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PAROLE PREDICTION: ITS HISTORY AND STATUS

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The following article was originally prepared as a paper to be read before the Indiana State Psychological Association in April, 1954. The meeting on that occasion was devoted to the subject of prediction.—EDITOR.

For over twenty-five years American social scientists have been involved in the effort to measure the prospect that a person will fail or succeed on parole. Their procedure has been very much like that of a life insurance statistician who, by tabulating the mortality experience of a given population, estimates the risk of death at different age levels. Analogously, the parole actuary calculates the relative frequency of failure within selected categories, as illustrated in Table I, and projects these rates into the future. It appears timely to review the published work on the subject of parole prediction, and also to evaluate its significance.

The approximately thirty year period covered by this research movement has been characterized by three phases: (1) initial efforts, (2) skeptical but constructive reaction, and (3) post-war studies, predominantly methodological. Hornell Hart was among the first, if not the first, to recognize the possibility of constructing an experience table with a view to predicting parole adjustment. In a 1923 paper¹ he advocated that parole candidates be scored on the basis of items thought to be prognostic of parole success, and the risk of violation be established for each score, or score interval. Not so long afterwards, this idea was applied by Burgess who, in what would now be called a pilot study, analyzed the records of 3,000 parolees drawn equally from three Illinois prisons.² These cases were first cross classified according to outcome on parole and 21 items of possible significance, such as type of offense, number of associates, nationality, and so on. Then, by giving one point to each subclassification that had a violation rate lower than the overall rate,³ a parole score was computed for each person. Finally, violation rates were determined for selected score intervals, as in Table I. The regular progression of rates according to the magnitude of prediction scores seemed to affirm the feasibility of prediction from an experience table.

¹ HORNELL HART, *Predicting Parole Success* JOUR. OF CRIM. L. AND CRIMINOL. XIV (November, 1923), 405-414.

² ERNEST W. BURGESS, *Factors Determining Success or Failure on Parole*, in ANDREW A. BRUCE, ALBERT J. HARNO, ERNEST W. BURGESS, AND JOHN LANDESCO, *THE WORKINGS OF THE INDETERMINATE SENTENCE LAW AND THE PAROLE SYSTEM IN ILLINOIS*. Springfield, (1928), pp. 205-49.

³ An objection, raised almost immediately, was that this scoring method gave equal weight to each item ignoring the differential capacity of items to segregate parole violators and nonviolators. SHELDON AND ELEANOR T. GLUECK, *500 CRIMINAL CAREERS*. New York, (1930), p. 281.

TABLE I
THE ORIGINAL BURGESS EXPERIENCE TABLE*

Points for Number of Factors Above the Average	Number of Men in Each Group	Expectancy Rate for Success or Failure			
		Percent Violators of Parole			Percent Non-violators of Parole
		Minor	Major	Total	
16-21	68	1.5	—	1.5	98.5
14-15	140	.7	1.5	2.2	97.8
13	91	5.5	3.3	8.8	91.2
12	106	7.0	8.1	15.1	84.9
11	110	13.6	9.1	22.7	77.3
10	88	19.3	14.8	34.1	65.9
7-9	287	15.0	28.9	43.9	56.1
5-6	85	23.4	43.7	67.1	32.9
2-4	25	12.0	64.0	76.0	24.0

* E. W. BURGESS, *Factors Determining Success or Failure on Parole*, in A. A. BRUCE, A. J. HARNO, E. W. BURGESS, AND JOHN LANDESCO, *THE WORKINGS OF THE INDETERMINATE-SENTENCE-LAW AND THE PAROLE SYSTEM IN ILLINOIS*. Springfield, (1928), p. 248.

As is true of many scientific accomplishments, almost identical work was going on concurrently in other quarters. In the late nineteen-twenties, the Gluecks of Harvard were checking on the possibility of predicting post-parole criminality by means of an experience table⁴. Except for minor differences their first tables, consisting of post-parole adjustment rates for a group of something less than 500 prisoners discharged from the Massachusetts Reformatory in 1921-1922, was very similar in form and significance to the table prepared by Burgess. Their procedure differed slightly in that persons were scored on 6-13 items and items were weighted according to their capacity to differentiate outcome groups. Although these differences appear rather trivial, they do nevertheless represent persistent problem areas, as indicated by continuing research on both topics.

Some intimation that these two pioneer efforts were to mark the beginning of a sustained research movement was provided by two studies that followed almost immediately. Vold's study of 1,192 Minnesota cases is significant primarily because of its attention to the problem of sampling variability in violation rates, and to the possible consequences of not weighting items in accordance with their discriminative value.⁵ By randomly dividing his entire sample into two approximately equal groups, he was able to illustrate empirically, what might have been expected *a priori*, that score-specific violation rates would differ somewhat between random samples of parolees just as a matter of chance. The major finding in the scoring experiment was that weighted and unweighted scores arranged parole cases from high to low in about the same way ($r = .92$), and Vold concluded that weighting had little influence on actuarial results, a conclusion which recent research has weakened but not repudiated.

Shortly after its appearance, the scoring procedure devised by Burgess was applied

⁴ SHELDON AND ELEANOR T. GLUECK, *op. cit.*, pp. 278-296.

⁵ GEORGE B. VOLD, *PREDICTION METHODS AND PAROLE*. Hanover, N. H., (1931).

by Tibbitts to a sample of 3,000 persons released to parole from the Illinois Reformatory.⁶ The scoring was altered so as to eliminate from consideration those subclassifications in which the violation rates did not differ by more than five percentage points from the overall rate; and several additional factors were analyzed. His results served mainly to confirm the point that parolees scored and ranked on items closely associated with parole adjustment will exhibit differential violation rates, an inevitable result whenever there is any correlation between prediction items and the criterion.

II. MIDDLE PERIOD

The initial group of studies, although modest in claim and scope, were followed by a run of somewhat critical studies. Sanders, for example, expressed skepticism as to whether an experience-table, after Burgess, would persist relatively unchanged in the short run future. To throw light on this question, parole outcome and various items were correlated in a sample of 5,683 federal prisoners released in the period, July 1, 1933 through June 30, 1934; these cases were then scored on the best items and violation rates computed by score intervals to form an experience table.⁷ A follow-up sample consisting of 2,838 parolees released in the period of July 1, 1934 through December 31, 1934, was scored in the same way and violation rates computed, so as to make possible a check on the constancy of the score-specific violation rates in the two periods. Although the first set of violation rates showed a regular progression, the pattern of rates in the follow-up table was erratic and quite possibly a result of chance factors. This finding, as significant now as at the time of its discovery, high-lighted the possibility that items which rank persons reliably as to parole success in one period may be unreliable for that purpose in the almost immediate future.

The pioneer studies were also criticized on the grounds that they made use of whatever information happened to be on hand and that much of it was irrelevant. A corollary was that progress in parole prediction is tied up with the discovery of significant categories of information. This attitude is exemplified in the writing of Laune⁸ who contended that intimate personal knowledge about a man is likely to be, if not a substitute for, at least an important supplement to, the objective data obtained from a prisoner's record. To this end, he solicited the opinions (hunches) of several inmates in regard to the parole prospects of 150 inmates within their acquaintanceship. At the time (1934) it was impossible, of course, to check on the accuracy of the raters, as the parole prospects were still in prison. Inmate ratings acquired a semblance of validity, however, by reason of their fair correlation with Burgess scores ($.34 < r < .54$), and because of fair consistency ($.34 < r < .62$) among the several raters. A recent validation study of these inmate appraisals reviewed in a later section, revealed that inmate hunches are no better than objective scores.

⁶ CLARK TIBBITTS, *Success or Failure on Parole Can Be Predicted*, *JOUR. OF CRIM. L. AND CRIMINOL.*, XXII, (May, 1931), 11-50.

⁷ BARKEV S. SANDERS, *Testing Parole Predictions*, *PROCEEDINGS OF THE SIXTY-FIFTH ANNUAL CONGRESS OF THE AMERICAN PRISON ASSOCIATION*, 1935, pp. 222-233.

⁸ FERRIS F. LAUNE, *PREDICTING CRIMINALITY*. Chicago, (1936).

The critical attitude of psychiatry toward the neglect of psychological data in previous efforts, and perhaps unconsciously toward the actuarial method itself, is reflected in a paper by Jenkins and his coworkers.⁹ A group of 221 boys paroled from the New York Training School for Boys were scored on 95 items, including 28 personality characteristics. Although these scores yield different violation rates, no demonstration was provided that psychiatric information did improve prediction significantly beyond what would have been achieved had objective items been used exclusively. This study must therefore be considered as principally suggestive in regard to the manner in which psychiatric material might enhance the accuracy of a prediction table.

Not critical in nature, but falling within the middle-period, is the work of the sociologist-actuaries in Illinois who scored 9,000 cases on 27 items, and computed violation rates for selected score intervals. These results, usually termed the 1938 Illinois Experience Table, represent not so much an application of the method devised by Burgess, but rather a continuation of his original work.¹⁰ The Gluecks, like Burgess, did not revise their original method in any significant manner during this period, but they did continue to apply it to the unfolding experience of their now-famous 500 reformatory cases.¹¹ They acknowledged that in the absence of validation samples their results were important primarily because of their suggestiveness.

III. THE POST-WAR PERIOD

It seems fair to say that recent research has concentrated almost exclusively on methodological matters, rather than on conditions, personal or situational, which affect behavior on parole. These studies have concerned themselves with the relative efficiency of experience tables, the validity of the 1938 Illinois Experience Table, the validity of the inmate "hunch" method, the optimum number of items in a prediction battery, and the problem of weighting items.

It is almost axiomatic that an experience table in order to justify itself as a prediction instrument should make fewer errors than a blanket prediction based on the overall rate, i.e., the modal frequency. To evaluate an experience table from this point of view, Ohlin and Duncan¹² have proposed an *Index of Predictive Efficiency*, defined as the percentage change in prediction error resulting from the use of an experience table instead of the overall rate. The application of this index to twenty-two published tables indicated that these tables were not particularly efficient, the average

⁹ R. L. JENKINS, HENRY HARPER HART, PHILIP I. SPERLING, AND SIDNEY AXELRAD, *Prediction of Parole Success: Inclusion of Psychiatric Criteria*, JOUR. OF CRIM. L. AND CRIMINOL., XXXIII (May, 1942), 38-46.

¹⁰ Referred to in LLOYD E. OHLIN, *The Stability and Validity of Parole Experience Tables*, Unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1954.

¹¹ SHELDON AND ELEANOR T. GLUECK, *LATER CRIMINAL CAREERS*. New York, (1937); *CRIMINAL CAREERS IN RETROSPECT*. New York, (1943).

¹² LLOYD E. OHLIN AND OTIS DUDLEY DUNCAN, *The Efficiency of Prediction in Criminology*, THE AMER. JOUR. OF SOCIOL., LIV March, (1949), 441-452.

Also see OTIS DUDLEY DUNCAN, LLOYD E. OHLIN, ALBERT J. REISS, JR., AND HOWARD STANTON, *Formal Devices for Making Selection Decisions*, THE AMER. JOUR. OF SOCIOL., LVIII (May, 1953), 573-584, for a somewhat different approach to this problem.

reduction in error being only 16 percent. This result, perhaps disappointing to prediction enthusiasts, is immediately due to the heavy concentration of parole candidates in score intervals in which the violation rates are very close to the average; in short, because relatively few candidates were characterized by actuarial risks close to one or zero. This feature of the score distribution is basically due to the inability of available prediction items to discriminate sharply between violators and nonviolators.

As a check on the validity of the 1938 Illinois Experience Table, Hakeem computed score-specific violation rates for 1,108 Illinois parolees of 1939 and 1940 and compared these results with the rates as projected from the 1938 Illinois Experience Table.¹³ His results were negative in that the observed rates were consistently smaller than the expected rates, the average difference being approximately 13 percent. The experience table, equipped with memory but not foresight, reacted as if the violation rates would maintain themselves indefinitely, while in fact there was a marked decline in score-specific rates throughout the entire table. Therefore, even had the parole board selected only the most favorable parole risks, the estimated number of violators would still have been excessive, since as previously noted, score-specific rates were dropping over the entire table.

In a study of greater scope and refinement, but similar in orientation, Ohlin compared the parole experience of 8,013 consecutive parolees from 1936 through 1944 with the rates predicted by the 1925-1935 sample on which the 1938 Illinois Table was based.¹⁴ His major result, anticipated by Hakeem's earlier finding, was that the 1938 experience table was outmoded, as the observed rates were significantly lower than the expected rates. To meet this serious difficulty, Ohlin devised an ingenious method for adjusting the experience table on an annual basis, utilizing the parole experience of persons who had completed the first year of their five year parole period. This procedure utilizes the constant relationship, as it has been observed, between the number of parole violators in the first year and the total number who will violate in the entire five-year period. Application of this procedure to 1925-1944 Illinois State Prison series revealed that an experience table, if made to eliminate outmoded information, can be made to predict violation rates with reasonable accuracy, although such revisions in no way guarantee that an experience table is performing more efficiently than the overall rate. The significance of these two validation studies seems to consist in their demonstration that an experience table may be outdated in a short period of time, due to major social changes which facilitate or hinder adjustment on parole, and that provision must be made therefore to keep the table up to date by continuous feed-back of the latest parole experience.

By 1950 it was possible to compare the inmate hunches solicited by Laune in 1934 with actual parole behavior of 110 of the 150 inmates who had been rated. This comparison, undertaken by Ohlin and Lawrence, revealed that the hunch method was

¹³ MICHAEL HAKEEM, *The Validity of the Burgess Method of Parole Prediction*, THE AMER. JOUR. OF SOCIOLOGY, LIII (March, 1948), 376-86.

¹⁴ LLOYD E. OHLIN, *The Stability and Validity of Parole Experience Tables*, Unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1954.

not quite as efficient as the Burgess method, although neither method predicted much better than the overall rate.¹⁵

Another recent study by Ohlin¹⁶ has demonstrated that an experience table based on twelve items performs just as efficiently for prediction purposes as a table based on the 21 items originally used by Burgess. As a result of this analysis, the experience table now in use at the Illinois State Prison is based on 12 items. This type of analysis, although designed primarily to eliminate useless items, has a certain theoretical significance in that it directs attention to basic variables, presumably most influential in regard to parole success. Ohlin discovered, for example, that the six most efficient items defined an area of personal and group attitudes toward criminality. It is to be anticipated that the question whether several prediction items reflect the influence of a single common factor will be approached next by factor analysis as this method seems especially appropriate.

Kirby¹⁷ has recently completed an investigation of the efficiency of an experience table based on items selected and weighted in accordance with the principle of least squares. His table, representing the experience of 455 federal parolees, was slightly more efficient than a comparable table based on arbitrary weights, but not much more efficient (10 percent) than a blanket prediction based on the overall rate. Although an important demonstration of the power and advantages of the least squares method, this study nevertheless underscores the need in parole prediction for more meaningful data.

The research of Glaser¹⁸ represents an exception to the main trend of recent methodological studies, in that his search for factors was guided by a theoretical concept. He hypothesized that degree of identification with criminality as a way of life would distinguish prospective violators and nonviolators, and, in accordance with this idea, scored persons on seven items thought to be indicative of "differential identification" with criminality. The resulting experience table was somewhat superior in efficiency to the twelve-factor table prepared by Ohlin, tending to uphold the claim for theoretically oriented research as versus the statistical manipulation of available material.

CONCLUSION

It is evident from the foregoing review that parole prediction as a research movement has centered in the midwest and that this activity has been pursued mainly by Burgess and other sociologists in the Chicago area. Illinois is the only state that has thus far made provision for the tabulation of actuarial data and its continuous

¹⁵ LLOYD E. OHLIN AND RICHARD A. LAWRENCE, *A Comparison of Alternative Methods of Parole Prediction*, THE AMER. SOCIOL. REV., XVII June, (1952), 268-74.

¹⁶ LLOYD E. OHLIN, *SELECTION FOR PAROLE*. New York, (1951), pp. 47-54.

¹⁷ BERNARD C. KIRBY, *Parole Prediction Using Multiple Correlation*, THE AMER. JOUR. OF SOCIOL., LIX May, (1954), 539-551.

Readers interested in the multiple correlation of a qualitative criterion with a team of quantitative variables will find a concise description in PAUL G. HOEL, *INTRODUCTION TO MATHEMATICAL STATISTICS*, New York, (1947), pp. 121-126.

¹⁸ DANIEL GLASER, *A Reconsideration of Some Parole Prediction Factors*, AMER. SOCIOL. REV., XIX June, (1954), 335-340.

utilization in connection with selection for parole. That this method has not diffused rapidly to other states is due, as is true of most social inventions, to a wide variety of complex social circumstances: political, legal, economic, and ideological. Whatever social conditions have impeded its spread, it must be acknowledged on the basis of this review, that the application of actuarial methods to parole experience has thus far not provided data that greatly reduce the uncertainty attached to forecasting individual behavior on parole. The reasons for this seem to lie, not in the actuarial method itself, which is indifferent to the nature of the data, but rather in the unavailability of items that sharply differentiate outcome groups, and in the apparent sensitivity of parole adjustment to abrupt social changes which militate either for or against a good parole adjustment. The significance of parole research to date, therefore, seems to consist, not so much in the actuarial data produced, but rather in its delineation of the most troublesome problems in this field. These problems, as mentioned before, embody as their major theme, the need for improved knowledge concerning the conditions, both personal and situational, which determine outcome on parole.