limited time at my disposal to give individual tests to all the girls, it seemed advisable to select for further examination about a dozen from the upper quartile, three or four as samplings of the average-score group, and devote the greater share of the time to the lowest quartile. This would have been an adequate procedure for the ordinary unselected group.

In the light of the facts as disclosed by the survey, however, it is a matter of regret that time did not permit individual examination, if not of the entire population, at least of the second highest quartile; for it is quite probable that in this group there would be found many girls of borderline intelligence or even lower — those in whose cases an individual examination is most necessary in order to determine the presence or absence of mental defect.

The Individual Tests. — The Terman or Stanford Revision of the Binet scale was used in individual testing. As stated above, 63 girls were given an individual examination, lasting from an hour to an hour and a half each. Almost without exception they gave

excellent coöperation, so that the results secured are considered quite reliable.

The full form of the scale was given to about the first twenty subjects, when it became evident that for lack of time it would be necessary to give the shortened, or "starred," form of the scale. Intelligence quotients obtained from the use of either form correlate very highly, therefore it was judged the best expenditure of time to give the shortened form to as large a number of girls as possible, rather than the full form to fewer subjects.

The IQ's obtained were grouped according to Terman's classification, as follows:

| | | |
|----|------------------|------------------|
| 3 | (or 5 per cent) | were superior |
| 11 | (or 17 per cent) | were average |
| 8 | (or 13 per cent) | were dull normal |
| 12 | (or 19 per cent) | were borderline |
| 27 | (or 43 per cent) | were morons |
| 2 | (or 3 per cent) | were imbecile |

The median IQ of the 63 subjects was 72.08. It is of course not fair to judge the intelligence of the entire school by the IQ's of those examined individually, the majority of whom were selected specifically because of their low scores on the group tests.

Comparison of Group and Individual Scores. — A comparison of the mental ages obtained on the group test with those obtained on the individual test (for the 63 subjects who had both) shows that the Otis group test mental ages on the whole run somewhat higher than the Stanford-Binet individual scores, though in certain cases they run lower. This is probably not a fault of the Otis test, particularly, but is a weakness of group tests in general, due to the factors previously mentioned.

In general scores (mental ages) from several well known group tests show the following correlations with Stanford-Binet individual scores — when 1.00 signifies perfect correlation or agreement:

| | |
|------------------------|-----|
| Otis Group Test..... | .66 |
| Miller Group Test..... | .53 |
| Terman Group Test..... | .68 |
| Army Alpha Test..... | .69 |

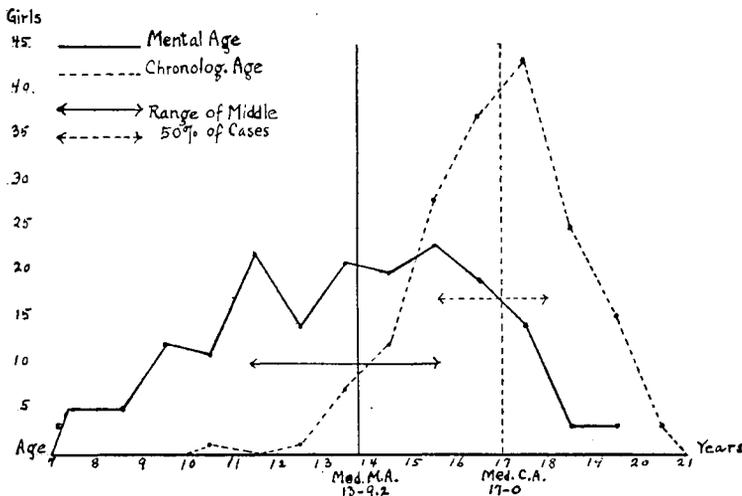
The correlation between group test scores and Stanford-Binet mental ages on the 63 subjects given both tests was found to be .87. This is a spuriously high correlation, due doubtless to the non-representative sampling of subjects; i.e., those girls who were given the individual examination were not representative of the whole group, as previously pointed out, but were selected from the upper and lower extremes of the distribution. The large middle or average group is almost entirely unrepresented in this correlation.

It is in accordance with the facts, therefore, to say that the Otis mental ages for the entire group are higher than the Binet mental ages (that is, higher than they should actually be, if we accept the Stanford-Binet as the standard and most accurate measuring scale we have); but it would not be safe to say that this was true in any given individual case, for the Otis mental age is lower than the Binet in some cases.

It would be possible, by the statistical procedure of regression, to predict or estimate the Stanford-Binet scores of the girls who were not given that test; but since the above spuriously high correlation would have to be used in the regression equations, it was not thought that the results would be sufficiently reliable to warrant the statistical labor involved. We already have a rough measure of the intelligence of these girls in their Otis group scores, and if for any reason a more accurate rating is required, the individual Stanford-Binet examination should be given.

Comparative Intellectual Status.—The following diagram will perhaps make clear the amount of mental retardation found in the Training School group. Mental ages obtained from the group test are used as the basis for this graph and for the tables following, and as explained above, these ratings probably run a little higher than the truth.

The middle 50 per cent of chronological ages fall between 15-9 and 18-0.



Mental Ages Compared with Chronological Ages of 172 State Training School Girls.

The middle 50 per cent of mental ages fall between 11-5 and 15-9 years.

The assumption underlying the computation of IQ's for adults is that the growth of actual innate intellectual capacity is complete and does not increase after the age of sixteen; though of course education, the acquisition of knowledge and skill, goes on. An individual whose mental age is within one year of his chronological age, above or below, except in the case of very young children, is considered normal. A girl of twenty-one whose mental age is fifteen or sixteen is therefore not retarded but normal. It is possible on the Otis group test for superior subjects to obtain a mental age of 19 years and 6 months but no higher.

In the above graph, if all the subjects were exactly normal, the mental age (heavy) line would coincide with the chronological age (dotted) line, up to the age of sixteen years. Beyond that point a mental age line below the chronological age line would not signify mental retardation; on the contrary a mental age above 17 years and 6 months would be indicative of superior intelligence, regardless of what the chronological age was, so long as it was sixteen or above. The lines would not necessarily coincide.

Amount of Retardation.— It is evident from the graph that the Training School group as a whole shows considerable mental retardation. Just how much it is difficult to say definitely without having examined all of the girls individually. On the basis of the group test mental ages, however, they may be roughly classified into the following three groups, taking sixteen years as the norm for all whose chronological age was above that:

| | | | NUMBER | PER CENT |
|-----------------|------------------------------------------------|----|--------|----------|
| <i>Normal</i> | (Retarded or advanced less than one year)----- | | 43 | 25 |
| <i>Advanced</i> | From 1 year to 1-11----- | 10 | | |
| | 2 years to 2-11----- | 7 | | |
| | 3 years to 3-11----- | 4 | | |
| | Total----- | | 21 | 12.2 |
| <i>Retarded</i> | From 1 year to 1-11----- | 24 | | |
| | 2 years to 2-11----- | 18 | | |
| | 3 years to 3-11----- | 15 | | |
| | 4 years to 4-11----- | 24 | | |
| | 5 years to 5-11----- | 14 | | |
| | 6 years to 6-11----- | 7 | | |
| | 7 years to 7-11----- | 5 | | |
| | 8 years to 8-11----- | 1 | | |
| | Total----- | | 108 | 62.8 |

Comparison with Normal Group.— In a group of 62 normal adults Terman¹ found —

¹ Terman, L. M. *Measurement of Intelligence*, pp. 55 and 66.

59.7 per cent normal, 21 per cent advanced, 19.3 per cent retarded.
 Compare with this the
 25 per cent normal, 12.2 per cent advanced, 62.8 per cent retarded
 of the Training School group.

In a group of 905 unselected school children, ages five to fourteen, Terman¹ found —

33.9 per cent normal, 34.95 per cent advanced. 31.33 per cent retarded.

Thus, when compared with an unselected group, whether of children or adults, the Training School group shows a much higher proportion of retarded individuals than would be found in the community at large. It is a highly selected group, that is, an aggregation of individuals picked out or selected by reason of one special attribute — in their case, delinquency. The inference is natural (but would need to be substantiated) that their lower intelligence *as a group* is a causal factor in their delinquency.

The Pressey X-O Tests of Emotional Stability. — The above tests were given to all the girls, in four groups, in sessions of about one hour each. These tests attempt to measure emotional stability; the higher the score, in comparison with the norm or average score, the greater the degree of emotional instability. That is, a subject who makes an unusually high score on this test is presumably highly unstable emotionally. Since emotional instability is unquestionably an important factor in the cause of crime and delinquency, as well as psychosis, it would be extremely valuable if we could measure it, even approximately.

The results in this case, however, are not very satisfactory; first, because in general the whole problem of the measurement of personality traits is not so far advanced as is the measurement of intelligence; second, because the Pressey tests have not been tried out as yet on a very large number of subjects; and third, because they are not “fool-proof,” and many of the Training School group, which includes a larger proportion than average of girls of dull and deficient mentality, misunderstood the directions (although they were printed plainly on the test blanks), and did not fill out the sheets properly. A few papers were unsigned, and in one case a fictitious name was given. About 38 per cent of the tests had to be thrown out for various reasons. Even with those remaining, it was impossible to be positive whether the subject had given her best thought and effort to the test, or had simply marked it hastily and carelessly, with the desire to get through as soon as possible.

Of the 117 record blanks which could be used, about ten subjects ranked in the ninetieth percentile. Scores below that, it was felt, had not much significance.

RECOMMENDATIONS

Recommendations were made to the superintendent of the Training School and to the State Board of Control, as to the following ways in which a knowledge of the intelligence level of each girl in the school may be of practical value for administrative purposes:

Transfer of defectives. — Girls of the lowest grade of intelligence belong in an institution for the feebleminded rather than a training school, for the reason that there they will receive a type of training especially adapted to their mental level, and for the further reason that commitment to the former is for an indefinite period. There were in the Training School in December two girls of imbecile mentality and two more who classify as low-grade morons. Such girls will probably never be able to adjust to life in the community without constant supervision. They should not be released again into a society in which they cannot protect themselves.

Discipline. — Cognizance of a girl's mental age should be taken in evaluating her behavior and meting out punishment. In this group we are dealing with girls of an intelligence level somewhat lower than would be found in an unselected group of girls outside. In more than one-third of the group (38 per cent) we have individuals who are mentally children from seven and a half to twelve and a half years old, even though most of them have reached physical maturity. Because of this fact, less is to be expected of them, both in the way of scholastic achievement and of an adult type of behavior.

Responsibility. — The mental ratings would prove useful in selecting girls for positions of responsibility in the institution, such as monitor, errand girl, officer's assistant, etc. They could also be consulted in making up "detail" lists, assigning the brighter girls to the more difficult and particular work, and giving the lower-grade girls routine tasks which they can perform with efficiency and with satisfaction to themselves.

School Educability. — Classification for school purposes should be made on the basis of mental rather than chronological age. The girls with higher intelligence quotients should be given opportunity to advance as fast as they are able to go. A small special class of such girls might be formed, or if that is not practicable, outside reading and extra assignments could be given them. The combination of a high IQ with insufficient or uninteresting school work frequently results in misconduct from sheer boredom. A few of these girls have the intellectual capacity necessary for doing college work.

It is useless to expect the lowest-grade group to keep up with the average and superior individuals, and indeed it is a waste of time to try to teach them much more than the fundamentals of the elementary subjects of reading, writing and arithmetic. They should have more vocational training and handwork.

Vocational Education. — If a program of vocational education

should be undertaken, mental ratings would be of value in classifying girls for the various occupations for which they could fit themselves. A beginning might be made in a small way by offering instruction in shorthand and typewriting to the average and superior girls (a few of whom have already shown an interest in the subject), thus preparing them for office positions when they go out. About the only occupations for which the girls now are fitted when they leave the school are domestic service and possibly laundry and factory work.

Parole. — Mental ratings may be used in determining which girls can be safely paroled. Parole in the case of girls of low-grade mentality is a doubtful measure. Probably these girls have not profited by their experiences nor by their stay in the institution sufficiently to ensure any better social adjustment when they go out, but are quite likely to slip back again into the same delinquency for which they were originally committed. Those of the lowest intelligence should either not be paroled or be paroled under the closest supervision.

Industrial Placement. — It goes without saying that an individual's mental capacity has much to do with his success at a given occupational level. Possession of the requisite degree of intelligence for a certain type of work does not, of course, ensure success, for other factors enter in, such as personality traits, ability to get along with other people, etc.

I quote from Terman, *The Intelligence of School Children*, p. 274. He refers to "the abundant occupational opportunities open to men of 70 to 80 IQ." and says:

"The evolution of modern industrial organization, together with the mechanization of processes by machinery, is making possible a larger and larger utilization of inferior mentality. One man with ability to think and plan guides the labor of ten or twenty laborers, who do what they are told to do and have little need for resourcefulness or initiative. It is even suggested that our chief difficulty may soon be to provide enough suitable jobs for those of higher intellectual capacity. We can at least rest assured that society has and will continue to have place enough for workers of decidedly inferior intelligence, *provided they are given a training which is sufficiently practical and concrete.*"

The same holds true for girls of inferior intelligence.

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