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## Recidivism and Intelligence

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# RECIDIVISM AND INTELLIGENCE<sup>1</sup>

## 1. Introduction

A. A. Hartman<sup>2</sup>

The purpose of this study is to examine quantitatively the general relationship between recidivism and intelligence. To what extent are different degrees of criminality associated with variations in intellectual capacity?

The wider problem of the psychological nature of the persistent offender has long been a focus for theories of crime causation, particularly those theories which emphasize constitutional rather than environmental factors. Until recently many such explanations were phrased entirely in terms of mental retardation or deficiency, so-called feeble-mindedness. Present day criminologists have, however, outgrown these facile uni-factor theories. The concept of the multiple approach to the understanding of human behavior is becoming as much a credo for research as it is a clinical working basis in criminology. Nevertheless, controlled analysis of single factors, such as intelligence, still remains a valuable scientific method in this complex field.

A survey of the scientific literature on the relationship of intelligence to recidivism reveals a confusing mixture of conclusions and speculations, with little adequate data in evidence. It is a commentary on the status of this problem that conflicting opinions are supported by leading criminologists in the United States. Gillin,<sup>3</sup> for example, declares, "Every study of recidivism shows that repetition of crime increases as the average mentality lowers." Sutherland,<sup>4</sup> more cautiously, finds the evidence inconclusive but tending ". . . to justify the generalization that the relationship between intelligence and recidivism is very slight."

The fact is that in the past twenty years only a few studies of adult repeated offenders have included detailed consideration of intellectual factors. Goring, and the early psychological criminologists such as Adler, Haines, Miner, Doll, and Goddard, produced little material bearing directly upon recidivism. Murchison<sup>5</sup> was one of the first to deal specifically with this prob-

<sup>1</sup> Studies from the Division of the Criminologist, State of Illinois, Paul L. Schroeder, M.D.; Series A, No. 103.

This report was prepared under the supervision of Robert H. Gault of Northwestern University. I am indebted to him for his advice and criticism and to Mr. Sol Z. Rosenbaum for his generous assistance in the statistical analysis. To inmates E. T., C. L., and J. L. who gave much time to tabulating data, I wish a speedy opportunity to demonstrate their non-recidivism.

<sup>2</sup> Psychologist, Diagnostic Depot, Joliet. Now at Cook County Juvenile Court.

<sup>3</sup> John L. Gillin, *Social Pathology*. N. Y., The Century Co., 1933, p. 557.

<sup>4</sup> Edwin H. Sutherland, *Mental Deficiency and Crime*. Chapter XV in *Social Attitudes*, edited by Kimball Young, New York, Holt and Co., 1931, p. 371.

<sup>5</sup> Carl Murchison, *Criminal Intelligence*. Worcester, Mass., Clark University Press, 1926, p. 95.

lem. A chapter of his "Criminal Intelligence" is devoted to a comparison of 660 recidivists and 979 first offenders. The principal finding was that 33.6% of recidivists are above and 35% below an Army Alpha grade of C, as compared respectively with 34.3% and 42.6% of first offenders. He concluded tentatively that, "recidivists seem more intelligent than are first offenders, in so far as differences exist."

Erickson's<sup>6</sup> study of 1690 white male prisoners in Wisconsin illustrates a neutral point of view. Although he found in general "a very definite relationship between criminality and intelligence . . .," he nevertheless concluded that, "recidivism appears unrelated to the intellectual endowment since it occurs with essentially the same frequency among the mentally deficient offenders as among those of better intellectual capacities."

Frank,<sup>7</sup> on the other hand, finds "a direct relationship between the mental level and recidivism" in a group of 401 cases at Rahway, New Jersey Reformatory. Mental levels were diagnosed not only on the basis of psychometrics but also upon social history and observation of personality traits. "Thirty-three per cent of the feeble-minded were recidivists. . . as compared to a range of 17 to 20% for the three upper groups (inferior, average, and superior)."

In the Gluecks'<sup>8</sup> first follow-up study

of 500 graduates of the Massachusetts Reformatory for Men, "eighty-five % of those of lower intelligence continued to recidivate as compared to 80% of those of higher intelligence." In the second five year follow-up period<sup>9</sup> there was actually a greater proportional increase in non-delinquency among the borderline and feeble-minded group. These differences may, however, be due entirely to the greater proportion of non-delinquents of foreign-birth (who generally score low on intelligence tests) in both periods. The small number of cases, the mixed racial composition of the groups, and the crudeness of the intellectual scale used limit the value of their results for this particular problem.

Tulchin's<sup>10</sup> monograph, "Intelligence and Crime," contains probably the most objective treatment of this subject which has appeared. His results, based upon psychological examinations given to about 10,000 Illinois prisoners during 1920-1927, show that ". . . the men with records of previous commitments make higher median Alpha scores than do the men serving their first sentence . . ." Unfortunately, as he points out himself, at the time of his investigation information on criminal history was of questionable accuracy since it was based upon inmates' unverified statements.

It is evident that the question of the relationship between intelligence and

<sup>6</sup> Milton Hyland Erickson, Study of the Relationship between Intelligence and Crime. *Jour. of Crim. Law and Criminol.*, 19: 592-635, 1928-29.

<sup>7</sup> Benjamin Frank, Mental Level as a Factor in Crime. *J. Juvenile Res.*, 15, 192-197, July, 1931.

<sup>8</sup> Sheldon and Eleanor T. Glueck, 500 Criminal Careers. N. Y., A. A. Knopf, 1930.

<sup>9</sup> —, Later Criminal Careers. N. Y., The Commonwealth Fund, 1937, p. 99.

<sup>10</sup> Simon H. Tulchin, Intelligence and Crime. Chicago, Univ. of Chicago Press, 1939, p. 155.

recidivism is still in a controversial state. This is not surprising when we consider the youth of the intelligence testing movement and the difficulties of criminal statistics. The present study, taking advantage of the development of clinical psychology and the progress of professional criminology in the Illinois prisons, attempts to solve this problem by analyzing a large, carefully studied group of offenders.

## *II Data and Methods*

The subjects for this investigation were 4188 native-born white felons, the total of such offenders committed by courts in the northern counties of Illinois from July 1, 1934 to July 1, 1939. These men were admitted for classification to the Joliet Diagnostic Depot and received the usual psychological, sociological, and psychiatric examinations over a three to six-week period. The data used here are based upon these examinations, as described below.

Data on intelligence levels are derived entirely from the results of the standard psychological examinations given to all admissions. The majority of prisoners receive only the group Army Alpha test; where an additional individual test had been given this latter rating was used. Those who received two individual tests such as the Stanford-Binet and the Arthur Performance Scale were assigned the higher of the two mental ages obtained. All group and individual test ratings were equated in terms of mental-ages and intelligence quotients, on the basis

of the equivalent scale described in the Army Memoirs.<sup>11</sup> For example, the I. Q. range 100-109 includes Army Alpha test scores 78 through 101, and individual test mental ages from fifteen years through sixteen years five months.

The term recidivism as employed here refers to the formal record of offenses. This is given in the criminal history obtained by the sociologist, and is verified by social history correspondence and Federal Bureau of Identification reports. The following six point scale of previous criminal record was used:

- I. No previous record
- II. Arrests only
- III. Minor Record
- IV. One previous reformatory or prison term
- V. One previous reformatory or prison term plus a minor record
- VI. Two or more previous reformatory or prison terms

Each convict was classified in but one of these six categories. Group III includes any case without a previous prison record, in which one or more of the following items was recorded: juvenile correctional school, chain gang, prison farm, probation, suspended sentence, or jail. A notation of one or more of these when accompanied by a history of one previous reformatory or prison term would be classified in Group V. Otherwise one prison or reformatory term without any minor record would be considered Group IV.

The data were also tabulated for age and offense. Three age groupings were used: 1) 15-24, 2) 25-39, 3) 40 years and over. The offense groups analyzed are

<sup>11</sup> Memoirs, The National Academy of Science, Vol. 15, 1921, p. 195.

TABLE I  
 PERCENTAGE DISTRIBUTION OF INTELLIGENCE QUOTIENTS OF 4,188 NATIVE WHITE  
 CONVICTS WITH VARIOUS DEGREES OF CRIMINAL RECORD

Intelligence Quotient	Previous Criminal Record					
	I None	II Arrests Only	III Minor Record	IV One Prison	V Prison Plus Minor Record	VI Two Prisons
130 and over.....	.5	.3	.3	2.1	.3	1.8
120-129 .....	9.8	10.3	6.3	9.4	7.1	11.9
110-119 .....	23.9	21.7	20.2	20.7	26.6	31.5
100-109 .....	23.1	21.1	24.1	26.8	24.6	20.8
90-99 .....	20.2	21.5	22.2	18.7	20.0	13.7
80-89 .....	13.8	13.3	19.2	14.2	15.3	14.3
70-79 .....	6.6	10.0	5.9	6.9	4.3	4.2
60-69 .....	1.6	1.1	1.6	1.2	1.6	1.8
50-59 .....	.3	.7	.2	—	.2	—
40-49 .....	.2	—	—	—	—	—
Total .....	100.0	100.0	100.0	100.0	100.0	100.0
Number of Cases....	610	669	1,766	246	561	336
Average IQ .....	101.85	100.71	99.83	102.28	102.11	104.88
S. D. ....	15.51	16.00	14.53	15.32	14.43	15.50

the usual, somewhat arbitrary, legal categories: robbery, larceny, burglary, murder, sex and a miscellaneous group.

### III Results

Table I summarizes the results for the total group regardless of age or type of offense. The percentage distribution of intelligence quotients is shown for each of the six categories of criminal record. These distributions, it will be observed, are all skewed towards the upper levels of intelligence. This is due to the fact that extremely defective cases rarely reach prison; less than one in a thousand admissions is as low as the imbecile level. The percentage frequencies vary considerably from one column to another and will be analyzed in more detail in the following tables.

The largest group here consists of

those with minor records. This group also shows the lowest average intelligence quotient, largely due to the marked reduction in proportion of very superior individuals. In spite of the number of items which enter into this category the variability of the minor record group, as indicated by the standard deviation, is comparatively low.

Two principal trends are suggested by inspection of the averages for the six categories: first, is the decrease in average intelligence quotient from Group I to III, a finding which is consistent with previous studies indicating comparatively lower intelligence for misdemeanants; second is the increase in the averages for Groups IV, V, and VI, those with serious previous records. With regard to the variability of the distributions no consistent differences are revealed by these standard deviations (Shepard's correction

for coarseness of grouping has been used throughout).

In Table II the total cases have

TABLE II

PERCENTAGE DISTRIBUTION OF INTELLIGENCE QUOTIENTS OF FIRST OFFENDERS AND RECIDIVISTS

<i>Intelligence Quotient</i>	<i>First Offenders</i>	<i>Recidivists</i>
130 and over.....	.3	1.2
120-129 .....	8.0	9.0
110-119 .....	21.1	27.0
100-109 .....	23.3	23.9
90-99 .....	21.7	17.8
80-89 .....	16.8	14.7
70-79 .....	7.0	4.8
60-69 .....	1.6	1.6
50-59 .....	.2	—
40-49 .....	—	—
Total .....	100.0	100.0
Number of Cases...	3,045	1,143
Average I.Q. ....	100.43	102.96
S. D. ....	15.08	15.00

been divided into two groups on the basis of degree of criminal record: 1) first offenders, corresponding to the combined first three categories of the preceding table, and 2) recidivists, corresponding to the last three categories. This division conforms with the most commonly accepted usage according to which a recidivist is a convict who has previously served time in a reformatory or prison. Of the total 4188 admissions, 1143 or 28.3% are classed as recidivists.

Differences between the two groups are evident. For each of the I. Q. levels above 100 the recidivists show consistently higher proportions; conversely, the percentage of recidivists in each of the I. Q. levels below 100 is equal to or less than that of first offenders. The difference in average

I. Q. is 2.51 points which is highly significant considering the size of the groups. The critical ratio  $\left(\frac{\text{Difference}}{\text{Sigma diff.}}\right)$  for this difference is 4.86; in terms of probability this means that the odds against the occurrence of a difference as great or greater than this are over a million to one. At the same time the standard deviations for these two groups are practically identical.

The Chi-square test was also applied to the data of Table II yielding a measure of the significance of association between the two attributes intelligence and recidivism. A four-fold table was used as suggested by Pearl,<sup>12</sup> the combinations being: recidivist, non-recidivist (first offender), above 100 I. Q., and below 100 I. Q. Chi-square was found to be 22.1; this value of Chi-square for one degree of freedom yields a probability of close to .000001; the odds against the chance occurrence of a difference as great as or greater than the one found here are again about a million to one.

A further comparison taking into account age differences is given in Table III. Here also the recidivists show a consistently higher I. Q. than first offenders in each of the age groups. Apparently, differences appear in all of the age samples but are of greatest intensity in the middle-age group. The critical ratio for this group is definitely above the accepted level of significance. In view of the fact that differences in the other groups are

<sup>12</sup> Raymond Pearl, *Medical Biometry and Statistics*. Philadelphia, Saunders Co., 1930, p. 513.

TABLE III  
COMPARISON OF FIRST OFFENDERS AND RECIDIVISTS BY AGE GROUPS

Age Group	Number of Cases	Average IQ	S. D.	Critical Ratio	Chi-square
<i>15-24</i>					
First Offenders.....	1,902	100.89	14.31		
Recidivists .....	372	102.82	14.46	2.37	7.18
<i>25-39</i>					
First Offenders.....	611	100.56	15.74		
Recidivists .....	875	103.66	15.13	3.83	12.46
<i>40 years and over</i>					
First Offenders.....	268	96.72	17.58		
Recidivists .....	160	100.63	15.55	2.40	3.70
Total .....	4,188				

fairly high and in the same direction, it may be concluded that the relationship between recidivism and intelligence is probably independent of age.

This conclusion is supported by consideration of the Chi-squares in the last column. For the younger and middle-age groups the Chi-square values are distinctly beyond the one per cent level of significance, i. e., these values of Chi-square for one degree of freedom would be exceeded in less than one per cent of all similar random samples. For the older age group the Chi-square value obtained would be exceeded by about 5% of all random samples.

Table III also demonstrates some other important age differences which no doubt affect these findings. First is the well-known reduction in the proportion of older offenders. Second is the marked difference in proportions of recidivists in each age group; these are as follows: 16% of the younger age group, 59% of the middle-age group, and 37% of the older age group. There is also an apparent trend towards

greater heterogeneity with age, as indicated by the standard deviations. However, the only appreciable difference between the recidivists and first offenders with respect to variability appears in the older age-group. This is explained by the fact that first offenders over 40 include some of the most superior individuals such as embezzlers, as well as some of the more senile and intellectually deteriorated, particularly in the sex offense group.<sup>13</sup> These age relationships in criminality are very complex and should be studied separately.

Table IV presents a comparison of recidivists and first offenders in each of the general offense categories. The former group is seen to have a higher average I. Q. for all types of offense except sex. The differences in average I. Q. are statistically significant for robbery and larceny and doubtfully significant for burglary and murder. Likewise, on the basis of the Chi-square test recidivism appears significantly related to intelligence in the

<sup>13</sup> Paul L. Schroeder, *Criminal Behavior in the Later Period of Life*. *Am. J. of Psychiatry*, 92,

915-924, Jan., 1936.

TABLE IV  
COMPARISON OF FIRST OFFENDERS AND RECIDIVISTS BY TYPE OF OFFENSE

Type of Offense	Number of Cases	Average IQ	S. D.	Critical Ratio	Chi-square
<i>Robbery</i>					
First Offenders.....	1,039	101.54	14.00		
Recidivists .....	432	104.49	14.23	3.63	10.37
<i>Larceny</i>					
First Offenders.....	1,166	100.05	14.75		
Recidivists .....	436	102.59	15.18	3.02	4.56
<i>Burglary</i>					
First Offenders.....	309	100.24	15.21		
Recidivists .....	147	102.21	15.16	1.30	2.51
<i>Murder</i>					
First Offenders.....	195	99.51	16.15		
Recidivists .....	54	104.63	15.54	2.12	1.64
<i>Sex</i>					
First Offenders.....	286	95.94	16.32		
Recidivists .....	60	94.33	15.95	.71	.09
All Offenses.....	4,188	(includes 64 Miscellaneous offenses not analyzed above)			

robbery and larceny group. No significant relationship is found for the sex group.

In tables II, III, and IV the differentiating line for first offenders and recidivists was placed at one previous penal or reformatory term. A separate analysis was made of the data using another criterion. Those prisoners with two or more previous prison or reformatory sentences (Group VI of Table I) were considered as a recidivist group and contrasted with the total remaining (Groups I through V). The average I. Q. for this new recidivist group was 104.88; for the non-recidivists, 100.79. The critical ratio in this case (4.65) as well as the Chi-square (18.12) indicates that this difference is highly significant. When these same groups were compared in each of the three age divisions it again appeared that the differences in intelligence be-

tween the recidivists and non-recidivists are independent of age.

It has been assumed here that in dealing with a large group of offenders recidivism can be best defined in terms of degree of criminal record. The criticism might be raised that this fails to take into account recidivism in the sociological sense which denotes an individual of confirmed anti-social or criminal proclivities. As Clemmer,<sup>14</sup> the senior sociologist at Joliet points out, "... the professional staff diagnoses recidivism, not according to previous record alone, but largely on the basis of personality make-up. Thus, a 'two-time loser' may not be designated a recidivist, and, conversely, a man who has never been arrested before may be diagnosed as a recidivist." Although it would have been valuable to include such a sociological or psychiatric diagnosis, this was not feasible in view of the period of time covered and the fact that it would involve a sub-

<sup>14</sup> Donald Clemmer, *The Prison Community*, Boston, Christopher Publishing House, 1940, p. 57.

jective evaluation made by a number of staff members.

A partial answer to this point was, however, possible. For the year 1935 a separate count was kept of cases in which any of the following sociological notations appeared: recidivist, recidivous, potentially recidivistic, confirmed offender, habitual offender. There were in all 297 such sociologically diagnosed recidivists. A check was then made of their official criminal records which showed that only one had no previous record whatsoever, two had records of arrests only, 78 had minor records, 134 had one previous prison or reformatory term, and 84 had served two or more previous sentences. The average intelligence quotient for this group was 103.31 and the standard deviation 14.68. These results tend to bear out the validity of the objective criterion of recidivism used here, as well to confirm the principal finding of higher intelligence for the recidivist group.

#### *IV Discussion*

The problem may be restated at this point as an attempt to discover the relationship between two characteristics, intelligence and recidivism, as manifested in a selected criminal group. Both intellectual capacity and degree of criminality are recorded here as objectively, it is believed, as present psychological and sociological science permits. With reference to intelligence, the nature of this group and the conditions of psychological testing at the prison made it certain that valid differ-

ences in native capacity are revealed. Likewise the term recidivism has been defined here on the basis of reliable recorded information and there is evidence that these categories actually differentiate degrees of criminality.

An attempt has also been made to eliminate the more frequent sources of error in criminological research. First, this group represents a total population, i.e., all native white offenders committed by the courts during a given period. No selective element is present, other than the obvious fact that convicted offenders are only a proportion (probably fairly constant) of the total criminal population. Second, a relatively homogeneous group racially has been studied, since it is known that Negroes and foreign-born offenders present special problems with respect to both criminality and intelligence.

Most related studies in this field have been based upon comparisons of the intelligence of prison groups with that of the general population. The Army test results have been used almost exclusively for standards of adult male intelligence. This has given rise to considerable controversy over the reliability of the Army norms and the comparability of prisoners and draft-army samples. These difficulties are overcome here by attacking the problem in terms of equivalent groups selected from a single prison population on which uniform data are available.

There seems no reason to suspect that other unknown errors have affected materially the results obtained here. The conclusion that persistent

offenders are brighter than first offenders must then be considered a partial refutation of current popular and scientific opinion. Popular belief has held consistently to a negative correlation between intelligence and criminality. A recent expression of this view which characteristically is unsupported by evidence is Hooton's<sup>15</sup> statement that, ". . . stupidity and mental defect are more potent factors in crime causation than inferior physique and impoverished environment . . ." Scientific opinion, more conservatively, has shifted toward the position that intelligence has little causative significance in criminality.

The complexity of these factors precludes evaluation of the causative nature of the relationship between intelligence and recidivism. Reckless,<sup>16</sup> somewhat humorously, has pointed out the limitations in the application of the concept of causation to social phenomena such as criminal behavior, a phenomenon so involved that "it may even be a cause of some of the causes which are supposed to cause it." Certain inferences are nevertheless indicated by these results. It would seem to follow, for example, that defective intelligence is not associated directly with criminal behavior at any level since it does not appear significant at the most extreme degrees of such behavior. On the contrary the evidence points to a positive correlation between level of brightness and degree of criminality.

We may observe that this group of

adult offenders corresponds on the basis of color and nativity to the standardization group selected by Terman for the recent revision of the Stanford-Binet. Although the intelligence quotients in the present study were derived from an equivalent scale it is at least suggestive that the average for the total group, 101.13, approximates closely the average for Terman's group. When we consider that some of the more intelligent criminals probably escape arrest or conviction (not to speak of Sutherland's "white-collar criminals" who remain at large), we may infer that adult white offenders are well up to or above the intelligence level of the general population.

The belief that ethical conduct is rationally determined is at least as old as Socrates, who held that the wise man is also a virtuous one. The theory which stresses biological determinants in criminal behavior is an extension of this belief in the rational basis for human motivation. Recidivism is often defined as a tendency to relapse into criminality; this implies the presence of factors, pathological in nature, inherent in the individual. Actually, continued anti-social behavior appears to be more characteristic of brighter individuals, who are presumably better endowed biologically. It is more logical to assume that both ethical and unethical conduct are to some extent a product of reason. The fact may be that it is the more intelligent individual who reacts to inequalities or injustices in our

<sup>15</sup> Ernest G. Hooton, *The American Criminal*. Cambridge, Mass., Harvard Univ. Press, 1939, p. 307.

<sup>16</sup> Walter C. Reckless, *Criminal Behavior*. N. Y., McGraw-Hill Co., 1940.

present social order, and who protests most persistently. This would support the theory that crime is a cultural product, a symptom of social rather than individual disorganization. The provocative possibility is raised that recidivists are the criminal correlates of the political insurgents, the radicals, and the non-conformists of more polite society.

#### *V Summary*

The records of 4188 native-born white convicts committed by court to the Illinois State Penitentiary at Joliet from 1934 to 1939 were examined with reference to the relationship between intelligence and recidivism. Test ratings of prisoners on standard psychological examinations were compared with verified criminal histories. A statistical analysis was made taking into account the factors of age and type of offense. The principal findings were as follows:

- 1) The average intelligence rating of recidivists is significantly above that of first offenders.
- 2) Differences between the two groups are found at all levels of the intellectual scale; the recidivists show a greater proportion of superior and very superior individuals and fewer at the retarded levels (dull and borderline); the proportion of mental defectives in the two groups is practically the same, however.
- 3) The differences in intelligence between recidivists and first offenders appear to be independent of age.
- 4) Recidivists show higher average intelligence ratings in all of the offense categories except sex; the most marked differentiation is found in the robbery and larceny cases.
- 5) Within the first offender group, those with records of previous arrests or misdemeanors tend to be lower in intelligence than those with no record whatsoever.
- 6) Consideration of the data on the basis of other quantitative and sociological criteria of habitual criminality tends to confirm the conclusion that recidivists are of higher intelligence than first offenders.