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Survey of the Intelligence of Illinois Prisoners'

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A SURVEY OF THE INTELLIGENCE OF ILLINOIS PRISONERS[1]

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I. *Introduction*

The following report is a survey of the intelligence of 13,454 new admissions to the penal institutions of Illinois during the period 1930 to 1936.[3] The purpose here was to obtain a comprehensive knowledge of the intellectual make-up of prisoners, which might be applied in criminology. Such knowledge is of importance in the individual programs of the separate institutions and in the general work of public welfare; it provides a basis for comparison with future prisoners, and points to fields of more intensive research in the general problems of the relation between crime and intelligence.

The significance of intellectual factors in the production of anti-social behavior is well recognized today. Enlightened criminological theory provides for the unified study of the total personality, including besides the physical, sociological, and psychiatric examination, an objective determination of mental capacity. The practical value of this is shown in Illinois where the psychological examination forms one basis for the segregation and classification of prisoners, the assigning of work and educational programs, and the prediction of parolability.

The problem of the intelligence of criminals has received considerable attention within the last twenty-five years but the conclusions reached have been contradictory. There is as yet no common agreement on such fundamental questions as the proportion of feebleminded among prisoners, or the comparative intelligence of the prison and non-prison populations. Only a few recent studies have appeared which attempt to approach these questions by dealing with large groups of adult male prisoners.

Doll[4] examined 839 prisoners in the New Jersey State Prison

[1] Studies from the Institute for Juvenile Research, Chicago. Paul L. Schroeder, M.D. Director. Series C, No. 280.

[2] Institute for Juvenile Research, Chicago.

[3] Acknowledgment is hereby made of the valuable assistance of W. P. A. workers in tabulating the data for this study.

[4] Edgar A. Doll, Comparative Intelligence of Prisoners. Jour. of Crim. Law and Criminol., 11: 191-197, 1920.

with the Army Alpha intelligence test. He compared the group with white draft recruits from New Jersey and concluded that the general mental level of the prisoners corresponds closely with that of adult males in that state.

Stone[5] compared 399 inmates of the Indiana Reformatory with 653 unselected drafted men in the army, and found that 13.6 per cent of the army group had Stanford-Binet mental ages below 10 years, while 9.0 per cent of white and 28.0 of the colored in the reformatory were below this level. He concluded that one reason for the overestimation of the amount of defective intelligence in prison populations is that current standards of the intelligence of the adult population are too high.

Gluecks'[6] study of 608 admissions to Sing Sing Prison is unusual because it represents a clinical evaluation of standard individual mental tests by a psychiatrist. He diagnosed 28.1 per cent of these prisoners as intellectually defective and as possessing a mental age of 12 years or below. Of 98 native-born men 26 had a mental age under 10 years. He comments on the closeness of the correlation between mental defect, as defined by psychometric methods, and actual information of performance as gained from a study of the life histories of these prisoners.

Root[7] made a survey of 1916 prisoners in the Western Penitentiary of Pennsylvania using the Stanford Revision of the Binet tests. He found a median I. Q. of 76.2 (on a basis of 16 years as mental maturity) and made the sweeping conclusion that "the median intelligence of every racial group of prisoners lies either in the middle borderline or upper moron group of intelligence."

Erickson[8] also used the Stanford-Binet test in his study of 1,690 white male prisoners in Wisconsin. He found that the mentally deficient constitute 30 per cent of the group. The standard of mental deficiency used here is unusually high, since he assumes an I. Q. below 75, apparently figured on a 16-year basis, as constituting the criterion for mental deficiency. He concluded that there appears to be a definite relationship between criminality and deficiency of intelligence.

[5] Calvin P. Stone, Comparative Study of the Intelligence of 399 Inmates of the Indiana Reformatory, and 653 Men of the United States Army. Jour. of Crim. Law and Criminol., 12: 238-257, 1921.

[6] Bernard Glueck, A Study of 608 Admissions to Sing Sing Prison. Mental Hygiene, 2: 85-151, 1918.

[7] W. T. Root, Jr., A Survey of 1,916 Prisoners in the Western Penitentiary of Pennsylvania. Pub. by the Board of Trustees of Western Pennsylvania, 1927.

[8] Milton Hyland Erickson, Study of the Relationship Between Intelligence and Crime. Jour. of Crim. Law and Criminol., 19: 592-635, 1928-29.

A final study which should be cited is Murchison's[9] well-known comparison of criminals with the draft-army, in which he concluded that, if these norms are assumed to be equally representative, the average intelligence of criminals is not below that of the adult civil population.

II. *Source of Data*

The data used in this survey are the reports of the psychological examinations given all new admissions to the penal institutions of Illinois. These reports contain the mental ratings given to more than 13,000 prisoners during the period of January, 1930 to May. 1936.

The nature of the data will probably be better understood from a brief description of the method of psychological examination in Illinois prisons. A group intelligence test, the Army Alpha (Bregman's revision), is given routinely to incoming prisoners. Individual tests are given to those who obtain a score below 25 (equivalent to a Binet M. A. below 11 years, 4 months) and to those who are unable to take the group test because of some handicap such as poor vision or hearing, illiteracy, or foreign background. The Stanford-Binet examination (abbreviated form) is the standard individual test used. This is supplemented by the Arthur Point Performance Scale in cases of serious language handicap, or where additional tests are required for other reasons.

III. *Treatment of Data*

A considerable number of prisoners receive more than one psychological examination. For the purpose of this study, however, only one rating for each prisoner was considered. The Stanford-Binet rating was given preference no matter what other tests had been used in combination with it. Where only the Arthur Performance Scale and the Army Alpha had been given, the former rating was used. In the majority of cases, of course, only the Army Alpha examination had been given.

An attempt was made to equate these ratings by establishing a single comparable measure of mental capacity. In the Army mental testing program the different examining scales in use were converted into one general scale of letter grades—A, B, C, and so

[9] Carl Murchison, Criminal Intelligence. Clark University Press, Worcester, Mass., 1926.

on. This rough method had practical value at the time, but did not lend itself to scientific interpretation. It appeared to us that the most meaningful unit to use was the standard Terman classification of mental ages and intelligence quotients.

All of the ratings, therefore, were compared in terms of these units. The Army Alpha Scores were transmuted into Stanford Binet M. A.'s and I. Q.'s (on a basis of 15 years as representing mental maturity) according to a table of equivalents prepared by Dr. Luton Ackerson. (This table was interpolated and extrapolated from the short table of equivalents published in the Army Memoirs.[10] Since the levels usually reached in the testing of prisoners with the Arthur Preformance Scale show very close agreement with those of the Stanford-Binet,[11] and since the relatively small number of these scores (about .6 per cent of the total), did not justify a more involved procedure, the scores on this test were assumed to be equivalent to Stanford-Binet mental ages.

The system of intelligence test classifications used is given below in tabular form. It will be seen that these divisions differ considerably from the Army Classifications.

SYSTEM OF INTELLIGENCE TEST CLASSIFICATIONS

Raw Alpha Score	*St. Binet or Arthur Performance*	*Mental Age*	*I. Q.*	*Descriptive Term*
0-15	8-2 (?)	to 10-5	Below 70	Mental Defective
16-32	10-6	to 11-11	70-79	Borderline Mental Defective
33-55	12-0	to 13-5	80-89	Dull—Slightly Below Average
56-66	13-6	to 14-2	90-94	Low Average
67-89	14-3	to 15-8	95-104	Average
90-101	15-9	to 16-5	105-109	High Average
102-136	16-6	to 17-11	110-119	Superior
137 and up	18-0	and up	120+	Very Superior

IV. *Results*

Results of the survey are presented in the tables following in the form of simple percentage distributions or table of averages. Since the purpose here was to obtain a picture of the general intellectual make-up of prisoners, no study could be made at this time

[10] Memoirs, The National Academy of Science, Vol. 15, 1921.

[11] Grace Arthur, A Point Scale of Performance Tests, Vol. 2. Standardization, New York, The Commonwealth Fund, 1933.

of the many other factors in their background which might be associated with intelligence.

In Table I is shown the average intelligence quotient of admissions during each year to the three Illinois penal institutions. These averages are based upon a single measure of intellectual capacity for each prisoner, the derivation of which has been described. The institutions will be referred to for convenience as Joliet, Menard, and Pontiac, although properly, they are all now branches of the Illinois State Penitentiary system. Following the passage in 1933 of laws relating to the segregation and classification of prisoners, only Joliet and Menard receive prisoners directly from the court, so that no data for Pontiac are given after that year.

TABLE I

AVERAGE INTELLIGENCE RATING OF ILLINOIS PRISONERS

Institution	*Year*	*Average I. Q.*	*S. D.*	*No. of Cases*
	1930	90.8	18.6	593
	1931	93.4	17.8	974
	1932	91.0	18.0	970
Joliet	1933	93.5	18.9	1,708
	1934	95.5	18.0	1,226
	1935	94.8	17.0	1,482
	1936	96.9	16.4	415
			Total	7,368
	1931*	86.3	18.5	514
	1932	87.8	18.5	743
	1933	87.5	17.4	633
Menard	1934	92.0	17.7	334
	1935	91.7	15.0	634
	1936	91.3	16.8	229
			Total	3,087
	1930	93.3	16.6	463
	1931	94.9	17.3	1,071
Pontiac	1932	97.3	16.7	909
	1933**	96.5	16.1	556
			Total	2,999

* No ratings available for 1930 because data incomplete.

** No ratings available after 1933 (see context).

Examination of these averages for the successive years indicates a slight general trend towards an increasing I. Q. which holds for all three institutions. It is doubtful, however, whether this is to be interpreted as meaning that the average mental level of new prisoners is increasing. Probably some of this difference is due to the better motivation and cooperation on intelligence tests obtained now that prisoners are finding that the mental rating affects their classification and parole. The higher averages for Joliet and Menard after 1933 may reflect the influx of higher grade prisoners who heretofore had been sent to Pontiac. Actually, the average I. Q. for all prisoners in the state does not vary significantly after this date.

A comparison of the three institutions shows Pontiac to have the highest average intelligence quotients, with Joliet and Menard next in order. During this period Pontiac was the state reformatory and received many higher grade young offenders. The selection here probably accounts for the higher averages. Menard receives a large number of prisoners from rural communities, where educational opportunities are fewer and where educational capacities are possibly lower than in the urban centers from which Joliet receives most of its admissions.

The presence of a selective factor is also suggested by inspection of the standard deviations for the averages of each institution. Pontiac shows a slightly smaller variability than do the other two institutions. The standard deviations for all of the groups show unusual uniformity; in fact, although the central tendency changes, the relative dispersion of these prison groups remains approximately the same.

The size of the standard deviations here is comparatively large. In a theoretically normal distribution of intelligence the standard deviation in terms of I. Q. is about 12½ points, whereas all of these deviations are about seventeen or eighteen points. The prison groups are apparently more heterogeneous despite the selective factors which eliminate criminals both of lowest and highest grades of intelligence before they reach the prison. It is also possible that the large standard deviations here are due to the particular type of group examination used.

Tables II, III, and IV present in detail for each institution the distribution from which the above averages were derived. These distributions likewise represent a single rating for each individual. The tables are for the most part self explanatory, and the

distributions may be interpreted in terms of mental ages, raw scores, or descriptive catagories by referring to the table of equivalents already mentioned. A number of interesting comparisons may be made.

The Joliet distribution, Table II, may be analyzed with reference to the period before the beginning of the classification system as compared with the later period. It will be seen that for the three-year period following 1933 there is an increase in the percentage of superior (I. Q. above 109) and average (I. Q. 90 to 109) individuals over the three-year period preceding. Also, there is a corresponding decrease in the percentage of retarded (I. Q. 70 to 89) and mentally defective (defined as below a Binet mental age of 10 years, 6 months at maturity) prisoners.

For Menard, Table III, the tendency is similar to that described for the Joliet distribution. The most striking fluctuation is seen in the percentage of mental defectives among new admissions for the past three years. This has been consistently about 10 per cent as compared with an average of about 18 per cent for the preceding three-year period. The superior group also shows an increased proportion in the last three years. These differences may be due to the changes in source of new admissions after 1933, inasmuch as up to this period prisoners in the southern part of the state could be committed directly to Pontiac instead of Menard.

TABLE II

PERCENTAGE DISTRIBUTION OF INTELLIGENCE QUOTIENTS OF ADMISSIONS TO JOLIET, 1930-1936

Intelligence Quotient	1930	1931	1932	1933	1934	1935	1936
130-139	1.0	1.3	.1	1.0	.9	.6	.5
120-129	4.2	5.0	3.8	6.1	5.5	5.7	5.8
110-119	14.3	16.1	16.3	17.9	19.8	18.7	20.7
100-109	14.5	15.1	12.9	14.9	18.5	20.7	17.8
90-99	16.7	18.3	17.8	18.2	19.2	21.1	21.2
80-89	18.1	19.8	21.5	16.6	16.0	16.3	18.6
70-79	18.9	16.2	15.7	14.3	11.0	9.5	10.1
60-69	9.6	6.6	8.2	8.0	6.7	5.8	4.4
50-59	1.5	1.2	3.3	2.7	2.1	1.3	.9
40-49	1.2	.4	.4	.3	.3	.3	.0
Total 100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total number of cases ..	593	974	970	1,708	1,226	1,482	415

TABLE III

PERCENTAGE DISTRIBUTION OF INTELLIGENCE QUOTIENTS OF ADMISSIONS TO MENARD, 1931-1936

Intelligence Quotient	1931	1932	1933	1934	1935	1936
130-139	.6	.5	.3	.9	.0	.0
120-129	3.5	4.4	2.5	3.0	4.4	2.8
110-119	10.3	11.7	9.8	15.3	14.4	17.5
100-109	10.5	11.2	13.3	16.7	14.0	12.7
90-99	15.0	13.7	18.0	18.5	20.8	16.2
80-89	19.2	19.8	21.9	20.7	21.0	26.7
70-79	20.4	22.1	16.9	14.4	15.7	14.8
60-69	15.8	12.8	13.4	7.5	7.9	8.3
50-59	4.5	3.8	3.7	2.1	1.5	1.0
40-49	.2	.0	.2	.9	.3	.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total number of cases	514	743	633	334	634	229

The distribution of intelligence at Pontiac, Table IV, does not vary greatly over the period 1930 to 1934. Here, too, the largest fluctuation is for the mental defective group. A smaller percentage of these is found for 1932 and 1933 as compared with 1930 and 1931.

TABLE IV

PERCENTAGE DISTRIBUTION OF INTELLIGENCE QUOTIENTS OF ADMISSIONS TO PONTIAC, 1930 TO 1933

Intelligence Quotient	1930	1931	1932	1933
130-139	.9	1.1	1.1	.6
120-129	2.4	4.8	6.4	4.7
110-119	15.1	16.5	19.5	19.2
100-109	20.1	18.5	18.6	20.5
90-99	20.5	23.4	23.9	21.6
80-89	20.5	16.7	15.8	18.3
70-79	10.6	10.0	8.9	9.7
60-69	8.4	6.7	4.4	4.1
50-59	1.5	2.0	1.4	1.3
40-49	.0	.3	.0	.0
Total	100.0	100.0	100.0	100.0
Total number of cases	463	1,071	909	556

Table V presents a comparison by institutions of the average distribution of intelligence during the total period studied. This shows more strikingly the difference in intellectual composition of prisoners received from the lower half of Illinois (Menard), and those received from the upper half of the state (Joliet).

TABLE V

PERCENTAGE DISTRIBUTION OF INTELLIGENCE QUOTIENTS OF ILLINOIS PRISONERS, BY INSTITUTIONS

Intelligence Quotient	*Joliet* 1930-36	*Menard* 1931-36	*Pontiac* 1930-34
130-139	.7	.4	.9
120-129	5.2	3.4	4.6
110-119	17.7	13.1	17.6
100-109	16.3	13.1	19.4
90-99	18.9	17.0	22.4
80-89	18.1	21.6	17.8
70-79	13.9	17.4	9.8
60-69	7.0	11.0	5.9
50-59	1.8	2.8	1.5
40-49	.4	.2	.1
Total	100.0	100.0	100.0
Number of cases	7,368	3,087	2,999

Grand Total 13,454

Menard has consistently smaller percentage for all grades, average or above, in intelligence, and shows a larger percentage of the intellectually retarded. The distribution for Pontiac shows a slightly higher level of intelligence than does Joliet for the corresponding period. It is interesting to note by referring to Table II that the distribution of intelligence at Joliet since 1933 has tended to approximate very closely the former distribution at Pontiac. The proportion of mental defectives in the three institutions is lowest at Pontiac and highest at Menard.

In Table VI the distributions are presented by years for prisoners received in all three institutions. This reveals more adequately than do the preceding tables the general trend towards an increasing proportion of superior individuals, and a decreasing proportion of very inferior individuals among incoming prisoners. The proportions of average and retarded individuals (not including the mentally defective) have remained fairly constant over this period.

TABLE VI

DISTRIBUTION OF INTELLIGENCE OF ILLINOIS PRISONERS BY YEARS

Intelligence Quotient	1930 %	1931 %	1932 %	1933 %	1934 %	1935 %	1936 %
130-139	.9	1.1	.6	.7	1.0	.4	.3
120-129	3.4	4.6	4.9	5.0	4.9	5.3	4.8
110-119	14.7	15.1	16.1	16.4	18.9	17.4	19.6
100-109	17.0	15.6	14.4	15.7	18.2	19.7	16.0
90-99	18.4	19.8	18.7	18.8	19.1	21.0	19.4
80-89	19.1	18.4	19.1	18.1	16.9	17.7	21.4
70-79	15.2	14.5	15.1	14.0	11.6	11.4	11.8
60-69	9.1	8.5	8.2	8.4	6.9	6.4	5.8
50-59	1.5	2.1	2.8	2.6	2.1	1.4	.9
40-49	.7	.3	.1	.3	.4	.3	.0
Total 100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total number of cases...	1,056	2,559	2,622	2,897	1,560	2,116	644

The results of this survey are also of interest in the consideration of such more general problems as: (1) the intelligence of prisoners as compared with that of the general population, (2) mental defect among prisoners, (3) the comparison of Illinois prisoners with the general prison population in the United States, (4) superior intelligence among prisoners.

With regard to the comparison of prisoners with the general population, it may be observed in Table I that most of the intelligence ratings are within the category described as "average mentality." An I. Q. of 90 represents a mental age of 13 years, 6 months (assuming 15 years as mental maturity). This is approximately the average mental age of the principal sample of the white draft during the war.

It should be remembered, however, that a large number of negro cases are included in our data, so that a comparable racial sample of the total army draft would probably yield a lower average mental age. In terms of Army Alpha score the median of a mixed racial group of 12,557 Illinois prisoners who took this examination was 67, as compared with an average score of 59 for white enlisted men in the army.

A marked contrast is seen between the distribution of intelligence of our prison group and the theoretical distribution of intelligence in the general population. This is shown in the following table:

TABLE VII

PERCENTAGE DISTRIBUTION OF INTELLIGENCE AMONG PRISONERS AND THE GENERAL POPULATION

Intelligence Quotient	*Classification*	*Theoretical Percentage of General Population*	*Percentage of Prisoners*
130-up	Very Superior	1	.7
120-129	Superior	5	4.8
110-119		14	16.6
90-109	Average	60	35.7
80-89	Dull	14	18.4
70-79	Borderline	5	13.6
0-70	Mental Defective	1	10.2
Total		100	100.0

Marked differences between the two groups are shown for all grades average or below in intelligence. It is impossible to ascertain just how real these differences are, however. No definite standards of intelligence in the general adult population have as yet been established. Sutherland[12] who analyzed about 350 reports of mental tests of criminals and delinquents concluded that when allowance is made for the selection involved in arrest, conviction, and improvement, the distribution of the intelligence scores of delinquents is very similar to the distribution of intelligence scores of the general population.

Sutherland[13] also tends to minimize the relationship between crime and feeblemindedness. In an analysis of 39 studies of reformatories and 34 studies of state prisons over the period 1920 to 1928, he found the median of the percentages of feebleminded in these studies to be 26 for the reformatories, and 19 for the prisoners. He concludes, however, that there is only a slight excess of mental deficiency among delinquents when account is taken of the selection of prisoners and the unreliability of the tests or testers.

Our data show that about 10 per cent of prisoners obtain a mental age below 10 years, 6 months on a standard individual intelligence test, and about 24 per cent obtain a mental age below 12 years. During the period studied the methods of examination in Illinois have remained fairly constant, and selective factors would actually tend to prevent the lowest grade individuals from reaching the prison. Even granting that the average mental level of the

[12] Edwin H. Sutherland, Mental Deficiency and Crime in Social Attitudes, edited by Kimball Young, Henry Holt & Co., New York, 1931.

[13] ———, Principles of Criminology, Lippincott Co., Chicago, 1934.

general population is about 14 years, and allowing for probable variations in tests, there still appears to be a disproportionate number of mentally retarded and mentally defective inmates in this prison group.

Illinois prisoners are not, of course, representative of the total prison population of the United States; wide geographical variations in intelligence have been shown even within the state. Such reports as are available, however, suggest that the general level of intelligence of Illinois prisoners is comparatively high. Root in his survey of 1,916 prisoners at Western Penitentiary in Pennsylvania found a median mental age of 12 years, 2 months. Stone, at the Indiana reformatory, found an average mental age of 12.7 years for white prisoners and 11.0 years for colored prisoners. Glueck found that 26 out of 98 newly admitted native-born prisoners at Sing Sing had a mental age below 10 years. Erickson's distribution of prisoners at Wisconsin is similar to our distribution when correction is made for differences in test interpretation. Recent reports from Michigan State Prison[14] indicate a lower general level of intelligence than has been found for prisoners in Illinois. It is likely that these differences found in the various prison populations are affected by differences in selective influences affecting the admission of high or low-grade individuals. Nevertheless, there appear to be wide differences in the intelligence of groups of adult male prisoners throughout the country.

Another question brought up in the study is the amount of superior intelligence among prisoners. Pintner[15] quotes a number of studies and concludes that "all reports so far have agreed in finding a much smaller percentage of delinquents of superior intelligence as compared with the amount of superior intelligence supposed to exist in the population at large." The evidence cited is rather meager and is contradicted by the results found here. Reference to the foregoing comparison of prisoners with the theoretical distribution of intelligence in the general population shows a very close conformity for the superior and very superior groups; 22.1 per cent of Illinois prisoners obtained a mental rating above 110 (I. Q.) as compared with the 20 cent of the general population assumed to be above this standard. Practically all the superior prisoners are so judged on the basis of the Bregman Revision of the

[14] Michigan State Prison Quarterly Statistical Reports, 1935, et seq.

[15] Rudolph Pintner, Intelligence Testing, Henry Holt and Co., New York City, 1931.

Army Alpha.[16] In terms of this examination 22.0 per cent of 12,557 Illinois prisoners were at or above a score of 102. The percentile rank for this score on Thorndike's scale for converting scores into percentiles of the general population is 79.75. The proportion of individuals above this score in the general population is therefore almost the same as the proportion found in the prison group.

V. *Summary*

A survey was made of the intelligence of 13,454 adult male prisoners admitted to the penal institutions of Illinois during the period 1930 to 1936. Psychological reports based upon examinations with the Army Alpha (Bregman Revision), the Stanford-Binet, and the Arthur Performance test, were analyzed. On a combined scale the average mental age for all prisoners was about 13 years, 11 months; 10.2 per cent were mentally defective, defined as below a mental age of 10 years, 6 months at maturity (I. Q. 70); the distribution of superior and very superior prisoners conformed closely to the distribution in the general population as judged by both theoretical and actual criteria.

The conclusions reached are that Illinois prisoners show: (1) approximately the same average level of intelligence as that revealed for the adult population by the Army draft, (2) a more heterogenous distribution of intelligence than that of the general adult population, (3) a disproportionate amount of mentally retarded and mentally defective men, (4) approximately the same proportion of superior and very superior individuals as in the general population.

Comparisons were also made between the prison population of each institution within the state, and the total group was compared with similar groups in other states for which reports were available.

[16] Elsie O. Bregman, On Converting Scores on the Army Alpha Examination Into Percentiles of the Total Population. School and Society, 22; No. 596, 1926.