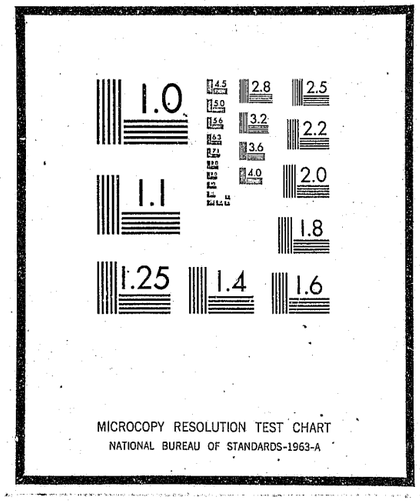

Measuring Delinquency and Predicting Later Criminal Careers

Revised, 1973

Lyle W. Shannon

MEASURING DELINQUENCY

AND

PREDICTING LATER CRIMINAL CAREERS

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I

THE DATA ON JUVENILE DELINQUENCY IN MADISON AND RACINE

Introduction

This study deals with problems involved in the measurement of juvenile delinquency and in the attempt to predict later criminal careers. Later criminal careers are to be predicted from earlier delinquent careers and from other variables associated with delinquent careers. A preliminary report, *Juvenile Delinquency in Madison and Racine*, was completed in 1968 and an earlier and longer version of *Measuring Delinquency and Predicting Later Criminal Careers* was published in 1970. Both were based on data collected in Madison and Racine commencing in 1956 and covering a period of years from 1950 through 1955 for Madison and a period from 1950 through 1960 for Racine. Police contact data from these communities have also been utilized in several M.A. and Ph.D dissertations and in several published papers.[1]

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[1]Harwin Voss, *The Ecological Distribution of Juvenile Delinquency in Madison, Wisconsin*, unpublished M.A. thesis, University of Wisconsin, 1956 [a description of the distribution of juvenile delinquency in Madison, Wisconsin, by school zones, relatively homogeneous area, and years; rates were computed on a basis of juveniles aged 6 through 17 in school zones]; Robert M. Terry, *Criteria Utilized by the Police in the Screening of Juvenile Offenders*, unpublished M.A. thesis, University of Wisconsin, 1962 [factors related to police decisions to refer juveniles in Racine, Wisconsin]; Charles H. McCaghy, *Social Areas and the Distribution of Juvenile Delinquency in Racine, Wisconsin, 1950-1960*, unpublished M.S. thesis, University of Wisconsin, 1962 [differences in rate of police contact with juveniles aged 6 through 17 by school districts and occupation of parents]; Austin T. Turk, *Adolescence and Delinquency in Urban Society: A Study in Criminological Theory*, unpublished Ph.D dissertation, University of Wisconsin, 1962 [culture conflict and social disadvantage are related to juvenile delinquency]; Lyle W. Shannon, "Types and Patterns of Delinquency Referral in a Middle-sized City," *The British Journal of Criminology* (July, 1963), pp. 24-36 [emphasis on changing rate of referral by years and differences in referral rates by zones and reason for police contact];

Madison is a governmental and educational center with considerable emphasis on developmental research in its relatively few industries, while Racine is well-known for its numerous heavy industries as well as other manufacturing establishments. Fifty-five percent of the employed persons 14 years of age or older were employed in manufacturing in Racine in 1950 according to the United States Census while only 16 percent were employed in manufacturing in Madison. By 1960, employment in manufacturing in Racine had dropped to 47 percent while Madison had increased to 17 percent.[2]

Fortunately, both communities had almost identical reporting systems for police contacts with juveniles. Discussions with the chiefs of police in Madison and Racine at the time both studies were conducted

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Lyle W. Shannon, "Types and Patterns of Delinquency in a Middle-sized City, " *The Journal of Research in Crime and Delinquency,* Vol. 1, No. 1 (January, 1964), pp. 53-66 [the distribution of delinquency in Madison with emphasis on variation in specific reasons for police contact by zones and years]; Austin T. Turk, "Toward Construction of a Theory of Delinquency," *Journal of Criminal Law, Criminology and Police Science,* 55 (June, 1964), pp. 215-229 [a tightly organized presentation of the theory and findings from Turk's dissertation]; Robert M. Terry, "Police Criteria in the Screening of Juvenile Offenders," *The Wisconsin Sociologist,* 5 (Winter, 1966-Spring, 1967), pp. 21-32 [finds that type of offense is most highly correlated with disposition of police contacts]; Robert M. Terry, "The Screening of Juvenile Offenders," *Journal of Criminal Law, Criminology and Police Science,* Vol. 58, No. 2 (June, 1967), pp. 173-181 [finds that legalistic variables were most significant in determining the impositions of sanctions by police, the probation department and the juvenile court while such variables as socio-economic status, ethnicity, and area of residence were relatively unimportant]; Robert M. Terry, "Discrimination in the Handling of Juvenile Offenders by Social-Control Agencies," *Journal of Research in Crime and Delinquency* (July, 1967), pp. 218-230; Lyle W. Shannon, "The Distribution of Juvenile Delinquency in a Middle-sized City," *Sociological Quarterly* (Summer, 1967), pp. 365-382 [finds that first contacts by juveniles with police are dealt with differently than are total contacts with variation by reason for police contact; also summarizes other papers on juvenile delinquency research in Madison].

[2]U.S. Bureau of Census, *Census of Population: 1950, Vol. II, Part 49, Characteristics of the Population: Wisconsin;* U.S. Bureau of Census, *U.S. Census of Population: 1960, Vol. I, Part 51, Characteristics of the Population: Wisconsin,* Washington, D.C., U.S. Government Printing Office, 1963. Madison and Racine are compared in the following table.

indicated that police were encouraged to refer juveniles for professional handling in Madison but Racine police were encouraged to deal with juvenile misbehavior at the street level. This difference in police policy would tend to generate a high rate of court delinquency in Madison and a low rate of court delinquency in Racine.

Differences in delinquency rates between cities and within cities may be explained by two competing but not necessarily mutually exclusive hypotheses: (1) Differences in juvenile delinquency rates may be *real* in the sense that juvenile behavior differs, and is a product of differences in the social organization of the cities or in the social organization of areas within cities, and; (2) differences in delinquency rates may be based on differences in the likelihood that contacts with the police will be reported, that is, differential delinquency rates between cities and between areas within cities may be generated by the police as an artifact of their reporting behavior.

Description of the Basic Data and Samples

In Madison, a 40 percent systematic sample of cases (names of juveniles) was taken from the files of the Crime Prevention Bureau. Of 2,680 cases in the 40 percent sample, a total of 1,876 were retained

Percentages of Selected Occupations of Experienced Civilian Labor Force in Racine and Madison*

City	Laborers, Excluding Mining and Farm		Operatives and Kindred Workers		Craftsmen, Foremen, and Kindred Workers		Managers, Officials, Proprietors, etc.		Professional, Technical, and Kindred Workers	
	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960
Racine	*6*	*4*	*26*	*25*	*19*	*17*	*9*	*7*	*9*	*10*
Madison	*3*	*3*	*12*	*12*	*12*	*11*	*9*	*8*	*18*	*18*

*Racine had twice as large a percentage of operative and kindred workers as Madison, while Madison had about twice as large a percentage of professional, technical, and kindred workers.

for analysis.[3] These cases consisted of 4,554 contacts with the police during the period 1950-1955.

The Racine data consisted of a 20 percent sample of cases for the period 1950 through 1960. The total number of cases originally drawn was 1,794 and was reduced to 1,247 cases consisting of 2,733 contacts with police for the period of the study.[4]

Incidents resulting in police contact were coded following an identical set of instructions and using the same 25 contact categories.[5]

Three fairly comparable sized areas based on clusters of school districts were constructed for both Racine and Madison. The low socio-economic status area in Madison was 58 percent renter occupied while it was 53 percent renter occupied in Racine. The intermediate category was 34 percent renter occupied in Madison and 37 percent in Racine. In the highest socio-economic status area it was 20 percent renter occupied in Madison and 17 percent in Racine. Fairly comparable proportions of the juvenile population were also located in each of these areas in Madison

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[3]The total sample of cases pulled from the universe of cases for the years 1950 through 1955 consisted of 2,680 cases but of these many were eliminated on the following criteria: 1) a certain proportion of the contacts with the police had taken place at a period earlier than the beginning date of the study; 2) the address at the time of the contact could not be verified; and 3) the address at the time of contact was outside Madison. In addition, the absence of crucial items of information such as age of the juvenile, sex, or year of police contact resulted in the elimination of the case from the sample. It cannot be seen that any systematic bias was introduced by the exclusion of those cases.

[4]Again, contacts made in years prior to 1950 were eliminated as were those cases whose residence was outside the city, whose residence was not recorded, or for whom adequate data were missing for some other reason. The two samples may be considered comparable in terms of the way in which they were drawn and the manner in which cases and contacts were eliminated.

[5]The following categories of police contact were utilized: 1) incorrigible, runaway; 2) disorderly conduct; 3) contact--suspicion, investigation, information; 4) theft; 5) traffic--operation; 6) vagrancy; 7) liquor; 8) burglary; 9) auto theft; 10) sex offenses; 11) traffic--parking; 12) truancy; 13) assault; 14) violent property destruction; 15) forgery; 16) weapons; 17) robbery; 18) fraud; 19) gambling; 20) escape; 21) obscene literature; 22) narcotics and drugs; 23) homicide; 24) family; and 25) other.

and Racine.[6]

Comparing the Basic Delinquency Trends and Characteristics of Delinquency in Madison and Racine

Although this study does not attempt to explain the process by which juveniles acquire delinquent patterns of behavior, an additional word must be said about the genesis of delinquency rates--rates which may or may not be directly related to the amount of delinquent behavior that

[6]The school districts comprising each of the three socio-economic status areas in Madison were as follows: Lowest Socio-economic Status--Washington, Lapham, Lincoln, Longfellow, Franklin, and Marquette; Middle Socio-economic Status--Emerson, Lowell, Schenk, Truax, Sherman, and Mendota; and Highest Socio-economic Status--Randall, Dudgeon, Midvale, and Nakoma. The school districts comprising each of the three socio-economic status areas in Racine were as follows: Lowest Socio-economic Status--Garfield, Franklin, Howell, Washington, Janes, Stephen Bull, and Lincoln; Middle Socio-economic Status--Knapp, Jefferson, McKinley, Johnson, and Winslow; and Highest Socio-economic Status--Mitchell, Roosevelt, Wadewitz, Jerstad-Agerholm, and Fratt.

Socio-economic Status of Area		% Renter Occupied*		% of Total Juvenile Population aged 6 through 17	
		Madison	Racine	Madison	Racine
I	Lowest	*58.22*	*52.85*	*39.97*	*36.46*
II	Middle	*33.85*	*37.16*	*29.61*	*27.80*
III	Highest	*20.65*	*16.84*	*30.30*	*35.75*

*Simple unweighted averages used for both Madison and Racine.

Any classification of areas in the community by school districts results in more heterogeneity within areas than one would wish but the differences between our areas are sufficient that it is possible to utilize them in testing propositions about the relationship of delinquency to the social organization of the community and the characteristics of people at different levels within the society. One is faced ultimately with the fact that there are somewhat different rankings for the school districts in both cities depending on the particular index being considered; a certain amount of judgment based on impressions of the area obtained from those familiar with the community is helpful in determining how the various indices will be combined in ranking school districts and then combining them in three larger areas. The problem is dealt with in more detail in Shannon, "Types and Patterns of Delinquency in a Middle-sized City," *op. cit.*, and McCaghy, *Social Areas and the Distribution of Juvenile Delinquency in Racine, Wisconsin, 1950-1960, op. cit.*

actually takes place. We have suggested that differences in delinquency rates between Madison and Racine may be explained by competing but not necessarily mutually exclusive hypotheses: (1) differences in the social organization of communities generate differences in juvenile behavior, and; (2) differences in police policy generate different rates of police contact with juveniles. This is not to say that police policy has nothing to do with the way in which the community is organized but does suggest that if the first hypothesis is correct, differences between communities in the rate of juvenile delinquency are related to the way juveniles experience deprivation to a greater or lesser extent, the way they perceive this deprivation and react to it, or the existence of a well-developed subculture of delinquency in one community as contrasted to the other. Competing, but not exclusive of this, is the idea that differential rates of delinquency are generated not by the social organization of the community and the juveniles themselves as they interact with each other in the larger community, but by police officers, either more or less independently, or as directed by the chief of police who formulates his policies in the process of interaction with the community.

Police Contacts with Juveniles by Year and by Area in Madison and Racine

If we compute rates per 1000 juveniles by age, by year, and by area, holding operational definitions of delinquency constant, we may speak about variation in delinquency by year and place. Police contact rates for the period 1950 through 1955 in Madison and 1950 through 1960 in Racine varied from year to year but there has been neither a monotonic nor any other clearly discernible trend[7] (See Table I).

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[7]All rates for juveniles in Madison and Racine were based on those aged 6 through 17. Annual data by elementary school districts were obtained from the Office of the Superintendent of Schools in each city. Since Racine officers did not make a record of all contacts for juveniles for investigation prior to 1959, and the studies to which we refer cover a relatively short space of time, the claim of increasing juvenile delinquency can not really be considered to have been well tested with the data at hand. Total police contacts for all reasons for the periods studied indicated that the rate for suspicion, investigation, and information was approximately three times as high in Madison as in Racine. This accounts for a considerable proportion of the difference between these two communities in total contact rates. But the point is that a definite upward trend in rates of police contact does not exist.

TABLE I

DELINQUENT AND OTHER ACTS RESULTING IN POLICE CONTACT: COMPARING MADISON AND RACINE, WISCONSIN BY YEARS+

Year	Acts per 1000 Juveniles	
	Madison	Racine
1950	75.9*	68.7
1951	156.4	71.5
1952	146.5	62.2
1953	126.4	53.7
1954	163.2	44.8
1955	152.3	46.2
1956		73.7
1957		83.9
1958		116.6
1959		138.6***
1960		121.2
Mean	138.1	84.0
	$\chi^2 = 193.7$, $p < .001$**	$\chi^2 = 392.25$, $p < .001$**

+ Madison data covers the period 1950-1955, whereas Racine data covers the period 1950-1960.

* The rate for 1950 is about one-half that for the following year. Systematic recording of police contacts was commenced during the last half of 1950, being carefully conducted therefore for only about half of that year; 1950 is excluded from the Chi Square calculation, but essentially the same finding is made were it to have been included, i.e., year-to-year variation is statistically significant.

** In ordinary language, a difference as great as this could not have occurred by chance more than once in a thousand times.

*** Commencing in 1959, all Racine juveniles contacted for investigation were recorded, bringing recording procedures into balance with the system prevailing in Madison. This may account for the disproportionally high rate of contacts in Racine for 1959.

In Table II, average acts per 1000 juveniles per year in Madison and Racine are presented by areas; more variation in rates occurs from area to area in Madison than in Racine.

An examination of police contact rates by school districts enables one to gain an even better picture of the distribution of delinquency in these cities. Considering the various school districts in Madison separately, the range of average contacts per year per 1000 juveniles aged 6 through 17 is from 58 to 238; in Racine the range is from 44 to 144. The distribution of police contacts per 1000 juveniles per year within the social areas of both Madison and Racine is graphically presented on pages 10 and 11. The difference between Madison's and Racine's pattern of variation in school district police contact rates within the three social areas is clearly seen. In the case of Madison, police contact rates were sufficiently homogeneous within social areas but different between social areas so as to present three distinctly different police contact rates by area. But, as has been indicated, this was not the case in Racine; the Racine map enables one to see how widely varying contact rates in school districts of different sizes combine to present the data in Table II.

The fact that Madison was divided into three clusters of school districts, the school districts in each cluster physically contiguous to others in the cluster and making up three fairly distinct spatial and social wholes, as contrasted to Racine with three areas, but not contiguous school districts, accounts in part for two of the areas in Racine having similar rather than distinctly different juvenile contact rates.

The data, when presented by areas, also suggest a proportionately broader distribution in Racine than in Madison of whatever generates delinquency as measured by police contacts (if the overall lower police contact rates of Racine school districts may be disregarded at this point since, as we have stated, they may be explained by factors other than the actual incidence of delinquent behavior in the two cities). This is not surprising since a larger proportion of Racine's than of Madison's population consists of industrial workers. If delinquency is generated at a comparably higher rate within a given city in the lower, or so-called working class subculture, than in the subculture of higher level socio-economic groups, then the rates found in the two highest delinquency areas in Racine

appear reasonable and consistent with the characteristics of the city.

TABLE II

DELINQUENT AND OTHER ACTS RESULTING IN POLICE CONTACTS: COMPARING MADISON AND RACINE, WISCONSIN BY SOCIAL AREAS OF EACH CITY

Socio-Economic Status of Area	Average Acts per 1000 Juveniles per Year	
	Madison*	Racine**
Lowest	193.0	105.4
Middle	137.9	97.6
Highest	66.0	51.7
Mean	138.1	84.0
	$\chi^2 = 665.4$, $p < .001$	$\chi^2 = 231.61$, $p < .001$

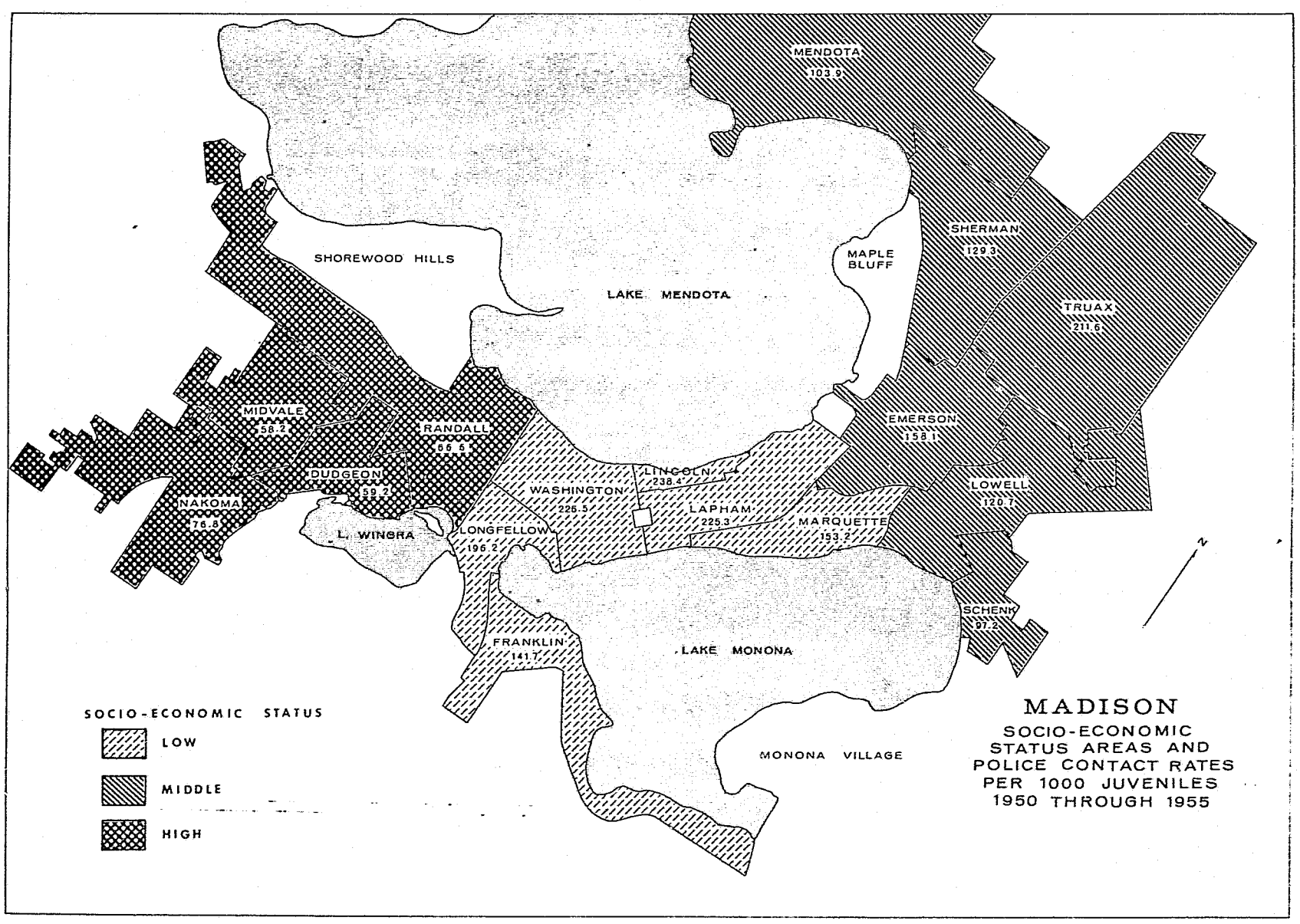
* The lowest area contained 39.97% of the juvenile population of Madison, 1950-1955; the middle area, 29.61%; the highest area, 30.40%.

** The lowest area contained 36.46% of the Racine juvenile population, 1950-1960; the middle area, 27.80%; the highest area, 35.75%.

When juvenile delinquency rates are examined within areas on a year by year basis, as shown in Table III, we find considerable variation but even less indication of a monotonic rise in delinquency rates from the first to the last year in either the Racine or Madison samples. All of this suggests that rather than delinquency rates being generated by juveniles in interaction with each other (juveniles being the instigators, so to speak) and adults as participants in an ongoing social system, there are exterior factors (characteristics of persons other than juveniles) which may be determinants of rates. In other words, the determinants of delinquency are, at least in part, outside the subculture.

Specific Reasons for Police Contact in Madison and Racine by Areas

Tables IV A and B show the specific reasons for police contact per 1000 juveniles per year by areas for both Madison and Racine. All low socio-economic area rates, regardless of reason for contact, were higher than expected in Madison and in Racine, and all high socio-economic area


MENDOTA
103.9
SHERMAN
129.3
MAPLE BLUFF
SHOREWOOD HILLS
LAKE MENDOTA
TRUAX
211.6
MIDVALE
58.2
RANDALL
66.5
EMERSON
158.1
DUDGEON
59.2
LINCOLN
238.4
WASHINGTON
226.5
LAPHAM
225.3
LOWELL
120.7
INAKOMA
76.8
L. WINGRA
LONGFELLOW
196.2
MARQUETTE
153.2
SCHENK
97.2
FRANKLIN
141.7
LAKE MONONA
MONONA VILLAGE
SOCIO-ECONOMIC STATUS
LOW
MIDDLE
HIGH
MADISON
SOCIO-ECONOMIC STATUS AREAS AND POLICE CONTACT RATES PER 1000 JUVENILES 1950 THROUGH 1955

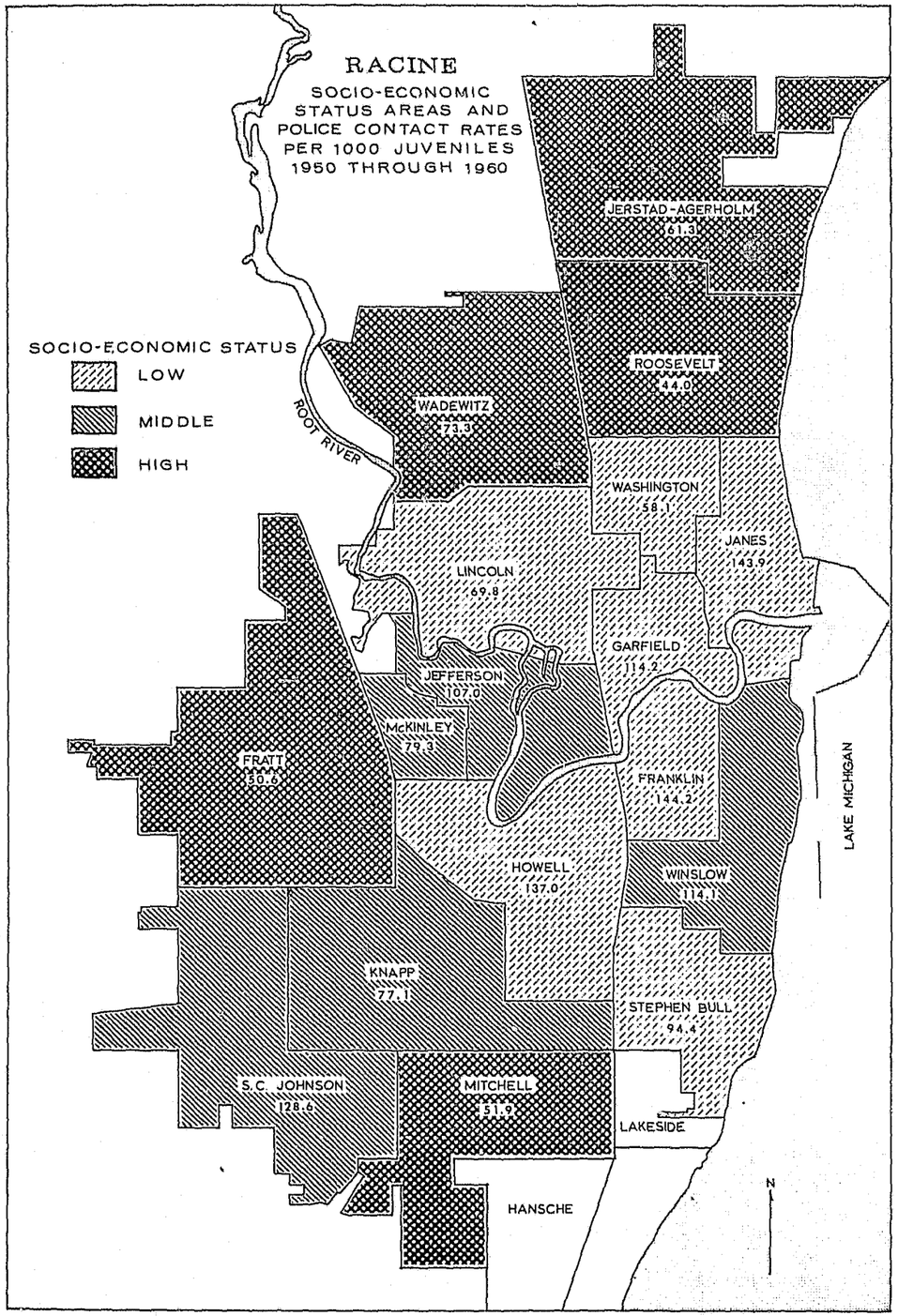

RACINE
SOCIO-ECONOMIC STATUS AREAS AND POLICE CONTACT RATES PER 1000 JUVENILES 1950 THROUGH 1960
SOCIO-ECONOMIC STATUS
LOW
MIDDLE
HIGH
ROOT RIVER
JERSTAD-AGERHOLM 61.3
ROOSEVELT 44.0
WADEWITZ 73.3
WASHINGTON 58.1
JANES 143.9
LINCOLN 69.8
GARFIELD 114.2
JEFFERSON 107.0
McKINLEY 79.3
FRATT 30.6
FRANKLIN 144.2
HOWELL 137.0
WINSLOW 114.1
LAKE MICHIGAN
KNAPP 77.1
STEPHEN BULL 94.4
S.C. JOHNSON 128.6
MITCHELL 51.9
LAKESIDE
HANSCHE
N

TABLE III

DELINQUENT AND OTHER ACTS RESULTING IN POLICE CONTACTS: COMPARING SAMPLE OF MADISON AND RACINE JUVENILES BY YEARS AND AREAS OF EACH CITY

	Madison		Racine	
	Acts per 1000 Juveniles per Year	Rank Order of Rates from Highest to Lowest by Combination of Years and Areas*	Acts per 1000 Juveniles per Year	Rank Order of Rates from Highest to Lowest by Combination of Years and Areas
		Lowest Socio-Economic Area		
1950	102.9		75.0	16
1951	226.6	2	98.7	8
1952	199.1	4	79.3	14
1953	176.8	5	68.7	20
1954	231.7	1	55.5	24
1955	221.0	3	49.3	26
1956			97.5	9
1957			98.9	7
1958			147.2	4
1959			182.1	2
1960			189.9	1
		Middle Socio-Economic Area		
1950	68.4		83.4	12
1951	139.6	9	62.3	22
1952	148.9	8	81.9	13
1953	127.0	10	68.8	19
1954	171.9	6	50.6	25
1955	157.8	7	59.2	23
1956			85.0	11
1957			88.1	10
1958			139.5	5
1959			177.3	3
1960			116.5	6
		Highest Socio-Economic Area		
1950	39.0		47.8	27
1951	69.3	14	42.6	28
1952	70.7	13	27.2	32
1953	60.3	15	25.5	33
1954	74.6	11	29.6	31
1955	74.1	12	31.0	30
1956			39.6	29
1957			64.3	21
1958			73.3	17
1959			76.9	15
1960			72.2	18

*It will be remembered that rates for 1950 were about one-half those for the following year. Since systematic recording of police contacts was commenced in 1950 but carefully conducted for only about half of that year, 1950 is excluded from rankings in this column of the table.

TABLE IV A

DELINQUENT AND OTHER ACTS RESULTING IN POLICE CONTACTS:
COMPARING MADISON AND RACINE, WISCONSIN BY SPECIFIC ACTS AND AREAS OF CITY
SAMPLE OF CITY OF MADISON JUVENILES FROM FILES OF CRIME
PREVENTION BUREAU, 1950-1955

Acts	Average Acts per 1000 Juveniles per year Madison Socio-Economic Areas			
	Lowest[1]	Middle[2]	Highest[3]	Total
1. Incorrigible, Runaway	34.1	+30.0	13.6	26.7
2. Disorderly Conduct	31.8	-22.4	14.1	23.7
3. Contact--Suspicion, Investigation, Information.	25.9	+17.8	6.5	17.6
4. Theft	23.4	-13.3	4.4	14.6
5. Traffic (Operation)	16.5	-12.4	11.5	13.7
6. Vagrancy.	19.8	-12.9	4.3	13.0
7. Liquor.	9.2	+ 7.8	1.7	6.5
8. Burglary.	4.8	+ 4.2	.7	3.4
9. Auto Theft.	4.2	- 2.9	1.8	3.1
10. Sex Offenses.	2.1	1.2	.2	1.3
11. Traffic (Parking)	1.3	- .9	.9	1.1
12. Truancy	1.1	+ 1.0	.5	.9
13. Assault	.8	.4	.0	.4
14. Violent Property Destruction				
15. Forgery				
16. Weapons				
17. Robbery				
18. Fraud	2.7	- 1.0	.9	1.7
19. Gambling.				
20. Escape.				
21. Obscene Literature.				
22. Narcotics and Drugs				
Other Delinquent Acts	7.4	- 5.0	2.2	5.1

[1]All Low Socio-Economic Area acts higher than expected.
[2]+ indicates higher than expected and - indicates lower than expected.
[3]All High Socio-Economic Area acts lower than expected.

TABLE IV B

DELINQUENT AND OTHER ACTS RESULTING IN POLICE CONTACTS: COMPARING MADISON AND RACINE, WISCONSIN BY SPECIFIC ACTS AND AREAS OF CITY SAMPLE OF CITY OF RACINE JUVENILES FROM FILES OF CRIME PREVENTION BUREAU, 1950-1960

Acts	Average Acts per 1000 Juveniles per Year: Racine Socio-Economic Areas			
	Lowest[1]	Middle[2]	Highest[3]	Total
1. Disorderly Conduct	17.5	+17.4	8.3	14.2
2. Traffic (Operation)	15.0	15.9	11.2	13.9
3. Incorrigible, Runaway	18.6	+13.8	8.9	13.8
4. Theft	17.0	+13.9	7.1	12.6
5. Contact--Suspicion, Investigation, Information	7.3	+ 7.1	3.1	5.7
6. Vagrancy	5.6	+ 5.0	2.5	4.3
7. Liquor	4.2	+ 5.8	2.4	4.0
8. Burglary	3.7	+ 3.1	.7	2.5
9. Sex Offenses	3.1	+ 1.8	1.8	2.3
10. Auto Theft	2.4	+ 3.0	.9	2.1
11. Assault	1.3	+ 1.2	.3	.9
12. Truancy 13. Violent Property Destruction. 14. Weapons 15. Escape 16. Forgery 17. Traffic (Parking) 18. Obscene Literature 19. Robbery 20. Fraud 21. Gambling 22. Narcotics and Drugs	4.5	+ 5.2	2.3	3.9
Other Delinquent Acts	5.1	+ 4.4	2.1	3.8

[1]All Low Socio-Economic Area acts higher than expected.
[2]+ indicates higher than expected and - indicates lower than expected.
[3]All High Soci-Economic Area acts lower than expected

rates were lower than expected. In Madison, some middle socio-economic area rates were higher than expected and some lower than expected, but in Racine all but two categories of contacts had higher rates than expected. The middle socio-economic area rates in both Madison and Racine were higher or lower than expected suggesting the pattern of the lowest socio-economic area rather than of the highest socio-economic area.

The data indicate that there has been more emphasis on recording traffic violations by juveniles in Racine than in Madison, and as we have previously indicated, contacts by the police in connection with investigations have been recorded more systematically in Madison than in Racine. It might further be said that the very high rates of police contact in Madison for incorrigibility and runaway, and disorderly conduct, as well as contacts for suspicion, investigation, or information, reveal that police in Madison have recorded less serious contacts to a greater extent than in Racine. When specific types of more serious reasons for police contact are considered such as burglary, auto theft, and sex offenses, it is noted that the difference between Racine and Madison is not nearly as great. Furthermore, one cannot help but notice the low rate of contacts for suspicion, investigation, or information in the highest socio-economic status areas in both Madison and Racine. This does not necessarily mean that police go out of their way to generate delinquent contacts in lower socio-economic status areas; it is more likely a consequence of who engages in, and where, visible types of delinquency occur, and from whom the police are most likely to obtain information on the delinquent acts of which they are aware.

In Table V we have reduced the number of reasons for police contact to the categories in which contacts most frequently appear. These are presented as percent of the total acts resulting in police contact for each area; the data are thus set up in such a way as to more readily indicate spatial (socio-economic) differences between Madison and Racine.

When the two lowest socio-economic status areas in Madison and Racine (those having the highest delinquency rates) are compared, they seem to differ most in terms of Madison's disproportionately high number of contacts for vagrancy and for suspicion, investigation, or information, as contrasted to Racine's disproportionately high number of contacts for

TABLE V

DELINQUENT AND OTHER ACTS RESULTING IN POLICE CONTACTS: COMPARING MADISON AND RACINE BY CATEGORIES OF ACTS AND AREAS OF CITY

	A. Percent of Total Acts Per Area						B. Percent of Total Contacts		C. Average Acts per 1000 Juveniles per Year	
	Lowest Socio-Economic Area		Middle Socio-Economic Area		Highest Socio-Economic Area					
	Madison	Racine	Madison	Racine	Madison	Racine	Madison	Racine	Madison	Racine
1. Incorrigible, Runaway, Truancy	18.27	18.88	22.49	15.08	21.29	17.80	19.96	17.42	27.55	14.63
2. Disorderly Conduct	16.50	16.64	16.25	17.80	21.29	16.14	17.13	16.90	23.65	14.20
3. All Theft, Burglary	16.73	22.00	12.54	20.52	10.42	16.97	15.24	20.42	21.02	17.15
4. Contact	13.43	6.88	12.91	7.26	9.81	5.99	12.76	6.81	17.60	5.71
5. All Traffic Offenses	9.19	14.48	9.65	16.55	18.73	21.96	10.71	16.79	14.78	14.11
6. Vagrancy	10.25	5.28	9.35	5.10	6.49	4.83	9.44	5.12	13.02	4.30
7. Liquor	4.75	4.00	5.64	5.90	2.65	4.66	4.70	4.76	6.49	3.99
8. Other Incl. Non-delinquency	10.84	11.84	11.13	11.79	9.36	11.65	10.06	11.78	-	9.89
Total	99.96	100.00	99.96	100.00	99.95	100.00	100.00	100.00	138.08	83.98

traffic violations and theft and burglary.

Turning to the highest socio-economic status areas in Madison and Racine, we note that theft and burglary constitute a much greater proportion of Racine's contacts while contacts for incorrigibility, disorderly conduct, and for suspicion, investigation, or information are greater in Madison. This again indicates that delinquency of more serious types accounts for a greater proportion of Racine's delinquency than it does of Madison's delinquency.

In the two intermediate areas there are disproportionately high numbers of contacts for incorrigibility, runaway, and truancy in Madison and a disproportionately high number of contacts for traffic in Racine.

When we look at the total picture for Racine the disproportional contribution of theft and burglary to delinquency shows up as does the disproportional contribution of traffic. When we turn to rates per 1000 juveniles per year, theft and burglary are highest for Racine, and incorrigible, runaway, and truancy are highest for Madison. As someone remarked, Racine has a better quality of delinquent youths than does Madison.

Within a sociological framework of reference, the differences between the two cities are meaningful, not just in that Madison has a higher rate of police contact, but in the fact that Madison's pattern of contacts differs from that of Racine's; the general picture seems to be one of police effort directed towards more serious offenses in Racine, the industrialized city, but towards general juvenile misbehavior in Madison, the center of learning and government. The overall higher rate of police contact with Madison juveniles supports the hypothesis of delinquency being generated by either relatively independently established police policy or community and professional pressures on police to report contacts. The pattern of differences between the two cities lends some evidence to the hypothesis that delinquency is generated as a consequence of the organization of society in such a way that the lower socio-economic groups form a subculture of socially and economically deprived persons, a subcultural group in conflict with the larger society. This subcultural group has developed and solidified in response to the position of lower socio-economic status groups within a society organized in such a way that rewards of the society appear, and are in fact, more readily obtainable by those

in the middle and upper socio-economic groups than by those in the lower stratum of the society.[8] Delinquent behavior is generated among juveniles in lower socio-economic areas in response to their perception of delinquency as an alternative pattern of behavior--a rewarding technique of adjustment that is either desirable as a reaction to the organization of society or desirable in itself.

Disposition of Police Contact by Years in Madison and Racine

Juvenile court judges, professional personnel attached to the juvenile court, and county probation officers see juvenile delinquency somewhat differently than do police officers and juveniles. Juveniles know what is happening in the groups of which they are a part, police officers have contacts with juveniles in the process of monitoring them and as they are called upon to answer complaints or provide information to the court. But the judge and those associated with him are concerned, in the main, with those juveniles who have been referred to the court by the police. If referrals increase, juvenile delinquency has increased, as they perceive it. Thus, a change in police policy in response to community concern is likely to generate additional concern by the court and its staff. The public utterances of juvenile court judges, coming from persons in authority, as they are, must have its consequences in the community at all levels. It is for this reason that referral rates are of importance, not so much as a measure of delinquent behavior but as an indication of how the community and persons in positions of authority are responding to the behavior of juveniles.

The referral rates in the first two columns of Table VI show the number of juveniles per 1000 aged 6 through 17 with whom police have had contact and referred to the juvenile court or county probation office for official disposition. The expected values for the Chi Squares were based on the number of referrals that would have been expected had referrals been proportionate to contacts each year of the study. Knowing what we do about

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[8]Reference should be made to two parallel and compatible points of view: Walter Miller's "Lower Class Culture as a Generating Milieu of Gang Delinquency," *The Journal of Social Issues*, Vol. 14, No. 3 (1958), pp. 5-19; and Albert K. Cohen, *Delinquent Boys: The Culture of the Gang*, Glencoe, Illinois, The Free Press, 1958.

TABLE VI

DELINQUENT AND OTHER ACTS RESULTING IN POLICE CONTACT AND REFERRAL: COMPARING MADISON AND RACINE, WISCONSIN BY YEARS

Year	Referrals per 1000 Juveniles*		Percent of Contacts Referred		Number of Contacts per Referral	
	Madison	Racine	Madison	Racine	Madison	Racine
1950	11.2	17.7	*14.7*	*25.8*	6.8	3.9
1951	22.9	17.3	*14.6*	*24.2*	6.8	4.1
1952	69.4	21.0	*47.4*	*33.8*	2.1	3.0
1953	64.8	22.8	*51.2*	*42.5*	1.9	2.4
1954	76.8	16.5	*47.0*	*36.8*	2.1	2.7
1955	74.1	11.4	*48.6*	*24.6*	2.0	4.1
1956		19.0		*25.8*		3.9
1957		23.5		*27.9*		3.6
1958		26.4		*22.6*		4.4
1959		21.6		*15.6*		6.4
1960	___	24.2	___	*20.0*	___	5.0
Mean	55.1	20.4	*39.9*	*24.4*	2.5	4.1
	$\chi^2 = 248.5$ $p < .001$**		$\chi^2 = 54.48$ $p < .001$**			

* It must be remembered that referral rates are influenced by differences in contact rates.

** In computing χ^2, expected referrals based on the number of acts observed by police each year and proportion of juvenile acts referred in the city (Madison = 39.92%, Racine = 24.37%).

contact and referral procedures in Madison and Racine we would expect each year's referral rates per 1000 juveniles to be lower for Racine than for Madison. The increasing referral rate for Madison coincides with the development of a juvenile bureau and emphasis on the professional handling of juvenile misbehavior. By contrast, the referral rate per 1000 juveniles of a given age in Racine has been relatively low for a 10-year period, but has been sufficiently erratic for the variation to be statistically significant.

During the first two years included in the study, Madison police referred relatively few of their juvenile contacts, but commencing in 1952 approximately half were referred. It is assumed that others were released although the disposition was not always given. In Racine, the proportion who have been referred reached a peak of 42 percent in 1953 but gradually declined thereafter. The decreasing percentage of juvenile contacts referred in Racine could be due to two factors: (1) increased attention to writing up contacts for suspicion, investigation, or information in which there would be little likelihood of referral, thus reducing the proportion who were referred, and; (2) police policy of dealing with a maximum number of contacts at the street level in more recent years. What is really important to note here is the fact that Racine's policy of minimum referrals resulted in Racine having a lower juvenile court delinquency rate than Madison, even with Racine's higher contact rates for some categories of serious delinquency. At the same time, Madison's policy of referring an increasingly larger proportion of its juvenile contacts with police has resulted in the county probation officer and the juvenile court being confronted by an increasingly large number of delinquents for official disposition and an impression of rapidly increasing juvenile delinquency[9].

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[9]For example, Madison delinquency and traffic referrals increased from 770 per year in 1952 to 1788 per year in 1959. Commencing in 1957, traffic referrals were listed separately and comprised somewhat over 500 cases per year out of the total. But during the same period, Racine had referrals ranging from 48 to 128 per year but with no patterned increase. Traffic cases were almost never dealt with either officially or unofficially in the juvenile court in Racine. See: U.S. Departmeny of Health, Education and Welfare, Social Security Administration, *Children's Bureau, Statistical Series, Juvenile Court Statistics*, #18 (1950-52); #28 (1953); #31 (1955); #41 (1956); #52 (1957); #57 (1958); #61 (1959); and #65 (1960).

Basic juvenile police contact and referral data are presented in Table VII. Of most interest in this table is the difference in the percentage of police contacts that were referred for general categories of police contact in Madison compared to Racine. Only for traffic contacts did Racine police refer as frequently as did Madison police. Within each city, the proportion who were referred for different categories of police contact differ so grossly on a percentage basis as to make the two cities quite unlike each other.

The highest referral rate for Madison was for theft and burglary, while the highest for Racine was for traffic. In fact, all specific referral rates were higher in Madison than in Racine. Only traffic and various forms of theft had referral rates of approximately 5 or more per 1000 juveniles per year in Racine while most Madison rates exceeded this.

Both cities reported about 24 percent of their juvenile referrals for auto theft, theft, and burglary, but here the similarity ended. The largest proportion of Madison's police contacts was for incorrigibility, runaway, and truancy, but Racine had its largest percentage of contacts for auto theft, theft, and burglary. While only 17 percent of Madison's referrals were for traffic violations, almost half of Racine's were in this category.[10]

Summary

The full extent of juvenile misbehavior is known for neither Racine nor Madison. But we do know something about the extent to which juveniles have had contact with the police year by year, and why they have had contact with them--and these data are as close to the full extent of

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[10]A distinguished sociologist once remarked that the automobile is our greatest killer. When he made this statement before a women's club in an elite section of his community they were quite disappointed that he chose the automobile and deaths from traffic accidents as a topic rather than the subject of sex slayings, a type of behavior in which they could not conceive themselves as engaging. Perhaps they could only too readily see themselves in the killer role while driving an automobile under the influence of liquor. Considering the fact Madison's contact rate was not six times greater than that of Racine for incorrigibility, runaway and truancy, and the disorderly conduct rate was not ten times as great as that for Racine, the difference in referral rates between the two cities is striking.

TABLE VII

DELINQUENT AND OTHER ACTS RESULTING IN POLICE CONTACT AND REFERRAL: COMPARING MADISON AND RACINE BY REASON FOR REFERRAL

Delinquent Acts	Average Referrals per 1000 Juveniles		Percent Referred		Percent of Total Contacts		Percent of Total Referrals	
	Madison	Racine	Madison	Racine	Madison	Racine	Madison	Racine
1. All Theft, Burglary	13.4	4.8	*63.5*	*28.1*	*15.2*	*20.4*	*24.3*	*23.6*
2. All Traffic Offenses	9.7	9.9	*65.6*	*69.9*	*10.7*	*16.5*	*17.6*	*48.2*
3. Incorrigible, Runaway, Truancy	9.4	1.5	*34.1*	*10.1*	*20.0*	*17.4*	*17.1*	*7.2*
4. Disorderly Conduct	6.3	.7	*26.8*	*4.5*	*17.1*	*16.9*	*11.5*	*3.2*
5. Vagrancy	5.2	.3	*39.8*	*5.7*	*9.4*	*5.1*	*9.4*	*1.2*
6. Contact	4.0	.1	*22.7*	*2.2*	*12.8*	*6.8*	*7.3*	*.6*
7. Liquor	3.7	.7	*57.0*	*16.9*	*4.7*	*4.8*	*6.7*	*3.3*
8. Other, Incl. Non-delinquency	3.4	2.6	*24.7*	*26.4*	*10.1*	*12.0*	*6.2*	*12.8*
Total	55.1	20.6	*39.9*	*24.4*	*100.0*	*99.9*	*100.1*	*100.1*

juvenile misbehavior as any measure that we have.

The focus of this report, however, is not on the actual rate of contact in these two communities, but on differences in reasons for police contact, variation by year, variation by area of the community, and variation in referral policy. We have repeatedly stated that there are two parallel but not necessarily conflicting explanations for the patterns of police contact observed in Madison and Racine. One explanation hypothesizes that contacts represent juvenile misbehavior generated within a social context, behavior generated as a result of the organization of the community, behavior generated within a social system that operates in such a way as to give greater social and economic advantages to juveniles in the highest socio-economic groups.

That Racine is an industrial community with differences of such a nature that a so-called "working class" or lower socio-economic subculture is more likely to have developed than in Madison is an important difference between the two communities that must be considered at the outset. But the fact that the characteristics of these two cities may differ in such a fashion as to generate more social class conflict or subcultural conflict in one than in another is only part of the picture--to what extent community differences explain "real" differences in patterns of delinquent behavior in juveniles we still cannot say.

We have also pointed out that the social organization of the community may be such that differences in attitude toward juvenile misbehavior exist on the part of those who make decisions about the extent to which various types of juvenile misbehavior should be tolerated or dealt with officially. We must consider not only to what extent differences in the social organization of Madison and Racine generate different juvenile misbehavior but also to what extent they generate differences in police policy. If persons in decision-making positions in the two communities perceive juvenile misbehavior differently they are likely to translate it into somewhat diverse actions on the part of the police who contact and work with the juvenile population. Thus, contact and referral patterns may differ from community to community, from area to area in the community, and from offense to offense not only on a basis of how the community is organized and how people earn their living, but likewise in ways that

are related to differences in ethnic background, world view, and a host of other adult and juvenile social characteristics that are determinants of police policy. We have not mentioned specific differences in the two communities aside from differences in their economies, but the fact that Racine's population differs ethnically and religiously from that of Madison must also be taken into consideration in understanding how adults perceive juvenile misbehavior.

Our findings are based to some extent on differences in juvenile behavior, but also on how the adults in the community differ in the way they look at this behavior and the manner in which they expect their perceptions to be translated into official action. Contact rates are more representative of what juveniles are doing, but referral rates are more representative or indicative of how adults differently perceive what juveniles are doing--and therein we have a large part of the explanation of why both contact rates and referral rates differ in Madison and Racine.

II

MEASURING JUVENILE DELINQUENCY: A COMPARISON OF TWO ATTEMPTS AT SCALING JUVENILE DELINQUENCY

Introduction

In our preliminary report, *Juvenile Delinquency in Madison and Racine*, it was emphasized that research on juvenile delinquency has been hampered by our failure to make sufficient progress on two basic problems: (1) the development of a scale of the seriousness of offenses resulting in police contact with juveniles, and; (2) the development of a scale that combines individual offenses into some theoretically meaningful quantitative measure of the seriousness of delinquent careers. Although there has been a large literature on the subject of measuring juvenile delinquency, no satisfactory conclusion has been reached on exactly how serious one offense is compared to another and how multiple offenses should be combined into a seriousness-of-career scale.[1]

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[1]The entire literature on measuring the extent of delinquency and various attempts to develop scales will not be mentioned in this report. An early study by Sophia M. Robison, *Can Delinquency be Measured?*, New York, Columbia University Press, 1936, is a good starting point for those who would like an introduction to the problem. A later and very thorough approach may be found in Thorsten Sellin and Marvin Wolfgang's, *The Measurement of Delinquency*, New York, John Wiley & Sons, 1964, particularly Chapters 5, 8, 18, and 20, pp. 55-70, 114-130, 292-318, and 334-349. A variety of papers have also appeared on the scaling problem: F. Ivan Nye and James F. Short, Jr., "Scaling Delinquent Behavior," *American Sociological Review*, Vol. 22, No. 3, (June, 1957), pp. 326-331; James F Short, Jr., "Psychosomatic Compaints, Institutionalization, and Delinquency," *Research Studies of the State College of Washington*, Vol. XXIV, No. 2, (June, 1956), pp. 150-159; William R. Arnold, "Continuities in Research: Scaling Delinquent Behavior," *Social Problems*, Vol. 13, No. 1, (Summer, 1965), pp. 59-66; John P. Clark and Larry L. Tifft, "Polygraph and Interview Validation of Self-reported Deviant Behavior," *American Sociological Review*, Vol. 31, No. 4, (August, 1966), pp. 516-523; Lois B. De Fleur, "On Polygraph and Interview Validation," *American Sociological Review*, Vol. 32, No. 1 (February, 1967), pp. 114-115 and a reply by Clark and Tifft, pp. 115-117; James F. Short and F. Ivan Nye, "Reported Behavior

In an earlier paper, and in a preliminary report,[2] it was concluded that attempts to scale delinquency (categories of police contact with juveniles were utilized as the basis for scaling), in Madison and then later in Racine, cast considerable doubt on both the hypothesis of uni-dimensionality and the hypothesis of distinctive types of delinquent careers. In the Madison sample, the 10 most numerous categories of police contact, males and females combined, were selected for the initial scaling attempt. The coefficient of reproducibility was .900, but the minimum coefficient of reproducibility was .835, indicating very little improvement in reproducibility above that which was possible from the modal categories of the marginals. Relatively few of the delinquents had what could be called a career in delinquency. Predictability was high from the modal categories of the marginals because a large proportion of the juveniles had had contact for only one of the 10 different categories of police contacts used in this scaling attempt. A second scaling attempt in which only seven categories were employed, thus reducing the sample of juveniles who had one or more contacts of the seven types included in the scale from 1553 to 926, had a coefficient of reproducibility of .906, but a minimum coefficient of reproducibility of .808--still little improvement over minimum reproducibility. Again, minimum reproducibility was high because such a large proportion of the juveniles included in the sample had

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as a Criterion of Deviant Behavior," *Social Problems*, Vol. V, No. 3, (Winter, 1957-58), pp. 207-213; John P. Clark and Eugene P. Wenninger, "Socio-Economic Class and Area as Correlates of Illegal Behavior Among Juveniles," *American Sociological Review*, Vol. 27, No. 6 (December, 1962), pp. 826-834; and Austin P. Porterfield and C. Stanley Clifton, *Youth in Trouble*, Fort Worth, The Leo Potishman Foundation, 1946.

[2]Lyle W. Shannon, "Scaling Juvenile Delinquency," *Journal of Research in Crime and Delinquency*, (January, 1968), pp. 52-65. The first scale with ten categories of police contact and the number of juveniles with at least one contact of that type are as follows: Incorrigibility, 577; disorderly conduct, 505; contact for suspicion, investigation, or information, 384; vagrancy, 269; traffic--operating and parking, 267; theft, 252; liquor offenses, 140; burglary, 63; auto theft, 63; sex offenses, 35. The second scale with seven categories of police contact and the number of juveniles with at least one contact of that type are as follows: Disorderly conduct, 505; vagrancy, 269; theft, 252; liquor offenses, 140; burglary, 63; auto theft, 63; sex offenses, 35.

only one type of police contact.

Scaling police contacts with juveniles did not permit the unambiguous ranking of juveniles from those whose behavior has been chance or sporadic and confined to behaviors perceived as only minor trasgressions at one extreme, to those who have engaged in the entire spectrum of delinquent acts, including the most serious, at the other extreme. The facts of the case are that very few juveniles had engaged in the entire spectrum of delinquent acts and only a portion of what they had done had been recorded by the police. Very few juveniles had engaged in even the seven or 10 most frequently appearing categories out of the 25 categories of delinquent acts resulting in police contact, as we categorized them. Had all 25 categories for police contact been included in a scaling attempt rather than only the 10 most frequent reasons or the seven most frequent reasons, the results would have been even less reproducible or scalable.

Since the coefficient of reproducibility for Racine police contacts was only .8981, with a minimum coefficient of reproducibility of .8449, it cannot be said that the data constituted a Guttman scale.

Doubtless, there are juveniles who progress from less serious to more serious types of offenses, but this cannot be equated with the hypothesis that all or most juvenile careers can be placed on a continuum from those who have had police contacts for the complete range of offenses included in our classification system to those who have had police contacts for only those categories of behavior in which almost all juvenile delinquents have engaged.

The distribution of Guttman scores for the total juvenile group in Madison and Racine is shown in Table I as a basis for comparison with the proportions in each soci-economic status area. Perusal indicates that Guttman scores are disproportionately distributed between social areas but the differences were not sufficient to be statistically significant.

Guttman vs. Geometric Scale Scores as a Basis for Comparing Madison and Racine

Our next step was to construct a Geometric scale with precisely the same data as that utilized in the Guttman scale. A word should now be

said about the nature of Geometric scale scores as contrasted to Guttman scale scores. A Guttman scale score stands for only one set of responses, assuming no errors, and represents a position on a continuum from a minimum amount of something to a maximum amount of whatever is being measured by the scale. A person with the highest Guttman score would have had contact with the police for all of the 10 categories of offenses.

TABLE I

PERCENTAGE DISTRIBUTION OF GUTTMAN TYPE DELINQUENCY SCORES FOR MADISON AND RACINE, WISCONSIN, BY SOCIO-ECONOMIC STATUS AREAS

Guttman Scale Scores	Percentage Distribution of all Guttman Scores	Percentage Distribution Observed by Socio-Economic Status Areas			Percentage Distribution of all Guttman Scores	Percentage Distribution Observed by Socio-Economic Status Areas		
		Low	Middle	High		Low	Middle	High
0	38.1	38.5	37.4	38.0	42.1	43.8	41.3	40.1
1	23.4	20.8	25.4	26.7	18.1	14.1	18.3	24.7
2	22.3	22.0	20.5	25.5	19.0	20.4	18.0	18.1
3	6.1	6.2	6.8	4.6	6.8	6.1	8.2	6.3
4	3.5	4.2	3.4	1.8	8.7	9.6	8.4	7.7
5	2.1	1.8	2.8	1.5	3.4	3.9	3.1	2.8
6	2.6	3.7	1.9	1.2	1.2	1.2	2.3	-
7	1.2	1.6	1.1	.3	.5	.6	.6	.4
8	.1	-	.4	-	.1	.2	-	-
9	.6	1.1	.2	.3	.1	.2	-	-
10	.1	.1	-	-	-	-	-	-
Total	100.1	100.0	99.9	99.9	100.0	100.1	100.2	100.1

By contrast, Geometric score 1 would go to a person who had a contact for that offense most frequently resulting in police contact by juveniles in the sample, a score of 2 would go to that juvenile who had a contact for the second most frequent category, and a score of 4 would go to that juvenile who had a contact for the third most frequent contact category and so on until every contact category had received a basic score. A

juvenile who had a police contact for the least frequent contact category (presumably the most "serious" and probably murder), would have a very high score even if this were his only police contact. The person who had a contact for the most frequent category of contacts and the next most frequent category would have a score of 3. The person who had contacts for the first, second and third categories would have a score of 7, that is, one point for the most frequent category, two points for the next most frequent category and four points for the third most frequent category of police contacts. A person who had contacts for the four most frequent categories would have a score of 15, that is, one point for the most frequently occurring category, two for the next most, four for the next most, and eight for the next most frequent category of police contacts, or a total of 15. A person who had a contact for murder (assuming it to be the least frequent category) and all other categories of contact as well, would have a score of 2039--1024 for murder, 512 for the next least frequent category, and so on. One could go on at great length describing how various combinations of categories would result in different scores. Each Geometric score stands for only one combination of contacts. No two different combinations of police contact categories could have the same score. The higher a person's Geometric score, the more likely he is to have had a police contact for at least one infrequently recorded reason for police contact. The lower the score, the more likely that the juvenile has had contact for only the most frequently recorded reasons for polcie contact.

Police contacts for juveniles in Racine were classified following the same system as in Madison. The 10 most frequent reasons for contact selected for inclusion in the Racine scale included the same items as did the Madison scale with one exception. Contacts for suspicion, for investigation and for information were not in sufficient numbers to include in the Racine scale and assault and weapons were not included in the Madison scale.[3]

[3]Juvenile contacts, it will be remembered, were classified as follows: Robbery, burglary; theft (except auto); auto theft; disorderly conduct; vagrancy; liquor offenses; incorrigible and runaway; truancy; assault; sex offenses; narcotic and drug offenses; forgery; homicide; moving vehicle violations; all other traffic violations; weapons; fraud; family offenses; gambling; escapes; violent property destruction; contact; obscene literature; other.

The rank ordering of reasons for contact also varied but these differences were discussed at length earlier in this report.[4]

If delinquent careers consist of distinctive types rather than delinquency being a continuum of delinquent careers from the most serious who have had contacts for every category of offense to those who have had a contact for only the least serious category of offense, Geometric scaling should produce a menagerie of sociologically meaningful types. Sixty-seven percent of the juveniles fell into the 10 most frequent single offense categories. If we add to this the persons who had police contacts in two or three categories, 211 of them fell into the 11 most frequent patterns involving contact for more than one offense category. Thus, 80.4 percent of all juveniles in the sample were either in the single contact category or 11 most frequent combinations of two or three multiple contacts. Twenty-one different Geometric scores or types out of hundreds of possible combinations and permutations made up 80.4 percent of the total. But these results were obtained because most juveniles had either one or very few contacts, not because they sorted themselves out into a relatively small number of different, sociologically meaningful, combinations of police contacts. If we reduced the number of categories included to seven, as in the second scaling attempt, 90 percent of these juveniles were found in 17 different types of career patterns, if these could be called careers. It was necessary to conclude that the juveniles in the sample presented neither a sociologically meaningful continuum (Guttman scale score) of delinquent careers nor sociologically meaningful types (Geometric scale scores).

Similarly, 81.6 percent of the Racine juveniles were accounted for by single police contact types and a few double and triple patterns of police contact. In summary, two-thirds of the juveniles in Racine as in Madison had contacts for only one of the 10 offenses listed, and the remainder of the group had contacts for only two or three types of offenses. Indeed, both Madison and Racine juveniles constituted such a mixed bag that it is not possible to sort them into meaningful groups of de-

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[4]Lyle W. Shannon, "Types and Patterns of Delinquency in a Middle-Sized City," *op. cit.*

linquent types.

On the other hand, as shown in Table II, the disproportional appearance in low socio-economic status areas of juveniles with police contacts for the categories that generate a high Geometric score, and the disproportionally low appearance of juveniles with low Geometric scores in the high socio-economic status areas was so great that the difference was statistically significant at the .001 level for both Madison and Racine.

TABLE II

DICHOTOMIZED GEOMETRIC SCORES FOR RACINE AND MADISON, WISCONSIN

Dichotomized Geometric Scores	Socio-Economic Status Areas			
	Low	Middle	High	Total
		RACINE		
1-15	310 *63%*	223 *63%*	210 *73%*	743 *66%*
16-1023	181 *37%*	133 *37%*	77 *27%*	391 *34%*
Total	491 *100%*	356 *100%*	287 *100%*	1134 *100%*
	$\chi^2 = 9.97$, 2 d.f., $p < .01$			
		MADISON		
1-31	522 *69%*	330 *71%*	269 *83%*	1121 *72%*
32-1023	237 *31%*	138 *29%*	57 *17%*	432 *28%*
Total	759 *100%*	468 *100%*	326 *100%*	1553 *100%*
	$\chi^2 = 22.36$, 2 d.f., $p < .001$			

One further analysis of the set of scaling data was made. Since we started with the assumption that most juveniles go through a pattern of progression in their delinquent careers, those who have been in the sample for longer periods of time should have higher scale scores than those who have been in the sample for shorter periods of time, assuming that everyone in the sample engaged in their first delinquent behavior during the period of the study--if certain other assumptions may also be made. Unless all of the juveniles included in the set were in it at an early age, having commenced their delinquency at an early age, they would not have had an opportunity to fully develop their delinquent careers during the period of the study. The data would not be likely to scale even if del-

linquency is unidimensional unless the entire set had this uniform experience--although those who had not progressed to the most serious categories would have lower scale scores and those who had progressed would have higher scale scores there would be late starters with careers unlike the careers of delinquents who had commenced at an early age. This assumes that the point at which a career commences has an influence on the type of delinquent behavior in which the individual will engage. It is for this reason that the likelihood of producing an acceptable Guttman scale will be reduced unless an attempt is made to control for the onset of delinquency and time in the sample.

Guttman and Geometric Scales for a Cohort of Madison and Racine Juveniles

In order to control for the fact that some juveniles in the Madison and Racine samples had been exposed for greater periods of time than others, and that some had been exposed for the period of their juvenile career which was most likely to have been a delinquent career if they were to have one, while others were not, it was decided to spoon out or select from the total Madison and Racine samples, two groups of essentially the same age who had been exposed for what might be considered the critical period of their youth. The Madison cohort consisted of males born in 1938. The Racine cohort consisted of males born between 1943 and 1945.

These juveniles were rescaled, Madison and Racine separately; the distribution of their scale scores is presented separately and in relationship to the social areas of the city. The Madison 10-item scale had a coefficient of reproducibility of .864 and was therefore not considered scalable by Guttman criteria.[5] In essence, controlling for age and time

[5]The Madison items were ordered as follows: Disorderly conduct, 69; traffic offenses, 63; incorrigibility, runaway or truancy, 59; contact for suspicion, investigation or information, 58; theft, 47; vagrancy, 42; liquor offenses, 26; auto theft, 20; robbery or burglary, 11; and sex offenses, 4. Considering the distribution of contacts, there should have been 22 exact scale-type responses but there were only 24. This means that the observed exact scale-types were not significantly greater than chance - $\chi^2 = .238$. When the contact category having the highest error (incorrigibility, runaway, or truancy) was eliminated and a 9-item scale was constructed, the coefficient of reproducibility was .883, still not meeting the minimum standard. However, 33 exact scale-type responses were

in the sample did not produce a series of homogeneous careers although the proportion of single offense careers was lower than in previous scaling attempts. Although the lowest socio-economic status area had the largest proportion of high scores and the highest socio-economic status area had the lowest proportion of high scores, the overall difference was not statistically significant.

In Racine, the cohort born between 1943 and 1945 had been nine years in the sample. Essentially the same results were obtained as in the Madison scaling attempt. The coefficient of reproducibility was .888, not meeting the minimum requirements for a Guttman type scale.[6] These scores were distributed somewhat unevenly by areas--the largest number of high scores was in the middle socio-economic status area rather than in the area of maximum social deprivation.

Geometric scores for the Madison and Racine cohorts were also computed and here again, the proportion of low scores was reduced. Although the highest Geometric scores for Madison juveniles were in the lowest socio-economic status area and the lowest in the highest socio-economic area, the difference was not statistically significant. As in the case of Madison, each area had essentially the same range of distribution of Geometric scores; differences by social areas were not statistically significant.

In conclusion, it may be said that both the Madison and Racine cohorts, each with exposure for the maximum time period of the study and for the years that they were most likely to have had delinquent careers,

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expected and 46 observed, indicating a statistically significant improvement over expected at the .05 level of significance--$\chi^2 = 6.081$.

[6]The Racine items were ordered as follows: Disorderly conduct, 72; theft, 56; incorrigibility, runaway, or truancy, 51; traffic, 38; vagrancy, 30; auto theft, 17; robbery or burglary, 14; liquor offenses, 12; sex offenses, 9; and assault or weapons, 5. Considering the distribution of contacts, there would have been 36 exact scale-type responses on a basis of chance and there were 35, indicating that the scale did not result in improvement. As in the case of Madison, a re-run was made, eliminating the item with the greatest error (traffic). This produced a coefficient of reproducibility of .907. However, the expected number of exact scale-type responses was 47 and only 55 were observed, showing an improvement too small to not have occurred by chance--$\chi^2 = 1.726$.

were distributed along the entire range of the scale and skewed to the most delinquent end of the scale to a greater extent than was the total sample. One is led to believe that if the entire juvenile career of those in the total sample had been more adequately covered in the files of the Crime Prevention Bureau, we would have had a better test of the hypothesis of unidimensionality.

The case for unidimensionality of police contact data appeared somewhat bleak at this point. It was next decided that by collapsing police contacts into fewer categories, so as to reduce the number of juveniles with only one or two types of contacts, it might be possible to produce a meaningful continuum of delinquent careers rather than so many single category types.

Recoding and Rescaling the Data

The next step was to decide on a limited number of relatively homogeneous and sociologically meaningful categories of police contact under which all other categories of police contact could be subsumed. This would not only make the categories utilized in rescaling the data more meaningful, but would also increase the number of persons who had had a police contact or police contacts for categories utilized in the scaling operation. It will be recalled that in earlier scaling attempts, we selected the seven or 10 categories which most frequently occurred and eliminated all others. This not only reduced the number of police contacts included in the scaling operation, but also reduced the number of juveniles who had a contact for one or more of the categories included in the scaling operation. The following nine categories were decided upon: 1) theft; 2) theft involving force; 3) vices; 4) disorder or threats to order; 5) incorrigibility; 6) violence against persons and property; 7) sex offenses; 8) traffic offenses, and; 9) contacts for information, suspicion, or investigation.[7]

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[7]The nine categories included: 1) theft, auto theft, forgery, fraud; 2) robbery, burglary; 3) liquor, narcotics, and drugs, gambling; 4) disorderly conduct, vagrancy, family, obscene literature; 5) incorrigible, runaway, truancy, escapee; 6) assault, homicide, weapons, violent property destruction; 7) sex offenses; 8) traffic offenses, including moving vehicle; and 9) contact for information, suspicion, or investigation.

When this recoding had been completed, 1643 cases remained for Madison and 1166 for Racine. Police contacts were distributed among persons remaining in the sample in the manner described below.

The juveniles included in the Madison and Racine scaling attempts were distributed by social areas within the city as shown in Table III. High socio-economic status areas in both communities have a disproportional number of single contacts and the proportion of repeaters increases as one goes from high socio-economic status to low socio-economic status areas. It is also quite apparent that the proportion of Madison's low socio-economic status area persons who have more than a single police contact is considerably greater than that for Racine. These are the basic data which are dealt with in the remainder of this report; differences in the number of multiple contacts between Madison and Racine should result in somewhat higher scores for Madison than for Racine on any scale combining contacts into a total score. The nature of the data will also increase the scores for low socio-economic status areas over those for middle and high socio-economic status areas. In essence, the repetitiousness of police contacts by juveniles in the low socio-economic status areas will be combined with differences in the reasons for police contacts, increasing the differences between scores of the juveniles residing in low socio-economic status areas when compared with those residing in the middle and high socio-economic status areas.

The new set of Geometric scores for both Madison and Racine are presented in a simplified form in Table IV and, by social areas for Madison and Racine in Table V.

If there are distinctive types of delinquent careers, rather than saying that delinquency is a continuum, we should be able to construct a small menagerie of types from the Geometric scores. For the Madison sample, 59.5 percent of the juveniles fell into the nine categories utilized in the rescaling operation. If we add to this the persons who had police contacts for two or three reasons, 219 of them fell into the 24 most frequent patterns involving contact for more than one reason. This meant that 86.4 percent of all juveniles in the sample were either in the single contact category or 24 most frequent combinations of two or three multiple contacts. In other words, 33 different Geometric scores or types

TABLE III

DISTRIBUTION OF MADISON AND RACINE, WISCONSIN JUVENILES INCLUDED IN GUTTMAN AND GEOMETRIC SCALES BY TOTAL NUMBER OF POLICE CONTACTS

Number of Police Contacts	Percent of Each Social Area's Juveniles by Total Number of Police Contacts*							
	Madison				Racine			
	Socio-Economic Status Areas				Socio-Economic Status Areas			
	Low	Middle	High	Total	Low	Middle	High	Total
1	42.9	49.4	61.1	48.8	52.8	52.4	58.7	54.0
2	19.0	17.1	15.1	17.6	15.1	17.4	14.8	15.8
3	12.4	9.8	10.2	11.0	8.9	9.8	10.9	9.6
4	5.4	7.3	6.0	6.1	7.2	5.7	3.5	5.8
5	3.8	3.0	2.5	3.3	4.3	4.7	3.9	4.4
6	2.5	2.5	.7	2.1	3.1	2.8	2.2	2.8
7	3.2	1.3	1.4	2.2	2.9	1.9	1.7	2.3
8	2.1	2.8	1.1	2.1	2.2	1.9	1.3	1.9
9	2.1	1.5	1.1	1.7	.7	2.2	.4	1.1
10	.8	.5	.4	.6	.7	.6	1.3	.8
11	1.1	1.5	-	1.0	.7	-	-	.3
12	.8	1.3	.4	.8	-	-	-	-
13	.6	.3	.4	.5	-	-	-	-
14	.2	.3	-	.2	.5	-	.9	.4
15	.8	.3	-	.5	.2	-	-	.1
16	.2	.8	-	.3	-	.3	-	.1
17	.5	.3	-	.3	.2	.3	-	.2
18	.5	-	-	.2	-	-	-	-
19	-	.3	-	.1	-	-	-	-
20	.2	-	-	.1	-	-	-	-
21	.2	-	-	.1	.2	-	-	.1
22	.3	-	-	.2	-	-	-	-
23	.3	-	-	.2	-	-	.4	.1
24	.3	-	-	.2	-	-	-	-
26	.2	-	-	.1	-	-	-	-
31	.2	-	-	.1	-	-	-	-
33	-	-	-	-	.2	-	-	.1
Total	100.6	100.3	100.4	100.4	99.9	100.0	100.0	99.9

*Percent includes only juveniles residing inside Madison and Racine. 202 juveniles or 17.3 percent, residing outside Racine and 330 juveniles, or 20.1 percent, residing outside Madison were not included in this table, but were included in the scaling attempt.

TABLE IV

TYPES OF DELINQUENT CAREERS BASED ON GEOMETRIC SCORES COMPARING RACINE, WISCONSIN, 1950-1960 WITH MADISON, WISCONSIN, 1950-1955

	Racine* 9 Reasons for Police Contacts	Madison* 9 Reasons for Police Contacts
Traffic offenses, All other Traffic	228	184
Disorderly conduct, Vagrancy, Family, Obscene literature, Other	206	287
Theft, Auto theft, Forgery, Fraud	121	80
Incorrigible, runaway, Truancy, Escapee	85	268
Contact for suspicion, investigation, information	35	115
Liquor, Narcotics and Drugs, Gambling	27	23
Assault, Homicide, Weapons, Violent Property destruction	22	4
Robbery, Burglary	16	12
Sex offenses	14	5
TOTAL SINGLE CATEGORY TYPES	754 - *64.7%*	978 - *59.5%*
Disorderly conduct, etc., Traffic offenses, etc.	29	35
Disorderly conduct, etc., Theft, etc.	31	29
Traffic offenses, etc., Theft, etc.	19	11
Disorderly conduct, etc., Traffic, etc., Theft, etc.	9	9
Disorderly conduct, etc., Incorrigible, etc.	27	76
Traffic offenses, etc., Incorrigible, etc.	16	15
Dis. con., etc., Traffic, etc., Incorrigible, etc.	7	12
Theft, etc., Incorrigible, etc.	8	22
Dis. conduct, etc., Theft, etc., Incorrigible, etc.	24	26
Disorderly conduct, etc., Contact	9	41
Contact, Theft, etc.	6	10
Traffic offenses, etc., Liquor offenses, etc.	6	8
Dis. conduct, etc., Traffic, etc., Liquor, etc.	7	-
Theft, etc., Liquor offenses, etc.	8	-
D.c., etc., Theft, etc., Incor., etc., Rob., etc.	7	-
Incorrigible, etc., Assault, etc.	6	-
Incorrigible, etc., Contact	-	27
Dis. conduct, etc., Incorrigible, etc., Contact	-	19
Traffic offenses, etc., Contact	-	15
Disorderly conduct, etc., Traffic, etc., Contact	-	8
Incorrigible, etc., Traffic, etc., Theft, etc.	-	8
Disorderly conduct, etc., Contact, Theft, etc.	-	11
Incorrigible, etc., Contact, Theft, etc.	-	9
D.c., etc., Incor., etc., Contact, Theft, etc.	-	12
Disorderly conduct, etc., Liquor offenses, etc.	-	11
D.c., etc., Incor., etc., Contact, Liquor, etc.	-	8
D.c., etc., Traf., etc., Cont., Th., etc., L., etc.	-	9
D.c., etc., Incor., etc., Cont., Th., etc., R., etc.	-	10
MOST FREQUENT MULTIPLE CATEGORY TYPES	219 - *18.8%*	441 - *26.8%*
MOST FREQUENT TYPES	973 - *83.5%*	1419 - *86.4%*
TOTAL JUVENILES IN SAMPLE	1166 -*100.0%*	1643 -*100.0%*

*Includes 202 juveniles who resided outside Racine and 330 juveniles who resided outside Madison.

(out of hundreds of possible combinations and permutations) made up 86.4 percent of the total. These results were obtained because most juveniles had either contacts for only one category of contacts--or at most, for two or three categories--not because they sorted themselves out into a relatively small number of sociologically or behaviorally meaningful combinations of contact categories. It was necessary to conclude that the juveniles in the sample failed to constitute meaningful multiple category types.

Similarly, 83.5 percent of the Racine sample juveniles were accounted for by single police contact types and a few double and triple categories of police contact totalling 16 different types. The types of delinquents found in both Madison and Racine, therefore, constitute a mixed bag of types. Indeed they constitute such a mixed bag that it is not possible to consider these types as falling into a few homogeneous categories of persons who have been thieves, threateners of peace, tranquility and order, injurious to themselves by their vicious habits, or threateners of the life and property of others.

But aside from the fact that the Geometric scores constitute something of a problem in that juveniles were not divided up into a few relatively homogeneous types, they may be utilized in other ways in order to get a better picture of the distribution of types of delinquency in Madison and Racine.

The data in Table V have been consolidated in what may be an oversimplified fashion, but for which there is a rationale. Scores start out with the most frequent reason for police contacts with juveniles, then the second most frequent reason, and next with the score 3 which is for the first and second most frequent categories of police contact. Following this is the score 4 which is for the third most frequent reason, and then scores 5 through 7. The score of 5 for Madison involves traffic offenses plus disorderly conduct, etc.; the score of 6 represents contacts for traffic offenses plus incorrigibility, etc.; the score of 7 represents traffic offenses, disorderly conduct, etc., and incorrigibility, etc. In other words, scores of 5 through 7 on a Geometric scale involve contacts for traffic offenses plus other offenses. Next, we move on to a score of 8 which is contact for suspicion, investigation, or information and scores

TABLE V

DISTRIBUTION OF GEOMETRIC SCORES FOR MADISON AND RACINE, WISCONSIN, BY SOCIAL AREAS

Geometric Scores		Madison Socio-Economic Status Area*			Geometric Scores		Racine Socio-Economic Status Area*		
		Low	Middle	High			Low	Middle	High
1	Disorderly conduct, etc.	127	70	68	1	Disorderly conduct, etc.	76	68	46
2	Incorrigible, etc.	73	68	59	2	Traffic offenses, etc.	45	40	46
3		38	23	11	3		8	11	6
4	Traffic offenses, etc.	39	26	32	4	Theft, etc.	44	23	23
5-7		25	13	16	5-7		19	20	12
8	Contact for suspicion, investigation, information	41	29	18	8	Incorrigible, etc.	36	20	18
9-15		53	36	17	9-15		37	25	21
16	Theft, etc.	20	17	14	16	Contact for suspicion, information, or investigation	15	12	6
17-31		87	32	25	17-31		25	9	12
32	Liquor offenses, etc.	3	3	1	32	Liquor offenses, etc.	6	9	5
33-63		47	27	12	33-63		21	25	7
64	Robbery, burglary	1	4	3	64	Robbery, burglary	9	4	2
65-127		36	30	3	65-127		24	15	4
128	Assault, etc.	-	3	1	128	Assault, ect.	10	9	2
129-255		18	8	4	129-255		20	20	9
256	Sex offenses	3	1	-	256	Sex offenses	8	2	3
257-511		20	7	1	257-511		14	5	8
Total		631	397	285	Total		417	317	230

*330 or 20.1% of the Madison sample resided outside Madison and 202 or 17.3% of the Racine sample resided outside Racine and are not included in this table although they were included in the scaling attempts.

9-15, which involve contact for suspicion, investigation, or information plus more frequently encountered categories; then to theft which has a score of 16 and scores 17-31 which involve theft plus more frequently encountered categories, and so on until all combinations of police contacts have been included.

This gives us an array of juveniles ranging from those who have had a contact for the most frequent reason for police contact to those who have had a contact for sex offenses plus other contacts (sex offenses being the least frequent reason for police contact). The Geometric scores cannot properly be said to constitute a scale measuring seriousness of reasons for police contact according to cardinal units, and some might even argue that it is not proper to think of it as an ordinal scale of seriousness of combinations of reasons for police contact. Particularly, some might be concerned because a person with a score of 32 for liquor offenses, etc., has had only one category of police contact while those who have lower scale scores have in many instances, had multiple categories of police contacts. Whatever the shortcomings of this combination of categories may be, it has an orderly rationale and can be defended on that basis. It can, at the very minimum, be thought of as a heuristic arrangement of juvenile careers in order to see what kind of relationship exists between this arrangement and socio-economic status areas.

The Geometric scores as presented in Table V clearly indicate that there is a relationship between socio-economic status and scores representative of categories of police contacts with juveniles. When the total number of juveniles with various Geometric scores are compared with the expected number for each socio-economic status area based on the distribution of the juvenile population by socio-economic status areas and the overall distribution of Geometric scores, the disproportionally high appearance in low socio-economic status areas of juveniles with police contacts for the categories that generate a high Geometric score, and the disproportionally low appearance of juveniles with either high or low Geometric scores in the high socio-economic status areas is so great that the difference in scores by areas is statistically significant at the .001 level for Madison but not quite significant for Racine.

And when the total number of juvenile careers utilized in the scaling operation and the resulting distribution of Geometric scores is selected as a basis for determining the number of juveniles of each Geometric scale type that should appear in each area, the distribution of scale types differs significantly by areas at the .001 level. Thus, in spite of the fact that the Geometric scaling operation did not make it possible to place most juveniles in a few sociologically meaningful homogeneous groups of contact categories, it does permit us to present a simplified picture of patterns of police contact categories by areas within the city and for comparison between cities. In both cities, the midpoint of the Geometric scores for low socio-economic status areas was 8, for middle socio-economic status areas between 6 and 7, and for high socio-economic status areas 4.

To simplify the presentation of Geometric scores even further, when the distribution of Geometric scores is dichotomized at almost any point there is a statistically significant variation in the proportion of scores from social area to social area with the lowest socio-economic status area having the highest proportion of high scores and the highest socio-economic status area having the lowest proportion of high scores. For example, in the case of Racine, if the cutting point was between scores 15 and 16, the following distribution was obtained:

Dichotomized Geometric Scores	Socio-Economic Status Areas							
	Low		Middle		High		Total	
1-15	265	*64%*	207	*65%*	172	*75%*	644	*67%*
16-511	152	*36%*	110	*35%*	58	*25%*	320	*33%*
Total	417	*100%*	317	*100%*	230	*100%*	964	*100%*

$\chi^2 = 8.914$, 2 d.f., $p < .02$

In the case of Madison, if the cutting point was between 15 and 16, the following distribution was obtained:

Dichotomized Geometric Scores	Socio-Economic Status Areas							
	Low		Middle		High		Total	
1-15	396	*63%*	265	*67%*	221	*78%*	882	*67%*
16-511	235	*37%*	132	*33%*	64	*22%*	431	*33%*
Total	631	*100%*	397	*100%*	285	*100%*	1313	*100%*

$\chi^2 = 19.514$, 2 d.f., $p < .001$

With reference to Racine, when the cutting point is placed between 4 and 5, approximately half of the marginal totals are in the low score categories, and half are in the high score categories. If we think of this as a prediction problem then a person in the lowest socio-economic status area is most likely to have a high score, a person in the middle socio-economic status is more likely to have a high score than a low score, but a person in a high socio-economic status area is most likely to have a low score. In the Madison case, if the cutting point is placed between 4 and 5, again approximately half of the juveniles are in the high scoring categories and half are in the low scoring categories. Persons in the lowest socio-economic status area are most likely to have high scores, persons in the middle socio-economic status area are a little more likely to have high scores than low scores, and persons in the highest socio-economic status area are most likely to have low scores.

All in all, analysis of the distribution of Geometric scores by socio-economic status areas indicates that these scores are related to socio-economic status and that differences in the distribution of scores, varying to some extent on the basis of cutting points selected and the number of categories utilized, is statistically significant as we go from one socio-economic status area to another.

The Guttman Scale for Juvenile Delinquency in Racine and Madison

We shall now turn to the Guttman scaling attempt for Racine juvenile police contacts. The scale for Racine is presented in Table VI. Since the coefficient of reproducibility was only .889 and there were significantly fewer exact scale-type responses than expected, it cannot be said that the data constitute a Guttman scale. The Guttman scale for Madison is presented in Table VII. The coefficient of reproducibility for this scale is .892 and likewise there were significantly fewer exact scale-type responses than expected. Both rescaling attempts lead to rejection of the hypothesis of unidimensionality as far as police contacts with juveniles are concerned. Doubtless, there are juveniles who progress from less serious to more serious types of offenses but this cannot be equated with the hypothesis that all or most juvenile careers can be placed on a

TABLE VI

RACINE JUVENILE DELINQUENCY SCALE*

Frequency of Scale Types					
	Socio-Economic Status Areas				
Total	Low	Middle	High	Outside Racine	Description of Scale Type
370	150	93	67	60	0 - Has had no contact with police
262	100	87	58	17	1 - Has had contact with police for disorderly conduct, vagrancy, etc.
303	70	64	62	107	2 - Has had contact with police for disorderly conduct, vagrancy, etc., and traffic offenses, etc.
88	34	26	18	10	3 - Has had contact with police for disorderly conduct, vagrancy, etc., traffic offenses, etc. and theft, etc.
83	37	24	16	6	4 - Has had contact with police for disorderly conduct, vagrancy, etc., traffic offenses, etc., theft, etc., and incorrigibility, runaway, etc.
35	18	10	6	1	5 - Has had contact with police for disorderly conduct, vagrancy, etc., traffic offenses, etc., theft, etc., incorrigibility, runaway, etc., and contact for suspicion, investigation or information.
15	5	9	1	-	6 - Has had contact with police for disorderly conduct, vagrancy, etc., traffic offenses, etc., theft, etc., incorrigibility, runaway, etc., contact for suspicion, investigation or information and liquor offenses, etc.
6	1	2	2	1	7 - Has had contact with police for disorderly conduct, vagrancy, etc., traffic offenses, etc., theft, etc., incorrigibility, runaway, etc., contact for suspicion, investigation or information, liquor offenses, etc. and robbery or burglary.
4	2	2	-	-	8 - Has had contact with police for disorderly conduct, vagrancy, etc., traffic offenses, etc., theft, etc., incorrigibility, runaway, etc., contact for suspicion, investigation or information, liquor offenses, etc., robbery or burglary and assault, weapons, etc.
-	-	-	-	-	9 - Has had contact with police for disorderly conduct, vagrancy, etc., traffic offenses, etc., theft, etc., incorrigibility, runaway, etc., contact for suspicion, investigation or information, liquor offenses, etc., robbery or burglary, assault, weapons, etc. and sex offenses.
1166	417	317	230	202	TOTAL

*Coefficient of Reproducibility = .889; expected number of exact scale type responses = 364.9; observed number of exact scale-type responses = 252.0, χ^2 = 50.854, scale does not meet minimum standard. The categories of police contact and the number of juveniles with at least one contact of that type are as follows: Disorderly conduct, vagrancy, etc., 468; traffic offenses, etc., 406; theft, etc., 344; incorrigibility, runaway, etc., 287; contact, 129; liquor offenses, etc., 108; robbery or burglary, 80; assault, weapons, etc., 77; sex offenses, 44.

TABLE VII

MADISON JUVENILE DELINQUENCY SCALE*

Frequency of Scale Types: Socio-Economic Status Areas					
Total	Low	Middle	High	Outside Madison	Description of Scale Type
478	134	94	73	177	0 - Has had no contact with police
387	177	98	82	30	1 - Has had contact with police for disorderly conduct, vagrancy, etc.
455	162	125	81	87	2 - Has had contact with police for disorderly conduct, vagrancy, etc. and incorrigibility, runaway, etc.
93	36	21	22	14	3 - Has had contact with police for disorderly conduct, vagrancy, etc., incorrigibility, runaway, etc. and traffic offenses, etc.
73	32	23	10	8	4 - Has had contact with police for disorderly conduct, vagrancy, etc., incorrigibility, runaway, etc., traffic offenses, etc. and contact for suspicion, investigation or information.
89	51	22	10	6	5 - Has had contact with police for disorderly conduct, vagrancy, etc., incorrigibility, runaway, etc., traffic offenses, etc., contact for suspicion, investigation or information and theft, etc.
50	29	8	6	7	6 - Has had contact with police for disorderly conduct, vagrancy, etc., incorrigibility, runaway, etc., traffic offenses, etc., contact for suspicion, investigation or information, theft, etc. and liquor offenses, etc.
12	4	6	1	1	7 - Has had contact with police for disorderly conduct, vagrancy, etc., incorrigibility, runaway, etc., traffic offenses, etc., contact for suspicion, investigation or information, theft, etc., liquor offenses, etc., and robbery or burglary.
4	4	-	-	-	8 - Has had contact with police for disorderly conduct, vagrancy, etc., incorrigibility, runaway, etc., traffic offenses, etc., contact for suspicion, investigation or information, theft, etc., liquor offenses, etc., robbery or burglary and assault, weapons, etc.
2	2	-	-	-	9 - Has had contact with police for disorderly conduct, vagrancy, etc., incorrigibility, runaway, etc., traffic offenses, etc., contact for suspicion, investigation or information, theft, etc., liquor offenses, etc., robbery or burglary, assault, weapons, etc. and sex offenses.
1643	631	397	285	330	TOTAL

*Coefficient of Reproducibility = .892; expected number of exact scale-type responses = 507.0; observed number of exact scale-type responses = 393.0, χ^2 = 37.067, scale does not meet minimum standard. The categories of police contact and the number of juveniles with at least one contact of that type are as follows: Disorderly conduct, vagrancy, etc., 749; incorrigibility, runaway, etc., 637; traffic offenses, etc., 419; contact, 401; theft, etc., 376; liquor offenses, etc., 157; robbery or burglary, 100; assault, weapons, etc., 39; sex offenses, 35.

continuum from those who have had police contacts for the complete range of offenses included in our classification system to those who have had police contacts for only those categories of behavior in which almost all juvenile delinquents have engaged.

The distribution of Guttman scores for Madison juveniles by socio-economic status areas is shown below, dichotomized between the scores of 2 and 3. Although the Guttman scores are related to socio-economic status, the relationship was significant at only the .02 level and was not statistically significant when other cutting points were selected.

Dichotomized Guttman Scores	Socio-Economic Status Area							
	Low		Middle		High		Total	
0-2	473	*75%*	317	*80%*	236	*83%*	1026	*78%*
3-9	158	*25%*	80	*20%*	49	*17%*	287	*22%*
Total	631	*100%*	397	*100%*	285	*100%*	1313	*100%*

$\chi^2 = 8.05$, 2 d.f., $p < .02$

When the Racine Guttman scores were dichotomized in a similar fashion, their distribution did not vary significantly by socio-economic status.

Dichotomized Guttman Scores	Socio-Economic Status Area							
	Low		Middle		High		Total	
0-2	320	*77%*	244	*77%*	187	*81%*	751	*78%*
3-9	97	*23%*	73	*23%*	43	*19%*	213	*22%*
Total	417	*100%*	317	*100%*	230	*100%*	964	*100%*

$\chi^2 = 2.03$, 2 d.f., not significant

This section of the report must conclude by stating that Guttman scores based on police contacts with juveniles do not vary with socio-economic status to the same extent as do Geometric scores or simple number of police contacts. More will be said about the relationship of these measures to each other and their potential usefulness in the next section of this report.

CONTINUED

1 OF 3

III

THE INTERRELATIONSHIP OF VARIOUS MEASURES OF DELINQUENCY, THE PROBLEM OF SELECTING THE "BEST" MEASURE OF DELINQUENCY AND BEST PREDICTOR OF LATER CRIMINAL CAREERS

Introduction

This section of the report will be concerned with the manner in which our different measures of delinquency, whatever shortcomings we have recognized in the data, are related to each other, and will also give some further consideration to the relationship of each to the social organization of the community as represented by an index of socio-economic status. It should be emphasized that we are interested not only in the interrelationship of these measures per se, but are likewise concerned with the problem of selecting a "best" measure of delinquency and a "best" predictor of later criminal careers.

It would serve no useful purpose to present much of the data that we have in its fullest and most detailed form. Therefore, some consolidation and combination of categories has been carred out in the process of setting up the tables as they are presented here. These tables and their accompanying explanation may also answer questions that have arisen in the mind of the reader during the process of going through the second section of the report. An attempt will be made to describe these tables in such a way as to whet the reader's interest in the problem of measurement and even more specifically, in the problems inherent in any attempt to represent qualitatively different careers in delinquency by an index or scale number.

The Relationship of Guttman Scores to Geometric Scores for Individuals

Table I shows the relationship of Guttman scores to Geometric scores. It will be noted that each of the single contact types of Geometric scores are presented in the table in separate columns. Between these scores are the collapsed combinations of contacts represented by a sequence of Geometric scores. For example, there are a total of 59 juv-

eniles with Geometric scores between 5 and 7 for Racine.[1] Those with a score of 5 had a police contact for theft and disorderly conduct, those with a score of 6 had a police contact for theft and traffic, and those with a score 7 had a police contact for theft, disorderly conduct, and traffic. By contrast, the nature of the Guttman scaling program is such that a score of 3 is assigned to each of these combinations of contacts while only those persons with contacts for theft, disorderly conduct, and traffic violations are perfect examples of this scale type. Those with theft plus either of the other offenses just mentioned are put in Guttman type 3 as the type that they best fit. A person with a Geometric score of 7 would be an example of the perfect Guttman scale type 3 and, as stated, would have had a police contact for at least one each of the following--theft, traffic violation, and disorderly conduct. To give another example, a person with a Geometric score of 9 had contacts for incorrigibility, etc. and disorderly conduct, etc., while a person with a Geometric score of 10 had contacts for incorrigibility and traffic, and so on. The difference in the nature of the Guttman and Geometric scores is readily seen by perusal of Table I. What we have said about the coefficient of reproducibility for both the Madison and Racine scales is visually shown in this table. The fact that the great bulk of persons in both Madison and Racine had only one or two police contacts made it possible for them to be placed in a set of scale types with far less error than might be expected, but nonetheless in a way that does not make a Guttman scale score meaningful in terms of what the juvenile actually did as is a Geo-

[1]It should be remembered that the Geometric scores in Madison for single contact types are: 1) Disorderly conduct, vagrancy, family, obscene literature, or other; 2) incorrigible, runaway, truancy, or escapee; 3) traffic offenses or all other traffic; 4) contact for suspicion, investigation, or information; 5) theft, auto theft, forgery, or fraud; 6) liquor, narcotics and drugs, or gambling; 7) robbery or burglary; 8) assault, homicide, weapons, or violent property destruction, and; 9) sex offenses. The Geometric scores for single contact types in Racine are: 1) Disorderly conduct, vagrancy, family, obscene literature, or other; 2) traffic offenses or all other traffic; 3) theft, auto theft, forgery, or fraud; 4) incorrigible, runaway, truancy, or escapee; 5) contact for suspicion, investigation, or information; 6) liquor, narcotics and drugs, or gambling; 7) robbery or burglary; 8) assault, homicide, weapons or violent property destruction, and; 9) sex offenses.

TABLE I

RELATIONSHIP OF GUTTMAN SCORES TO GEOMETRIC SCORES
FOR MADISON AND RACINE, WISCONSIN

Geometric Scores		Guttman Scores 0	1	2	3	4	5	6	7	8	9	Total
					MADISON							
1	Disorderly conduct, vagrancy, etc.		287									287
2	Incorrigibility, runaway, etc.			268								268
3				76								76
4	Traffic offenses, etc.	184										184
5-7					62							62
8	Contact for suspicion, investigation, or information	115										115
9-15			41	27		49						117
16	Theft, etc.	80										80
17-31		21	29	48	9		59					166
32	Liquor offenses, etc.	23										23
33-63		14	14	7	12	14		44				105
64	Robbery or burglary	12										12
65-127		7	9	20	4	4	24		9			77
128	Assault, weapons, etc.	4										4
129-255		7	5	4	3	2	4	3		4		32
256	Sex offenses	5										5
256-511		6	2	5	3	4	2	3	3	_	2	30
	Total	478	387	455	93	73	89	50	12	4	2	1643
					RACINE							
1	Disorderly conduct, vagrancy, etc.		206									206
2	Traffic offenses, etc.			228								228
3				29								29
4	Theft, etc.	121										121
5-7					59							59
8	Incorrigibility, runaway, etc.	85										85
9-15			27	16		45						88
16	Contact for suspicion, investigation, or information	35										35
17-31		9	9	6	3		22					49
32	Liquor offenses, etc.	27										27
33-63		13	6	14	6	8		11				58
64	Robbery or burglary	16										16
65-127		10	2	4	10	12	6		6			50
128	Assault, weapons, etc.	22										22
129-255		9	7	4	8	10	4	3		4		49
256	Sex offenses	14										14
257-511		9	5	2	2	8	3	1	_	_	-	30
	Total	370	262	303	88	83	35	15	6	4	-	1166

metric scale score. Each Guttman score stood for so many different patterns of behavior approximating that represented by a perfect scale type that most Guttman scores had less meaning than one would hope for. High Guttman scores were related to high Geometric scores, low Guttman scores did not necessarily mean low Geometric scores. The most discriminating cutting point generated an r_4 of .2710 (Pearsonian r = .1849), significant at the .001 level for Racine. For Madison, the most discriminating cutting point generated an r_4 of .3502 (Pearsonian r = .3428), significant at the .001 level. Here again, high Guttman scores were related to high Geometric scores but low Guttman scores were more likely to be related to low Geometric scores than in the case of Racine.

The Relationship of Guttman Scores to Number of Police Contacts for Individuals

The relationship of Guttman scale scores to number of police contacts is shown in Table II for both Madison and Racine. The r_4 coefficient of correlation for Madison is .4212 (Pearsonian r = .7307) and for Racine .3918 (Pearsonian r = .6845). It must be remembered that the Guttman scale scores depend on a juvenile having at least one contact with police for any one of nine categories of police contacts derived from the original 25 categories of police contacts as originally classified and coded. Although the total number of police contacts possible for each juvenile could be almost infinite, the total number of police contacts that every juvenile could have had would be limited by the number necessary for sufficient court action to take a juvenile out of circulation, so to speak. In only a few cases did it exceed 10, whether it consisted of multiple contacts for one category or more than one category. The nine contact categories selected for scaling, whatever the shortcomings of the Guttman scales as we have described them, did produce scores that were related to total careers, although this relationship is to some extent an artifact of the dependent nature of the two measures.

The Relationship of Geometric Scores to Number of Police Contacts for Individuals

In Tables III A and B, Geometric scores are related to the number of contacts that each juvenile has had with the police for all categories of police contacts in both Madison and Racine. Again, it must be

TABLE II

RELATIONSHIP OF GUTTMAN SCORES TO NUMBER OF POLICE CONTACTS FOR MADISON AND RACINE

Guttman Scores	Number of Police Contacts															
	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25	26-30	31-35	Total
MADISON																
0	383	66	20	7	1	1										478
1	251	77	38	11	3	4	2				1					387
2	243	101	48	26	10	7	4	7	4		4	1				455
3		26	24	24	7	4	4	1			2	1				93
4		10	20	8	6	5	8	4	4		6	1	1			73
5			7	12	12	7	7	12	9	4	12	2	5			89
6			2	3	7	5	4	2	7	4	10	4	1		1	50
7					1		2				6	2	1			12
8							1	1				1		1		4
9								1				1				2
Total	877	280	159	91	47	33	32	28	24	8	41	13	8	1	1	1643
RACINE																
0	287	56	16	7	2				1	1						370
1	186	50	14	6	4		1		1							262
2	192	59	29	11	5	4	1	1	1							303
3		22	19	14	16	6	5	3	2		1					88
4		2	18	14	8	14	9	6	4	2	5		1			83
5			3	7	7	3	2	4	2	3	2	2				35
6				3	1	3	3	3		1		1				15
7					1	2	1	1		1						6
8					1		1						1		1	4
9																-
Total	665	189	99	62	45	32	23	18	11	8	8	3	2	-	1	1166

remembered that the Geometric scores are based on whether or not a juvenile has had at least one contact for one of the nine categories of police contact used in developing both the Guttman and Geometric scales. We must assume that there will be some relationship between Geometric scores and the total number of police contacts that juveniles have had because these measures are not independent, although more so than were Guttman scores and the number of police contacts.

As in the case of the relationship of Guttman scores to Geometric scores, the number of police contacts were correleated with the Geometric scores but in essentially a one-way manner, i.e., there were few cases in the high number of police contacts and low Geometric score quadrant of almost any 2 x 2 table constructed from the data. The most discriminating cutting point generated an r_4 of .4082 between the number of police contacts and Geometric scores for Racine, significant at the .001 level. For Madison, the most discriminating cutting point produced an r_4 of .4927, also significant at the .001 level.

What becomes most apparent as we examine the relationship of various types of scores to each other is that a person's delinquency score varies markedly depending on the type of scale that is used. The question always arises then, which is the best measure of delinquency. We can only say that this depends on what one wishes to do with it. If some idea of the various types and patterns is desired, then a Geometric score is the best representation, but if some quantitative index of how often a juvenile comes in contact with the police is desired, then simple number of contacts is useful. We shall now look at the relationship of Guttman scores, Geometric scores, and simple number of police contacts to other variables in an effort to evaluate each of these measures.

The Interrelationship of Measures of Delinquency by School Districts and the Relationship of Measures of Delinquency to the Socio-Economic Status of School Districts

We have previously shown the relationship of Guttman scores to socio-economic status areas in both Racine and Madison; likewise we have shown how Geometric scores and number of police contacts are related to the various areas in Madison and Racine. Since we have frequently mentioned the heterogeneity of the social areas in the two cities we shall

TABLE III A

RELATIONSHIP OF NUMBER OF POLICE CONTACTS TO GEOMETRIC SCORES

MADISON

Number of Police Contacts	Geometric Scores																	
	1	2	3	4	5-7	8	9-15	16	17-31	32	33-63	64	65-127	128	129-255	256	257-511	Total
1	251	243		159		113		70		22		12		4		3		877
2	27	20	41	18	26	2	54	6	43	1	19		9		7	2	5	280
3	7	5	18	6	18		35	3	32		14		8		6		7	159
4	2		8	1	12		12	1	29		12		11		2		1	91
5			4		3		3		15		11		5		3		3	47
6			3				4		12		10		3		1			33
7			1		2		4		8		7		5		2		3	32
8			1				2		9		4		7		4		1	28
9							2		7		6		5		2		2	24
10									3		3		1		1			8
11					1				1		5		5		1		1	14
12							1		2		3		4		1		1	12
13											2		2				2	6
14									1				1				1	3
15											3		3					6
16											1		2				1	4
17									1		2				1			4
18									1		1						1	3
19													1					1
20													1					1
21									1				1					2
22											1		1					2
23									1				1					2
24													1				1	2
26															1			1
31											1							1
Total	287	268	76	184	62	115	117	80	166	23	105	12	77	4	32	5	30	1643

TABLE III B

RELATIONSHIP OF NUMBER OF POLICE CONTACTS TO GEOMETRIC SCORES

RACINE

Number of Police Contacts	Geometric Scores																	
	1	2	3	4	5-7	8	9-15	16	17-31	32	33-63	64	65-127	128	129-255	256	257-511	Total
1	186	192		106		74		33		26		14		21		13		665
2	17	29	12	12	22	10	33	1	14	1	15	2	5	1	11		4	189
3	2	4	12	3	14	1	23	1	10		12		7		4		6	99
4	1	3	1		8		6		9		14		8		8		4	62
5			2		10		6		5		4		6		7	1	4	45
6			1		2		9		2		7		7		2		2	32
7					1		4		1		2		7		7		1	23
8			1		1		4		3		1		3		4		1	18
9					1		1		3				3		2		1	11
10							1		1				3				3	8
11							1				1				1			3
14											1						3	4
15											1		1					1
16																		1
17											1						1	2
21															1			1
23															1			1
33															1			1
Total	206	228	29	121	59	85	88	35	48	27	59	16	50	22	49	14	30	1166

now briefly examine the distribution of each of these measures, school district by school district. At the very least we shall undoubtedly find a greater range of variation for each measure by school districts than by social areas as we proceed from school districts having the highest socio-economic status to school districts considered to be composed of persons of very low socio-economic status.

An index of socio-economic status of individual school districts was constructed for both Madison and Racine; whatever the shortcomings of these indexes, they at least permit the rank ordering of school districts by socio-economic status. In terms of all that we know about the school districts in Madison and Racine, the rank ordering of school districts presented in Table IV makes sense. Table IV A presents the average number of police contacts for each school district per juvenile in the study for Madison and the rank of these contacts, the average Guttman scores per juvenile and the rank of these scores, and the average Geometric scores as well as the median Geometric scores per juvenile and their ranks. The same data are presented for Racine in Table IV B.

It is interesting to note that the rank order correlations for the two cities are quite different and this presents some problem in interpreting the relationship of these measures to each other, a problem extending beyond the relationship of one measure to another when individuals are compared. Although the question of ecological correlations might be raised by some, we are on fairly firm ground because no attempt is being made to explain individual delinquency scores on a basis of the socio-economic status of the family from which the juvenile comes. What we are attempting is to relate the social organization or subculture of school districts, as represented by correlated socio-economic status, to measures of delinquency for the juveniles residing in the school districts. That is, average scores, school district by school district, are correlated with socio-economic status, school district by school district. And the question is one of whether or not each measure of delinquency has the same relationship to socio-economic status and to what extent these relationships are found in both cities.

Although the basic data presented in Tables IV A and IV B may be of interest to the reader who is familiar with either of the two com-

TABLE IV A

SCHOOL DISTRICTS AS SEPARATELY RANKED ON THREE MEASURES OF POLICE CONTACTS WITH JUVENILES AND SOCIO-ECONOMIC STATUS

MADISON*

School District		Socio-Economic Status		Number of Police Contacts		Guttman Score		Geometric Score			
		Index**	Rank	Average per Person	Rank	Average per Person	Rank	Average per Person	Rank	Median	Rank
Midvale	H	1.00	1.5	2.01	3	1.68	6	7.3[illegible]	1	2	1
Nakoma	H	1.00	1.5	2.10	5	1.55	4	15.64	5	4.5	8
Dudgeon	H	1.50	3	1.59	1	1.49	2	9.44	3	3	3
Schenk	M	1.67	4	1.85	2	1.65	5	8.55	2	6	11
Franklin	L	2.00	5	3.14	10	1.88	13	47.56	15	9.5	14
Mendota***	M	2.27	6.5	2.06	4	1.13	1	16.00	7	3	3
Randall	H	2.27	6.5	2.14	6	1.50	3	15.33	4	4	6
Emerson	M	2.33	9	3.18	11	1.84	11.5	24.64	10	5	9.5
Lowell	M	2.33	9	2.64	7	1.78	8	21.98	9	8	12.5
Sherman	M	2.33	9	2.84	8	1.81	10	27.12	12	4	6
Longfellow	L	2.37	11	3.76	16	2.20	16	44.13	14	8	12.5
Truax	M	2.67	12	3.36	13	1.72	7	57.24	16	16	16
Marquette	L	2.83	13	3.12	9	2.00	14	18.66	8	4	6
Lapham	L	3.20	14	3.45	14	1.79	9	27.43	13	10	15
Lincoln	L	3.67	15	3.46	15	2.12	15	15.85	6	3	3
Washington	L	3.80	16	3.32	12	1.84	11.5	27.03	11	5	9.5

*Persons residing outside Madison are not included in this table.

**Index based on data from *Madison's Land: How it is Used*, A City Plan Commission Report, Madison, Wisconsin, September, 1952

***The index for Mendota was computed by averaging the indices for the other school districts falling in the middle socio-economic status area. Information for Mendota was not available from teh basic data source.

H = High Socio-Economic Status Area
M = Middle Socio-Economic Status Area
L = Low Socio-Economic Status Area

TABLE IV B

SCHOOL DISTRICTS AS SEPARATELY RANKED ON THREE MEASURES OF POLICE CONTACTS WITH JUVENILES AND SOCIO-ECONOMIC STATUS

RACINE*

School District**	Socio-Economic Status		Number of Police Contacts		Guttman Score		Geometric Score			
	Index***	Rank	Average per Person	Rank	Average per Person	Rank	Average per Person	Rank	Median	Rank
Fratt	1.50	2.5	2.78	16	1.62	13	32.83	9	4	4
Jerstad-Agerholm	1.50	2.5	2.58	13	1.73	15	19.78	2	5	7
Mitchel	1.50	2.5	1.86	2	1.30	2	36.36	11	4	4
Roosevelt	1.50	2.5	2.09	4	1.47	6	22.12	3	4	4
Wadewitz	1.75	5	2.00	3	1.63	14	62.38	17	4	4
Johnson	2.00	6	2.16	5	1.74	16	25.55	4	4	4
Knapp	2.25	7	2.35	8	1.59	12	31.52	8	6	8
Jefferson	2.75	8.5	2.36	9.5	1.49	8	38.11	12	8	12
McKinley	2.75	8.5	1.75	1	1.38	4	13.13	1	3	1
Winslow	3.00	10.5	2.66	14	1.57	10.5	38.27	13	9	16.5
Lincoln	3.00	10.5	2.45	12	1.57	10.5	31.26	7	8	12
Janes	3.25	13	2.74	15	1.26	1	50.98	15	8.5	15
Washington	3.25	13	2.27	6	1.51	9	49.11	14	8	12
Stephen Bull	3.25	13	2.36	9.5	1.48	7	28.88	5	6.5	9
Garfield	3.75	15	2.38	11	1.34	3	28.97	6	8	12
Franklin	4.00	16.5	2.29	7	1.45	5	34.70	10	8	12
Howell	4.00	16.5	3.81	17	2.02	17	53.73	16	9	16.5

*Persons residing outside Racine were not included in this table.

**Index ranked school districts by socio-economic status; areas are presented from highest to lowest socio-economic status and are separated by broken lines.

***Based on Tables 4 and 5 from: Austin T. Turk, "Adolescence and Delinquency in Urban Society: A Study in Criminological Theory," Ph.D dissertation, University of Wisconsin, 1962, pp. 57-59. Land use, ratio of sound to dilapidated and deteriorating housing, ratio of owner-occupied units to renter-occupied units, and proportion of units occupied by non-whites were the variables used to compute the index. The index was computed by giving each school district a score of 1 to 4 for each of the four categories and then averaging the scores.

munities, Table V will be more useful to most persons in reference to the discussion that follows. As has been indicated earlier in this report, almost any measure of delinquency correlated more highly with socio-economic status areas in Madison than in Racine. When rank order correlations for school districts were computed for school districts by socio-economic status and each of the measures of delinquency, the Madison coefficients varied from .44 to .82 and the Racine coefficients from -.20 to .77.

Next, let us look at the relationship of the average number of police contacts to other measures. In Madison, as contrasted to Racine, sizeable positive correlations were produced between number of police contacts and every measure of delinquency. Only the Geometric median had a high correlation for Racine. The same is true for the Geometric average of school districts and other measures for Madison but not for Racine. Here we must remember that the Geometric averages may be influenced greatly by a few very high Geometric scores; they will increase the average and distort the overall relationship considerably.

It should be obvious by now that the four sets of rankings of the extent and seriousness of police contacts in school districts do not correlate with each other in any entirely consistent pattern. The Geometric average is too greatly influenced by a few deviant cases. The Guttman scores are quasi-Guttman scores and must be dealt with in only the broadest heuristic fashion. Whether the Geometric median or the number of police contacts is the "best" measure of delinquency by school districts depends not only on what one wishes to do with it but on whether reference is being made to one community or the other.

Further Consideration of the Problem of "Best" Measure

There are basically two uses to which a measure may be put. If the objective is to test the hypothesis that delinquency, as measured by police contacts, is generated at a disproportional rate in school districts of low socio-economic status, then it is necessary to agree on which measure constitutes an acceptable operational definition before running the correlations. "Best" would be determined on a basis of careful examination of the data and the likelihood that the data are representative of what the researcher refers to when he employs the delinquency concept. We have not done this; this section of the report has been related to the

characteristics and interrelationships of measures rather than hypothesis testing.

TABLE V

RANK CORRELATIONS FOR MADISON AND RACINE, WISCONSIN

	Madison	Racine
Socio-Economic Status Index vs.		
Number of police contacts	.82	.33
Guttman score	.65	-.20
Geometric average	.57	.33
Geometric median	.44	.77
Number of Police Contacts vs.		
Guttman score	.80	.29
Geometric average	.76	.26
Geometric median	.51	.68
Guttman Score vs.		
Geometric average	.56	.08
Geometric median	.30	.00
Geometric Average vs.		
Geometric median	.73	.55

What we have done is to consider which characteristics of each measure might detract from its acceptance as a valid and reliable measure of delinquency, or even more specifically, as a valid and reliable index of police contacts with juveniles.

Although reference can be made to the fact that these measures of delinquency do correlate with a measure of socio-economic status for school districts, this is not the crucial point. Whichever measure is utilized, delinquency is generated at a higher rate in areas of low socio-economic status than in areas of high socio-economic status in Madison but not in Racine.

The point is that simple number of police contacts has the highest correlation with socio-economic status in Madison, .82, while Geometric median has the highest correlation in Racine, .77. In considering these correlations, one must remember the previous discussion of the char-

acteristics of each measure and how deviant cases may, and do, distort the overall relationship. It should also be noted that the coefficients of correlation presented in Table V are high but generally bear the same relationship to each other as did the correlations in a similar table in the preliminary report utilizing the 10 most frequently appearing categories of police contact from the 25 categories employed in the original coding operation.

Which is the best predictor? The second test of "bestness" is whether or not a measure is an efficient predictor of what we wish to predict. This is not a true prediction problem, of course, but by turning it into one, it is possible to examine each measure in another fashion. The data in Tables VI A, B, C and D provide us with this opportunity.

For example, when the socio-economic status index for each school district is plotted on a scattergram along with the average number of police contacts for juveniles in the scaling sample for each school district, the points do not fall along a straight line; but by employing what might be called cutting point roulette, that is, picking those cutting points that maximize predictability, it is possible to increase predictability over that of the modal category of the marginals. To put it a bit differently, the socio-economic status index of a school district enables one to predict whether or not the school district has a high or low average number of police contacts per juvenile in the scaling sample. This prediction can be made with fewer errors than predicting that all school districts have the same delinquency characteristics as the modal category of the marginal totals. It is unlikely that anyone would set up a prediction problem in exactly this fashion but if one wishes to look at the various measures of police contact in terms of their predictability from socio-economic status, it may be done in the following fashion with interesting results.

In the Madison case, as shown in Table VI A, the coefficient of correlation was .77 and significant at the .01 level. Half of the school districts are on one side of 3.0 police contacts per juvenile and half on the other, but most school districts are found in two opposite cells of a 2 x 2 table. In Madison, one would make only two errors by predicting that school districts with a low socio-economic status indes, i.e., below

TABLE VI A

SCHOOL DISTRICTS FOR MADISON AND RACINE BY SOCIO-ECONOMIC STATUS INDEX AND AVERAGE NUMBER OF POLICE CONTACTS

Average Number of Police Contacts

Socio-Economic Status Index		Madison 1.59-2.84	Madison 3.12-3.76	Total
Low	2.37-3.80	0	6	6
High	1.00-2.33	8	2	10
	Total	8	8	16

$\chi^2 = 6.67$
$p < .01$
$r_4 = .77$

Socio-Economic Status Index		Racine 1.75-2.35	Racine 2.36-3.81	Total
Low	3.00-4.00	2	6	8
High	1.50-2.75	6	3	9
	Total	8	9	17

$\chi^2 = 1.52$
$p <$ n.s.
$r_4 = .42$

TABLE VI B

SCHOOL DISTRICTS FOR MADISON AND RACINE BY SOCIO-ECONOMIC STATUS INDEX AND AVERAGE GUTTMAN SCALE SCORES

Average Guttman Scale Scores

Socio-Economic Status Index		Madison 1.13-1.78	Madison 1.79-2.20	Total
Low	2.33-3.80	2	7	9
High	1.00-2.27	6	1	7
	Total	8	8	16

$\chi^2 = 4.06$
$p < .05$
$r_4 = .63$

Socio-Economic Status Index		Racine 1.26-1.51	Racine 1.57-2.02	Total
Low	3.00-4.00	7	3	10
High	1.50-2.25	2	5	7
	Total	9	8	17

$\chi^2 = 1.42$
$p <$ n.s.
$r_4 = .41$

TABLE VI C

SCHOOL DISTRICTS FOR MADISON AND RACINE BY SOCIO-ECONOMIC STATUS INDEX AND AVERAGE GEOMETRIC SCORES

Average Geometric Scores

Socio-Economic Status Index		Madison 7.30-18.66	Madison 21.98-57.24	Total
Low	2.33-3.80	2	7	9
High	1.00-2.27	6	1	7
	Total	8	8	16

$\chi^2 = 4.06$
$p < .05$
$r_4 = .63$

Socio-Economic Status Index		Racine 13.13-32.83	Racine 34.70-62.38	Total
Low	2.75-4.00	4	6	10
High	1.50-2.25	5	2	7
	Total	9	8	17

$\chi^2 = 0.61$
$p <$ n.s.
$r_4 = .31$

TABLE VI D

SCHOOL DISTRICTS FOR MADISON AND RACINE BY SOCIO-ECONOMIC STATUS INDEX AND GEOMETRIC MEDIAN

Geometric Median

Socio-Economic Status Index		Madison 2.00-4.50	Madison 5.00-16.00	Total
Low	2.33-3.80	3	6	9
High	1.00-2.27	5	2	7
	Total	8	8	16

$\chi^2 = 1.02$
$p <$ n.s.
$r_4 = .38$

Socio-Economic Status Index		Racine 3.00-6.00	Racine 6.50-9.00	Total
Low	2.75-4.00	1	9	10
High	1.50-2.25	7	0	7
	Total	8	9	17

$\chi^2 = 10.02$
$p <$ .01
$r_4 = .89$

the cutting point, would have an average number of police contacts of 3.12 or more and school districts with a high socio-economic status index, i.e., above the cutting point, would have an average number of police contacts of 2.84 or less. In Racine, the coefficient of correlation was .42 and not statistically significant. The relationship of socio-economic status to average number of police contacts was similar in Racine where the school districts could also be distributed by police contacts per juvenile evenly on each side of a cutting point with most school districts falling in opposite quadrants and only five falling outside of these two cells.

When each school district is placed on a scattergram by socio-economic status index and average Guttman scale scores of juveniles in the scaling sample, predictability declines. The most judicious selection of cutting points results in a coefficient of correlation of .63 for Madison, significant at the .05 level, but only .41 for Racine, the latter also being an inverse relationship, as in the rank-order correlations. In the case of Madison, three errors would be made by using the socio-economic status index of school districts to predict the average Guttman scale score of juveniles by school district, but eight errors would be made without the predictor if the same cutting point was used as a basis for determining the marginals of the table. In Racine, however, eight errors would be made by predicting that the juveniles in every school district have an average Guttman score of 1.51 or less, and five errors if using socio-economic status as a predictor.

School districts are presented by socio-economic status and average Geometric scores of juveniles for the scaling sample in Table VI C. In the case of Madison, cutting points may be selected that dichotomize the two variables so that all but three school districts fall in opposite cells. The coefficient of correlation in Madison is .63 and is statistically significant at the .05 level. This relationship is neither pronounced nor significant for Racine; six school districts fall in opposite cells with a coefficient of correlation of .31.

Turning to Table VI D, school district socio-economic status and the Geometric median for juveniles in the scaling sample, we find that socio-economic status is not an efficient predictor of Geometric median scores in Madison but is in Racine. In Madison, the coefficient of cor-

relation is .38 and not statistically significant, while Racine's coefficient of correlation is .89 and statistically significant at the .01 level. The cutting points for Racine are such that only one error is made in predicting the Geometric median score of a school district from socio-economic status.

If the criterion for "best" is the most efficient predictor of some measure of delinquency from school district socio-economic status or the prediction of the kind of areas in which delinquency is generated from some measure of delinquent careers, then average number of police contacts per juvenile is best in Madison and the Geometric median is best for Racine.

Be that as it may, what we have just stated about the use of the socio-economic status of a school district in predicting measures of police contacts, it does not detract from one of our major concerns and that is whether or not continuing delinquency or adult crime may be predicted from measures of juvenile careers.

Predicting Later Criminal Careers

There is at present no evidence to indicate that knowledge of the ecology of delinquency and crime does not present the best basis for predicting who will become either a delinquent, a continuing delinquent, or an adult criminal, or who among those with delinquent records will continue to an adult career in crime.[2] In spite of the fact that there has been disagreement among those who have employed factor analysis in the

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[2]For a recent summary of the literature see Judith Wilks, "Ecological Correlates of Crime and Delinquency," in *Crime and Its Impact - An Assessment*, The President's Commission on Law Enforcement and Administration of Justice, Appendix A, pp. 138-156. For some representative, earlier as well as later studies, see: Clifford Shaw, *Delinquency Areas*, Chicago, University of Chicago Press, 1929; Clifford Shaw and Henry D. McKay, *Social Factors in Juvenile Delinquency*, Washington, U.S. Government Printing Office, 1931; Clifford Shaw and Henry D. McKay, *Juvenile Delinquency and Urban Areas*, Chicago, University of Chicago Press, 1942; David L. Bordua, "Juvenile Delinquency and 'Anomie': An Attempt at Replication," *Social Problems*, Vol. 7, No. 3 (Winter, 1958-59, pp. 230-238; Bernard Lander, *Towards an Understanding of Juvenile Delinquency: A Study of 8,464 Cases of Juvenile Delinquency in Baltimore*, New York, Columbia University, 1954; Terence Morris, *The Criminal Area*, London, Routledge and Kegan Paul, Ltd., 1957; and Robert A. Gordon, "Issues in the Ecological Study of Delinquency," *American Sociological Review*, Vol. 32, No. 6 (December, 1967), pp. 927-944.

manipulation of ecological data, most studies have led to the conclusion that types and patterns of delinquency dealt with officially have a spatial distribution related to the various zones, sectors, or areas of the city in essentially the same manner as described in the earliest Chicago area studies.[3] And they have been essentially the same whether police contacts, referrals, or court dispositions have been used as an index of juvenile delinquency.[4]

Furthermore, studies based on official records, differing in some respects but similar in most respects in their findings, lead to the conclusion that recidivism, juvenile and adult, is concentrated in the same areas that have otherwise been noted for crime and delinquency. But the pattern for recidivism is even more marked; differences between areas become even greater when based on either repeated contacts with the police or repeated appearances in juvenile court. A variety of measures have, therefore, focussed our attention on essentially the same thing, that is, the relationship of persistent and serious delinquency and crime to the social organization of the city--to the ecology of the city.

The fact that delinquency and crime have similar ecological distributions, are similarly related to the social organization of the community, and that criminal careers are thought to frequently follow delinquent careers, suggests that a useful measure of delinquency is one that cor-

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[3]Chilton states: "In view of the limitations of the data and the differences in the cities involved--differences in population size, physical layout, geographical location, demographical composition, and historical tradition--the congruity of the finding is remarkable," p. 83. Roland J. Chilton, "Continuity in Delinquency Area Research: A Comparison of Studies for Baltimore, Detroit, and Indianapolis," *American Sociological Review*, Vol. 29, No. 1 (February, 1964), pp. 71-83.

[4]Parallel to studies of delinquency largely based on official records has been research dealing with admitted crime that seems to broaden the base of delinquency and crime considerably. Although official delinquency and crime have been concentrated in low income areas, admitted delinquencies and crime do not have such a high concentration in this respect. See James F. Short and F. Ivan Nye, "Reported Behavior as a Criterion of Deviant Behavior," *op. cit.*; F. Ivan Nye and James F. Short, Jr., "Scaling Delinquent Behavior," *op. cit.*; John P. Clark and Eugene P. Wenninger, "Socio-Economic Class and Area as Correlates of Illegal Behavior Among Juveniles," *op. cit.*; and Austin P. Porterfield and C. Stanley Clifton, *Youth in Trouble*, *op. cit.*

relates with recidivism, i.e., continued delinquency and crime. We shall therefore test the effectiveness of the measures that have been developed with the Racine and Madison data in predicting recidivism in the form of adult criminal careers. The "best" measure of delinquency becomes the one that maximizes our ability to predict further delinquency and crime.

Earlier analyses of the data suggest that the number of contacts that a juvenile has had with the police during the age period 6 through 17 may be the best indicator of whether or not he will have an adult career. Rather than reviewing the problems and findings involved in attempting to predict adult careers described in our two earlier reports, we shall now turn to the new Guttman and Geometric scale scores based on the recoded and rescaled data described in Chapter II.

Setting Up the Prediction Problem

All juveniles in the Madison sample were divided into three groups as a basis for relating various measures of delinquency to their present status. The first group consisted of adult non-criminals, that is, those who at the time of the follow-up study in 1965 were age 21 or over, but did not have an adult criminal record in the files of the Department of Public Welfare. Whether or not they have had any contact with police outside of Wisconsin is something of which we could not be sure, but any kind of difficulty that would have brought them into the courts of the State of Wisconsin would have been recorded in the central files of the Division of Corrections of the State Department of Public Welfare. Had anyone in the sample been officially dealt with outside the state, information might also have been transmitted to appropriate persons in the state, but this is only a possibility.

The second group were those who had committed offenses after the age of 21; these are referred to as adult criminals. They had records in the courts of the State of Wisconsin and on file in the Department of Public Welfare.

A third group, the non-adult delinquents, were still juveniles at the time of the follow-up study. Whether or not they had continued to have contacts with the police in Madison and Racine was not known at the time of the follow-up study. Theoretically, the adult criminals should

have the highest scores and either the non-adult delinquents or the adult non-criminals the lowest scores.

Perhaps it should be noted at this point that 3.5 percent of the Madison juveniles who had become adults had gone on to adult careers while 3.9 percent of the Racine juveniles had gone on to adult careers. Since the two samples were not comparable in terms of the kinds of behavior that resulted in their having police contacts, the Racine juveniles having engaged in more serious depredations than the Madison juveniles, a comparison of these differences does not really indicate that one community or another is less effective in deterring its juveniles from adult careers. More will be said about this subject in one of the following sections where the interrelationships of a variety of variables will be discussed for both the Racine and Madison samples. The point is merely brought up at this time in the event that the reader has begun to speculate about the differential rate at which juveniles were classified as adult criminals for Racine and Madison.

It should also be noted that the category of non-adult delinquents is not of great concern to us in this section; unless we had let the sample run until such time as everyone reached the age of 18 or 21 or some later arbitrary cutting point there would be non-adults with records of continuing delinquency. Within this non-adult delinquent group there are, of course, those who have not yet reached the age of 18 and they constitute the bulk of the group--164 in Madison and 304 in Racine. There were only six juveniles classified as non-adult delinquents in Madison and 10 in Racine with careers between the ages of 18 and 21. Depending upon the cutting points selected, in most cases, the distribution of non-adult delinquents was more similar to that of the adult non-criminals than to the adult criminals. The chances are that most, if not all, of the non-adult delinquents in both Madison and Racine will end up in the category of adult non-criminals if another follow-up study is made on the sample.

In Tables VII and VIII, the results of three different cutting points are presented for the adult non-criminal, non-adult delinquent, and adult criminal groups for Madison and Racine. Although dichotomized Guttman scale scores indicated statistically significant differences between adult non-criminals, non-adult delinquents,and adult criminals, in no case

could Guttman scale scores be used as a more efficient predictor of the categories in which a person would be found than did the modal category of the marginals. Almost none of the juveniles had become adult criminals.

TABLE VII

DICHOTOMIZED GUTTMAN SCORES FOR MADISON RESIDENT AND NON-RESIDENT MALES

Dichotomized Guttman Scores	Adult Non-Criminals		Non-Adult Delinquents		Adult Criminals		Total	
0-1	761	*54%*	86	*51%*	18	*35%*	865	*53%*
2-9	661	*46%*	84	*49%*	33	*65%*	778	*47%*
Total	1422	*100%*	170	*100%*	51	*100%*	1643	*100%*
	$\chi^2 = 41.23$, 2 d.f., $p < .001$							
0-2	1128	*79%*	162	*95%*	30	*59%*	1320	*80%*
3-9	294	*21%*	8	*5%*	21	*41%*	323	*20%*
Total	1422	*100%*	170	*100%*	51	*100%*	1643	*100%*
	$\chi^2 = 16.52$, 2 d.f., $p < .001$							
0-3	1215	*85%*	163	*96%*	35	*69%*	1413	*86%*
4-9	207	*15%*	7	*4%*	16	*31%*	230	*14%*
Total	1422	*100%*	170	*100%*	51	*100%*	1643	*100%*
	$\chi^2 = 26.94$, 2 d.f., $p < .001$							

Should this research be of the usual simple-minded type, that is, merely oriented toward testing the null hypothesis, there would be something to exclaim about, as we have previously stated in reference to other findings of statistically significant differences. It would be impressive, in a sense, to note that in Madison, 41 percent of the adult criminals have Guttman scale scores of 3 or more while only 21 percent of the adult non-criminals have such high scores. Obviously, the probability of having an adult record was greater if one had a high Guttman scale score based on a record of police contacts as a juvenile. The table could, of course, be turned around and percentages calculated across categories; in this case we would say that 6.7 percent of those with Guttman scale scores 3-9 were adult criminals while only 2.6 percent of those who had scores from 0-2

were adult criminals. Or, for example, if we look at the Guttman scale scores as dichotomized between 1 and 2, 4.8 percent of the high scoring juveniles had adult careers while only 2.3 percent of the low scoring juveniles became adult criminals. The essence of what we are saying is that Guttman scale scores are related to outcome but that so few become adult criminals that the relationship is not high enough to make for increased predictive efficiency over that of the modal category of the marginals. The picture for Racine is similar to that for Madison; the Guttman scale scores being more or less discriminating than in the Madison case, depending on the cutting points selected.

TABLE VIII

DICHOTOMIZED GUTTMAN SCORES FOR RACINE RESIDENT AND NON-RESIDENT MALES

Dichotomized Guttman Scores	Adult Non-Criminals		Non-Adult Delinquents		Adult Criminals		Total	
0-2	660	*81%*	260	*83%*	15	*45%*	935	*80%*
3-9	159	*19%*	54	*17%*	18	*55%*	231	*20%*
Total	819	*100%*	314	*100%*	33	*100%*	1166	*100%*
	$\chi^2 = 26.49$, 2 d.f., $p < .001$							
0-4	779	*95%*	298	*95%*	29	*88%*	1106	*95%*
5-9	40	*5%*	16	*5%*	4	*12%*	60	*5%*
Total	819	*100%*	314	*100%*	33	*100%*	1166	*100%*
	$\chi^2 = 3.14$, 2 d.f., not significant							

When the dichotomized Racine Guttman scale scores are considered in terms of the proportion of low scoring juveniles who became adult criminals and the proportion of high scoring juveniles who became adult criminals, the greater propensity of high scoring persons to become adult criminals is apparent; 10.2 percent of those with a score above 3 who had become adults were classified as adult criminals, but only 2.2 percent of those with low scores were classified as adult criminals. Nonetheless, as in Madison, in spite of the significant relationships between status and Guttman scores, the best prediction is that all juveniles will become adult non-criminals. Looking at the data from a purely descriptive rather

than predictive standpoint, if a group of adult criminals are at hand, they are more likely to have high scores on the Guttman scale than a group of adult non-criminals. An adult criminal is more likely to have had a well-developed pattern of contacts with police officers as a juvenile than a juvenile who had some police contact but was later in the category of adult non-criminal.

We shall now turn to Table IX and X, which present the dichotomized Geometric scale scores for Madison and Racine. When the cutting

TABLE IX

DICHOTOMIZED GEOMETRIC SCORES FOR MADISON RESIDENT AND NON-RESIDENT MALES

Dichotomized Geometric Scores	Adult Non-Criminals		Non-Adult Delinquents		Adult Criminals		Total	
1-3	505	*35%*	119	*70%*	9	*18%*	633	*39%*
4-511	917	*65%*	51	*30%*	42	*82%*	1010	*61%*
Total	1422	*100%*	170	*100%*	51	*100%*	1643	*100%*
	$\chi^2 = 85.94$, 2 d.f., $p < .001$							
1-10	901	*63%*	144	*85%*	17	*33%*	1062	*65%*
11-511	521	*37%*	26	*15%*	34	*67%*	581	*35%*
Total	1422	*100%*	170	*100%*	51	*100%*	1643	*100%*
	$\chi^2 = 35.02$, 2 d.f., $p < .001$							
1-99	1350	*95%*	166	*98%*	44	*86%*	1560	*95%*
100-511	72	*5%*	4	*2%*	7	*14%*	83	*5%*
Total	1422	*100%*	170	*100%*	51	*100%*	1643	*100%*
	$\chi^2 = 10.58$, 2 d.f., $p < .001$							

point for Madison's Geometric scale scores is placed between 10 and 11, even though this does not generate the highest statistically significant difference, we have almost an exact reversal of percentages for high-low scores between adult non-criminals and adult criminals. Sixty-three percent of the Madison adult non-criminals have low scores while 67 percent of Madison's adult criminals have high scores. Almost the same pattern is found for Racine when its Geometric scores are dichotomized at the

same point--in this case there is an exact reversal of percentages. Still, the Geometric scores for neither community are sufficiently discriminating to make them useful as predictors of who will, or will not, become adult criminals.

TABLE X

DICHOTOMIZED GEOMETRIC SCORES FOR RACINE RESIDENT AND NON-RESIDENT MALES

Dichotomized Geometric Scores	Adult Non-Criminals		Non-Adult Delinquents		Adult Criminals		Total	
1-3	356	*43%*	105	*33%*	2	*6%*	463	*40%*
4-511	463	*57%*	209	*67%*	31	*94%*	703	*60%*
Total	819	*100%*	314	*100%*	33	*100%*	1166	*100%*
	$\chi^2 = 25.60$, 2 d.f., $p < .001$							
1-10	549	*67%*	211	*67%*	11	*33%*	771	*66%*
11-511	270	*33%*	103	*33%*	22	*67%*	395	*34%*
Total	819	*100%*	314	*100%*	33	*100%*	1166	*100%*
	$\chi^2 = 16.30$, 2 d.f., $p < .001$							
1-99	738	*90%*	282	*90%*	24	*73%*	1044	*90%*
100-511	81	*10%*	32	*10%*	9	*27%*	122	*10%*
Total	819	*100%*	314	*100%*	33	*100%*	1166	*100%*
	$\chi^2 = 10.26$, 2 d.f., $p < .001$							

When these tables are turned on their sides, so to speak, it is interesting to note that 6.1 percent of Madison's high scoring juveniles became adult criminals while only 1.9 percent of their low scoring juveniles became adult criminals. Similarly, in Racine, 7.5 percent of Racine's high scoring delinquents became adult criminals while only 2.0 percent of its low scoring juveniles became adult criminals.

Our last measure is, of course, number of police contacts, as shown in Tables XI and XII, with an additional table showing the correlation between each of these measures and status as adult criminals or adult non-criminals, and the percentage of "high scoring" adults who were classified as adult criminals as a consequence of their records in the Division of Criminal Statistics in Madison. Although all are statistically

significant correlations, Geometric scale scores are more highly correlated with status than either of the other two measures in Madison while

TABLE XI

NUMBER OF POLICE CONTACTS FOR MADISON RESIDENT AND NON-RESIDENT MALES

Number of Police Contacts	Adult Non-Criminals		Non-Adult Delinquents		Adult Criminals		Total	
1	738	*52%*	125	*74%*	14	*27%*	877	*53%*
2 or more	684	*48%*	45	*26%*	37	*73%*	766	*47%*
Total	1422	*100%*	170	*100%*	51	*100%*	1643	*100%*
	$\chi^2 = 42.77$, 2 d.f., $p < .001$							
1-2	984	*69%*	150	*88%*	23	*45%*	1157	*70%*
3 or more	438	*31%*	20	*12%*	28	*55%*	486	*30%*
Total	1422	*100%*	170	*100%*	51	*100%*	1643	*100%*
	$\chi^2 = 47.42$, 2 d.f., $p < .001$							

Guttman scale scores are highest in Racine. Since we have set prediction as our goal, what has thus far been described is only the beginning. The

TABLE XII

NUMBER OF POLICE CONTACTS FOR RACINE RESIDENT AND NON-RESIDENT MALES

Number of Police Contacts	Adult Non-Criminals		Non-Adult Delinquents		Adult Criminals		Total	
1	449	*55%*	203	*65%*	13	*39%*	665	*57%*
2 or more	370	*45%*	111	*35%*	20	*61%*	501	*43%*
Total	819	*100%*	314	*100%*	33	*100%*	1166	*100%*
	$\chi^2 = 13.26$, 2 d.f., $p < .001$							
1-2	592	*72%*	248	*79%*	14	*42%*	854	*73%*
3 or more	227	*28%*	66	*21%*	19	*58%*	312	*27%*
Total	819	*100%*	314	*100%*	33	*100%*	1166	*100%*
	$\chi^2 = 21.65$, 2 d.f., $p < .001$							

next and continuing question is how the data may be utilized or manipulated in order to generate scores that have not only a statistically significant relationship to the criteria (adult criminal or adult non-crim-

TABLE XIII

SUMMARY OF RELATIONSHIPS BETWEEN MEASURES OF DELINQUENCY AND ADULT CRIMINAL CAREERS

	r_b Coefficient of Correlation	Level of Significance	% of High Scoring Adult Criminals
	MADISON		
Guttman Scale Scores	.0668	.02	6.7 (scores of 3-9)
Geometric Scale Scores	.1134	.001	6.1 (scores of 11 or more)
Number of Police Contacts	.0895	.01	5.1 (2 or more contacts)
	RACINE		
Guttman Scale Scores	.1672	.001	10.2 (scores of 3-9)
Geometric Scale Scores	.1370	.001	7.5 (scores of 11 or more)
Number of Police Contacts	.1271	.001	7.7 (3 or more contacts)

inal), but how scores may be generated that discriminate so efficiently between adult non-criminals and adult criminals as to make it possible to predict whether a juvenile will go on to an adult career in crime or not.

IV
ADDED INPUTS TO THE PREDICTION DEVICE

Introduction

The alleged relationship between mobility and delinquency is based on the assumption that both juveniles and adults who have moved from community to community have, as a consequence, been less integrated into either the community in which they presently reside or into the larger society, and are therefore more likely to engage in behavior defined as delinquent or criminal by persons in positions of authority.

This may, in fact, be putting the wrong variable in the antecedent position. Rather than mobility being a prime facilitator of the acquisition of greater knowledge about delinquency and crime, delinquency and crime may play a major part in generating mobility among these segments of the population. The position taken in this report is that mobility is not in itself an important explanatory variable of the kind of behavior that has been observed and measured. As a matter of fact, an argument can be made for the decreasing visibility of delinquent behavior as a consequence of residential mobility. The juvenile who moves about within the city or between cities may be less likely to acquire a record of police contacts of sufficient length to be defined as one who should be watched by those responsible for monitoring juvenile behavior.

The data with which we have been dealing seem to support this position, for the juvenile who has been in either the community or in the study for a shorter period of time has also been less visible to the police, and as a consequence less visible to the researcher in terms of his record of police contacts. While there may not be exactly the same reduction in juvenile visibility to police due to mobility as there has been in juvenile visibility to the researcher due to limited time in the sample, reduced visibility due to limited time periods in the samples most certainly decreases the likelihood that some juveniles will be defined as serious delinquents.

In terms of our interest in predicting later criminal careers, we must attempt to find sociologically meaningful variables that have low correlations with each other but which are highly correlated with the criterion--later criminal careers. The addition of other variables to the prediction device will increase its efficiency only if they have low correlations with each other and high correlations with the criterion. If the variables to be considered for addition are highly correlated with the criterion, but even more highly correlated with it when combined with another variable such as socio-economic status of the area from whence the juvenile comes, they will add to the efficiency of the prediction device even though correlated with each other.

In this chapter we are concerned with the relationship of several variables characteristic of the juveniles in the sample to each other, to the socio-economic status of the areas within which the juveniles resided, and the relationship of these variables to three measures of delinquency and to later criminal careers. The first variable to be examined is years in the sample aged 6 through 17. The importance of this variable, as we have suggested, lies in the fact that all persons in the sample had neither the same years of exposure to the possibility of police contacts nor the same years of exposure to the possibility of their police contacts appearing in the records during the time covered by the studies in Madison and Racine. The question is whether this artifact of the data might have an influence on the findings. Obviously, time in the sample has had some influence on the recorded careers of juveniles but the question is whether it has been sufficient to merit retrospective concern. This problem is common to studies in which observations are made on a population of unequal ages for a given segment of their lives and for a stated period of time. The selection of a cohort to be observed over a period of years would have avoided this difficulty. However, this study was initially conceived as being a phenomenon having rates at points in time or having varying incidences over a given span of years, rather than as a study of cases or careers. In order to more readily do what we are not attempting, a sample of cases should have been selected whose careers began and ended during the time covered by the study, i.e., a cohort rather than a simple systematic sample. We are simply indicating, after the fact, that the

nature of the sample calls for serious consideration of the relationship of time in the sample to other variables.

The second variable is age at first police contact. Here the hypothesis is that first contact at an early age increases the visibility of the juvenile--he has become known to the police early in his career, quite aside from the fact that an early start leaves more time for further depredations and the compilation of a lengthy career. It is hypothesized that it is not only the time that is left, but that an early start is indicative of the beginning of a career. This, of course, is true only if he has had police contact at an early age at the beginning of the period covered by the study. Some juveniles may have had their first contact at an early age just before the study ended, while others may have had their n^{th} contact at a later age and just before they became 18 but shortly after the study commenced.[1] In the first case, the recorded career of the juvenile included in the study would be relatively short and might give the misleading picture of the juvenile's total career. We must therefore check to see exactly how age at first contact is related to the other variables included in the study, as well as measures of delinquency and later criminal careers.

The third variable with which we are concerned at this point is the span of time in which police contacts were recorded. If the juvenile has had police contacts over a period of six years, then he might be hypothesized to have a different kind of delinquent career than one who has had contacts for a two-year span. Here again, a problem is encountered because the age of the juvenile in relation to the years covered by the study can influence the time span during which a juvenile has been able to have contacts. This will be taken into consideration.

To repeat, in this chapter we are concerned with the relationship of these three variables to each other, to the socio-economic status

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[1]All contacts were counted from first contact to last even if first contact was in the 1940's. For example, if a person had 4 or 5 contacts in the 1940's but was 16 or 17 in 1950 or 1951, etc., and had no further contacts, he was omitted. If he had at least one more contact in 1950 or 1951, he was included in the sample and all his contacts were counted for his total career.

of the areas in which juveniles with delinquent careers resided, to the number of police contacts that a juvenile has had, his Guttman score, his Geometric score, and to his later status as an adult criminal or an adult non-criminal. The pattern of relationships to be discussed in the next three sections of this chapter are presented in Table I above.

TABLE I

THE INTERRELATIONSHIPS OF TIME, AGE AND SPAN TO MEASURES OF DELINQUENCY AND LATER CRIMINAL CAREERS

	Madison	Racine
Years a juvenile aged 6 through 17 during study vs.		
Number of police contacts	.0476##	.0699#
Guttman scores	.1203*	.0332
Geometric scores	.0476##	.0852**
Follow-up classification†	.0057	.0362
Time span for police contacts	.0449##	.0794**
Age at first contact	.2990*	.1014*
Age at first contact vs.		
Time span for police contacts	.1482*	.1926*
Number of police contacts	.0814**	.1462*
Guttman scores	.1939***	.2201*
Geometric scores	.2371**	.2594*
Follow-up classification†	.0125	.0853#
Time span for police contacts vs.		
Number of police contacts	.5923*	.4994*
Guttman scores	.5513*	.6076*
Geometric scores	.5609*	.7020*
Follow-up classification†	.0839**	.1131**

Level of significance of r_4 coefficient of correlations:

*Significant at the .001 level.
**Significant at the .01 level.
***Significant at the .02 level.
#Significant at the .05 level.
##Significant at the .10 level.

†Non-adult delinquents were excluded from these calculations.

Years in the Sample Aged 6 through 17

Our first question will be directed toward how the years that a person was a juvenile aged 6 through 17 during the period of the study is related to other variables, possibly in such a way as to influence the findings that have previously been discussed. The nature of the data would lead one to expect some relationship between the number of contacts that a juvenile has had and the number of years that he was aged 6 through 17 during the study, simply on a basis of increased exposure of a proportion of the juveniles in the sample. There is a low r_4 correlation of .0476 for Madison, significant only at the .10 level and for Racine a correlation of .0699, significant at the .05 level. While it is possible, by manipulating cutting points and selecting those which maximize differences, to come up with a statistically significant relationship, there is really not much difference in either community in the average number of years that juveniles were in the study aged 6 through 17 as one progresses from those with one contact to those with 10 or more contacts,

The next question is whether or not there is a relationship between his Guttman score and the years that a juvenile in the sample had been aged 6 through 17 during the period of the study. Depending upon the cutting points selected, the relationship is significant or not significant, but in most cases it is not significant and in no case is the r_4 coefficient of correlation above .12 (significant at the .001 level) in Madison or above .03 (significant at the .10 level) in Racine. Perusal of average Guttman scores in relation to number of years aged 6 through 17 during the study reveals irregular variation with little progression in Guttman scores with years, certainly not sufficient to lead us to believe that number of years aged 6 through 17 during the study has much influence on Guttman scores.

The same finding holds for the relationship between years a juvenile was aged 6 through 17 during the study in both Madison and Racine and Geometric scores. There are variations in the average number of years that the juvenile was in the study and Geometric scores, but there is no progression that would be indicative of any kind of peculiar influence of this variable on Geometric scores in either city. The r_4 coefficient of correlation for Madison was .0476, significant at the .10 level and for

Racine .0852, significant at the .01 level. Some of the specific variations that were found are of interest. In Madison, the Geometric score of 32 (a Geometric score representing liquor offenses only), consists of persons who had been a juvenile for the shortest number of years during the study, less than three as a matter of fact.[2] Similar to this was assault. At the other end of the continuum were sex offenses; these juveniles had been in the study over five years followed by juveniles who had contact with the police for disorderly conduct and incorrigibility, followed in turn by those who had contacts for incorrigibility only. This suggests that there is some difference in the pattern of contacts developed over a period of years as contrasted to the pattern of contacts for persons who have been in the sample for a shorter period of time, and have perhaps had their contacts late in their juvenile career.

As a matter of fact, the Geometric scores have a certain usefulness as an assist to sorting out the kinds of careers which may become visible to the police only over a period of years as contrasted to other types of careers which may be of such a nature that they are visible even if a person is only in the sample for a relatively short period of time. The only drawback to this, from the viewpoint of generalizing, is that the findings were somewhat different for Racine. Persons with contacts for sex offenses had been in the sample the shortest period of time as juveniles aged 6 through 17, followed by traffic and then liquor. In other words, the extreme end of Madison's and Racine's delinquents were similar in some respects but not in all. At the end of Racine's continuum containing juveniles who had been in the sample the longest period of time during the ages 6 through 17 are juveniles whose contacts were for disorderly conduct and traffic. It should be noted, however, that juveniles with careers based on multiple types of contact such as: a) contact for assault plus other contacts; b) contact for sex offenses plus other contacts; c) contact for suspicion, investigation, or information plus other contacts, and; d) contact for liquor plus other contacts, were also in the sample aged 6

[2]When such terms as "theft only" or simply "theft" are used, it means one or more contacts in this category only. For example, the category "theft" has previously been defined as theft, auto theft, forgery, or fraud and not "theft" per se.

through 17 for a longer period of years than were other career types. In other words, multiple contact types were found at the longer number of years in the sample aged 6 through 17 end of the continuum.

Now we should turn to the relationship of years aged 6 through 17 during the study to the follow-up classification as adult criminal or adult non-criminal. Here we find essentially the same picture as before since none of the cutting points resulted in any significant relationship between years a juvenile was in the study aged 6 through 17 and whether the juvenile was an adult non-criminal or adult criminal at the time of the follow-up.

Two other variables remain to be examined in relationship to years that a juvenile was aged 6 through 17 during the study. One is span of time during which contacts were recorded and the other is the age at first contact. The span of time during which contacts with police were recorded had little relationship to years that a juvenile was in the age 6 through 17 category.

If there is little or no relationship between the actual number of years a juvenile was aged 6 through 17 during the study and the length of time that he was actually acquiring police contacts, we can define this period of contacts as the span of his delinquent career. The span of a delinquent career may then be examined for its utility as a predictor of later criminal careers. Theoretically, the longer the span of a delinquent career the more likely the juvenile is to develop a career in adult crime. In Racine, the relationship between the two variables (time in sample aged 6 through 17 and span of police contacts) was not readily discerned although there was some tendency for those who had been ages 6 through 17 in the study the longest to have a longer span of time in which they had contacts with the police. An r_4 coefficient of correlation of .0794, although significant at the .01 level, did not indicate much relationship between the two variables. Essentially the same pattern was found for Madison with a coefficient of correlation of .0449, significant only at the .10 level. Most juveniles in both communities, as a matter of fact, were skewed toward the maximum number of years that they could have been in the 6 through 17 age group during the study and had their police contacts within a short span of time. This suggests, as did the time pattern

of Geometric scores, that those with a longer span of time in which they were elegible for inclusion (and therefore visible) and engaging in acts which result in police contacts may well be of a different type; in other words, span of time of police contacts may be a predictor of later criminal careers.

The next variable which we wish to examine in this series is age at first police contact in relationship to years a juvenile was aged 6 through 17 during the study. In Madison, the average age at first police contact of those who had been a juvenile only one year during the study was 15 declining to 12.5 for those who had been aged 6 through 17 for six years during the study. But the average years that a juvenile had been in the study tended to be low at each end of the continuum from early first contact to late first contact. In other words, the relationship between these two variables was curvilinear, starting out with those who had been age 6 through 17 a short time and had an early first contact, but with both age and years a juvenile aged 6 through 17 during the study increasing to almost six years in the study for the age group 10-12 at first contact, and then declining to four years in the study for those whose first contact with the police was at age 17. There is no easy explanation for this distribution since one would expect age at first contact to have an inverse relationship to years 6 through 17 in the sample with considerable decline in years in sample after the ages 10 through 12 for first contacts. Although the distribution was decidedly curvilinear, when both distributions were dichotomized, the inverse correlation between years a juvenile during the study and age at first contact was present, with persons who were oldest at the first contact tending to be a shorter length of time in the study than persons who were younger at first contact. The r_4 coefficient of correlation was .2990, significant at the .001 level. A similar but not nearly so marked curvilinear relationship was also found for Racine, the break in the curve coming at a later age at first contact in Racine than in Madison. Dichotomization distributes the Racine cases in a 2 x 2 table somewhat differently so that the relationship is actually in the other direction, that is, juveniles who had been in the study for a maximum number of years age 6 through 17 tended to be older at the time of first contact with the police. The r_4 coefficient of correlation was

.1014 and significant at the .001 level. But the main point is that in both cities age at first contact does not have a monotonic relationship to years that a juvenile was age 6 through 17 during the study. Age of first contact may be given further consideration as an explanatory variable that may well have predictive value. It is not tied to some other variable in such a way as to eliminate it from further consideration.

Age at First Contact as a Predictive Variable

Age at first contact was related to a number of other variables dealt with in the study. One of the questions that we are concerned with is the possibility that it might be an artifact of the method of sample selection rather than an independent variable characteristic of some juveniles but not others, but thus far we have not found this to be so.

One might wonder why the relationship of age at first contact to span of time contacts were had with the police is even considered, but we cannot speak about it without looking at the data. Here we would expect a fairly monotonic relationship with those whose first contact was at an early age having a longer time span of police contacts. The Madison data showed a definite decline in length of career with age at first contact and a decline in average age of first contact with increased length of span of contacts. The relationship was even more apparent in Racine. The Madison sample had an r_4 coefficient of correlation of .1482, significant at the .001 level and the Racine sample had an r_4 coefficient of correlation of .1926, significant at the .001 level. It should also be noted that the data are distributed so as to form what has been called a vanishing quadrant, with most juveniles falling on one side of a line based on a fairly straight progression--age at first contact declining as span of time increases. Many of the juveniles who are above this line are there for the simple reason that many juveniles having an early first contact had contacts for only that year, or for only a shorter number of years than the period that they could have, considering the span of time that they were in the study. To a certain extent, these correlations are an artifact of the data but they still suggest that age of first contact may be a part of the "causal chain."

The next question to which we shall turn is how age at first con-

tact relates to various measures of delinquency. In Racine, the r_4 coefficient of correlation between age of first contact and number of police contacts was .1462, significant at the .001 level and in Madison it was .0814, significant at the .01 level. If the age of first police contact is dichotomized in order to maximize its relationship to number of police contacts, a point somewhere around 12 or 13 years of age appears to be the best point, i.e., those whose first police contact came before the age of 12 or 13 were most likely to have a larger number of police contacts than those whose first contact came at a later age.

Guttman scores seem to be similarly related to age of first contact with police but to a greater extent with the Madison r_4 coefficient of correlation being .1939, significant at the .02 level and Racine being .2201 and significant at the .001 level. This relationship is not quite as simple as it might seem and differs for Madison and Racine. Madison juveniles with early first contacts had higher scores than those with later first contacts. While the relationship was not monotonic the direction was readily discernible. In the case of Racine, the coefficient of correlation referred to when the data were dichotomized, represented a relationship in the opposite direction, with those who had early first contacts having the lowest Guttman scores and those with later first contacts having the highest Guttman scores. Actually, the Racine data have an overall distribution which is similar to that for Madison but is just sufficiently different that dichotomizing on a basis of the same cutting points as in the Madison case generates a different distribution and a relationship in the opposite direction.

In both cities those whose first contact was at age 11-14 had a disproportionate number of the Guttman scores from 3 through 9. This suggests that if we are interested in plugging in age as a predictor of Guttman scores, dichotomizing the distribution is not as efficient as selecting this particular age span. However, if one wishes to dichotomize age in predicting Guttman scores, those whose first contact was below the age of 14 would be slightly more likely to have high scores than those whose first contact was above the age of 14.

One point that must not be overlooked is that when examining the relationship between the age of first contact and various measures of

delinquency there are marked variations and that this variable has a very significant relationship to measures of delinquency. The question is how much of this relationship is indicative of the influence of early police contacts on the extent and nature of delinquent careers, and how much is this relationship produced by the fact that some of those with later police contacts are not in the sample very long? And how much higher would the relationship be if some of those who had early contacts had their early contacts at the beginning of the study rather than just before the end of the study? All of this suggests, at the risk of too frequently adding a word of explanation and hindsight, that some of the problems that we have had would have been eliminated had we studied a cohort of juveniles aged 6 through 17 that could have been subdivided according to its various characteristics. As we have stated, the nature of our study was such that we were primarily interested in determining what was happening in two communities over a period of time. We selected random samples of juveniles with recorded police contacts during the period for which comparable data were available and used these data as a basis for describing the delinquency scene. We have not only described delinquency in Madison and Racine as originally intended, but have dealt with other questions that became of interest to us after the study was originally conceived, namely, the nature of delinquent careers and their relationship to later criminal careers.

The relationship of age of first contact to Geometric scores is not simple. Age at first police contact is inversely related to Geometric scores in Racine with an r_4 coefficient of correlation of .2121, significant at the .001 level. In Madison, the same cutting points present an r_4 coefficient of correlation of .0057 that is not statistically significant. When the Madison cutting point is shifted downward for the Geometric scores the r_4 coefficient of correlation becomes .2371, significant at the .01 level, but the direction of the relationships is exactly the opposite as that for Racine with low Geometric scores associated with early first police contacts. When the cutting points were similarly shifted for Racine, the r_4 coefficient of correlation increased to .2594, significant at the .001 level but the direction of the relationship remained the same, emphasizing even more the differences between the two cities.

These differences were to be expected however, since other variables had been differently related to Geometric scores in Madison and Racine.

The lowest average age of first contact in Madison is for a few people who had contacts for assault only, followed by disorderly conduct and incorrigibility only, and robbery only. This would suggest that more serious types of careers are characteristic of those who start at an early age. Juveniles commencing their career at a later age have contacts for liquor only, traffic only, traffic plus either disorderly conduct or incorrigibility, and traffic plus both disorderly conduct and incorrigibility. Turning to Racine, assault plus some other contact such as incorrigibility or disorderly conduct, and incorrigibility plus other contacts is found for careers beginning at an early age. In this respect Madison and Racine are similar. When we turn to the upper age limits, Madison and Racine are again similar; those with traffic offenses commence at a later age, followed by liquor, traffic plus disorderly conduct, and finally, liquor plus a variety of other contacts such as traffic. Contacts involving traffic and liquor are most likely to come at the later age due to the fact that age is related to the ability to drive and to purchase liquor illegally.

Overall, there is really not much relationship between Geometric scores and age at first contact, but when looked at in terms of average age of first contact for specific Geometric scores, there may be something to be gained. In other words, early delinquent careers of certain types may be useful predictors of more fully developing careers and later criminal careers.

In order to better understand the relationship of Geometric scores to age at first police contact, we placed Geometric scores representing most frequently occurring patterns of police contact on one side or another of a cutting point based on whether persons with each Geometric score were more often 14 years of age or over at first contact or less than 14 at age of first contact. In Madison, if age at first contact is divided between 13 and 14, the majority of the Geometric scores fall in the category for those whose first contact is below 14 years of age. But six categories, namely, liquor offenses, liquor offenses plus other, traffic offenses, traffic offenses plus others, contact for suspicion, invest-

igation or information, and theft fall most frequently in the 14 or above category. When this distribution is the basis for computing an r_4 coefficient of correlation, it is .3386 and significant at the .001 level. This is an improvement over the .2371 coefficient that was obtained when the entire continuum of Geometric scores was dichotomized. Perusal of the data indicates that some types of contacts are almost entirely by juveniles 14 or above, such as traffic and liquor, while those whose first contact was below the age of 14 may make up a disproportionate share of other categories or patterns of police contact but not in such a disproportional fashion.

If age at first contact is dichotomized between 12 and 13, the picture is considerably different and the correlation is essentially the same as that obtained when the total continuum was dichotomized, an r_4 of .2370 that is significant at the .01 level for Madison. What this does is to place only disorderly conduct, incorrigibility, incorrigibility and disorderly conduct, robbery, and assault in the category for which more juveniles were age 12 or less at the time they had their first police contact. What the latter indicates is that age 13 is a more meaningful and efficient cutting point for predicting certain categories of behavior.

The picture for Racine is similar. When the cutting point is 14 and above or less than 14, the r_4 coefficient of correlation is .3623 and significant at the .001 level. The following categories contained those juveniles whose first contacts were most frequently at age 14 or above: Traffic, traffic and disorderly conduct, theft, theft plus others, liquor offenses, liquor offenses plus others, and robbery. All other categories were those for which the juveniles were more often than not less than 14 at age of first contact. When the cutting point was 12 or less, all Geometric score types consisted of persons whose first contacts were at the age of 13 or more.

The last relationship in this series is probably the most important in terms of the prediction problem and in terms of what we would expect considering all that has been written about juvenile delinquency. The early onset of a delinquent career is hypothesized to be predictive of a later criminal career.

Over 60 percent of Racine's adult non-criminals had their first

contacts with police after the age of 15 but over 60 percent of the adult criminals had their first police contact before the age of 15. However, whether they had early or late police contacts, most never continued their delinquent patterns of behavior to the point of having careers as adult criminals. In Madison, there was little difference in the proportion of adult non-criminals and adult criminals who had had police contacts below the age of 15. In the case of Madison, the r_4 coefficient of correlation was .0125 and was not statistically significant, while in the case of Racine it was .0853 and significant at the .05 level. But in neither case did age of first contact really discriminate between adult non-criminals and those who became adult criminals. This suggests that however interesting age of first police contact has been in relationship to measures of delinquency, it will not much increase our predictive efficiency as a single independent variable.

We shall now examine span of years in which offenses were committed as a possible input to a predictive device.

Span of Time in Which Police Contacts Occurred

One would expect relatively high correlations between number of police contacts and span of time in which contacts were had with the police but these correlations may not have really reached their maximum in our samples since the time limitations of the study prevented some careers from running their entire course. The data do indicate that in both Madison and Racine there was a fairly distinctive break between those whose careers spanned less than four years and those whose careers spanned more than four years. Although number of contacts and span of time in which contacts were made are correlated, span of time as well as number of contacts may be useful predictors of later criminal careers. Those who have had police contacts over a longer period of time, have by and large, had far more police contacts than those who have had contacts for a shorter period of time. The r_4 coefficient of correlation between number of contacts and span of time in which contacts were committed for Madison was .5923, significant at the .001 level and for Racine it was .4994, significant at the .001 level. When single contact persons were eliminated, the correlation between span of time and number of police

contacts was reduced to .4034 in Madison and .3993 in Racine, both significant at the .001 level.

The relationship between span of time in which contacts were made with the police department and Guttman scores was even higher with an r_4 coefficient of correlation of .6076 for Racine and .5513 for Madison, both being significant at the .001 level. Other cutting points generated lower coefficients of correlation but the relationship was always close to .400 and significant at the .001 level. Going from the lowest to the highest Guttman scores, the higher the score the longer the time span in which contacts were had with the police. The average span of contacts with the police ranged from 1.4 years and steadily progressed to 7.5 years in Racine while in Madison it commenced at 1.3 and progressed to 5.5 years. Similarly going from 1 year to 12 years, average Guttman scores increased from 1 to 8 in Racine. Although they increased in Madison, they did not increase with such regularity, the relationship being somewhat curvilinear. Again, span of time in which contacts were had with the juveniles is so closely related to measures of delinquency that it may well serve as an additional predictor of later criminal careers.

Perhaps even more interesting, is the relationship of time span of contacts with police to the Geometric scores. In Racine, liquor offenses, robbery, and assault were typical of those with short spans while assault in combination with other contacts such as incorrigibility, sex offenses plus other contacts, and robbery plus other contacts were at the other end of the continuum with longer time spans of police contacts. In Madison, robbery and assault were at the short end of the continuum along with contact for suspicion, investigation, or information and liquor offenses. The similarity in Madison and Racine is notable. At the other end of the continuum were a variety of careers, but assault in combination with other variables such as disorderly conduct and incorrigibility, or sex offenses in combination with other variables such as incorrigibility and so on were at the longer span of contact end of the continuum. The data suggest that certain types of careers are more likely to span a number of years and lead to careers as adult offenders.

When the various Geometric careers were dichotomized as to whether they were predominantly careers which took place during a span of

one or two years, and three years or more, the r_4 correlation for Madison was .5609, significant at the .001 level. For Racine, the r_4 coefficient of correlation was .7020, significant at the .001 level.

In both Racine and Madison, the average span of time in which juveniles had contact with police was greater for those who became adult criminals, being three or more years in both cases as contrasted to approximately two years for those classified as adult non-criminals. Although this difference existed when the data were placed in a 2 x 2 table, the most judicious cutting point still failed to generate very high coefficients of correlation, .1131 for Racine, significant at the .01 level, and .0839 and significant at the .01 level for Madison.

Table II summarizes the interrelationship of years that a juvenile was in the study aged 6 through 17, age at first contact, and time span for police contacts, and their relationship to three measures of juvenile careers and the follow-up classification as adult criminal or adult non-criminal.

TABLE II

THE INTERRELATIONSHIPS OF TIME, AGE AND SPAN TO MEASURES OF DELINQUENCY AND LATER CRIMINAL CAREERS

		Number of police contacts	Guttman scores	Geometric scores	Follow-up classification†	Time span for police contacts	Age at first contact
Years a juvenile aged 6-17 during study	M	.0476##	.1203*	.0476##	.0057	.0449##	.2990*
	R	.0699#	.0332	.0852**	.0362	.0794**	.1014*
Age at first contact	M	.0814**	.1939***	.2371**	.0125	.1482*	
	R	.1462*	.2201*	.2594*	.0853#	.1926*	
Time span for police contacts	M	.5923*	.5513*	.5609*	.0839**		
	R	.4994*	.6076*	.7020*	.1131**		

Level of significance of r_4 coefficient of correlations:

*Significant at the .001 level.
**Significant at the .01 level.
***Significant at the .02 level.
#Significant at the .05 level.
##Significant at the .10 level.

†Non-adult delinquents were excluded from these calculations.

Years that a juvenile was aged 6 through 17 during the period of the study did not have a high enough correlation with any other variable to result in a great deal of concern about whether or not any of the findings reported in this study were artifacts of differences in time span. While most of the correlations were statistically significant, they were sufficiently low to be of little concern.

When age at first contact was considered, the findings were somewhat different, most being statistically significant at the .001 level in Racine and the .01 level in Madison. But here the correlations were also relatively low and we would have expected them to be fairly high. It may be that the size of these correlations is an artifact of the data, that is, the fact that juveniles lived varying portions of their careers during the period covered by the study. The chance that the time span covered in Madison (6 years) influenced the results is borne out to a certain extent by the fact that the Racine coefficients (based on a 10-year span) were higher in every case.

Span of time in which the juvenile had police contacts had the highest correlations of all with measures of delinquency. These correlations are influenced by the nature of the data since a person with one contact would have had a span of time of one year while another juvenile could have had numerous contacts within the span of only one year.

Socio-Economic Status

Although we have touched upon measures of delinquency and their relationship to socio-economic status as the latter is defined by the characteristics of either areas or school districts in which the juveniles reside who have had police contacts of various types and patterns, we have not presented the relationship of socio-economic status to the variables that we have discussed in earlier portions of this chapter.

It will be readily recalled that in Madison the low socio-economic status area had a disproportional number of juveniles with multiple police contacts and the middle socio-economic status area had relatively fewer juveniles with multiple police contacts, while the high socio-economic status area had the fewest juveniles with multiple police contacts. These differences were statistically significant at the .001

level. While the same general pattern was present in Racine, the similarity of the low and middle socio-economic status areas was such that differences were not statistically significant when there were either 4 or 6 degrees of freedom, that is, when low, middle, and high socio-economic status areas were compared and the number of police contacts were placed in either three or four categories.

In terms of the hypotheses that we are exploring in this study, our efforts to develop valid measures of delinquent careers, our attempts to predict outcome on the basis of sociologically meaningful factors, we would hope that the socio-economic status of areas would not be related in a systematic fashion to the years that the juveniles in a sample residing in them were aged 6 through 17 during the period of the study. In Madison, the number of years juveniles were aged 6 through 17 during the study did not have any significant variation with the socio-economic status of the areas. In Racine, the difference was significant at the .02 level. But the difference that did exist was in the direction of full exposure for high socio-economic status juveniles; the fact that there was a slight tendency in that direction may have been one of the factors that tended to reduce the relationship of all measures of delinquency to socio-economic status areas in Racine. This directional difference is desirable, however, in terms of a more conservative approach to significant differences than would the opposite type of relationship have been. The data are presented in Table III.

Age at first contact varied significantly with the socio-economic status of areas; this was expected with low socio-economic status areas containing juveniles whose first contact was at an earlier age than middle or high socio-economic status areas. The difference was more marked in Madison than in Racine, being significant at the .001 level in Madison but only at the .02 level in Racine. This again suggests that age at first contact, in combination with other variables, may maximize our ability to predict outcome since both low socio-economic status and low age at first contact tie in with other variables that may be efficient predictors but even more efficient in combination with others.

Length of delinquent careers, as measured by time span, during which police contacts took place, also varied significantly by socio-

economic status. This fits in, of course, with the fact that age at first contact was related to socio-economic status. In Racine, the average career was 2.37 years in the low socio-economic status area, 2.09 in the middle socio-economic status area, and 1.94 in the high socio-economic status

TABLE III

SOCIO-ECONOMIC STATUS VERSUS NUMBER OF YEARS IN THE SAMPLE AGED 6 THROUGH 17 DURING THE PERIOD OF STUDY

Years Aged 6-17 During Study	Socio-Economic Status Areas		
	Low	Middle	High
		MADISON	
1-4	30.3%	27.0%	26.7%
5-6	69.7%	73.0%	73.3%
Total	100.0%	100.0%	100.0%
	χ^2 = 1.9071, 2 d.f., not significant		
		RACINE	
1-5	33.6%	25.9%	23.9%
6-11	66.4%	74.1%	76.1%
Total	100.0%	100.0%	100.0%
	χ^2 = 8.6513, 2 d.f., $p < .02$		

area; in Madison, the average career length in years was 2.57 in the low socio-economic status area, 2.28 in the middle socio-economic status area, and 1.81 in the high socio-economic status area. The difference was greater for Madison than for Racine, being significant at the .001 level in Madison and the .02 level in Racine.

Of most interest, of course, is the relationship of socio-economic status areas to the generation of adult criminal careers. In Madison, adult criminal careers were disproportionately generated in the middle socio-economic status area followed by the low socio-economic status area and the high. The ratio was 1 in 25 for the middle socio-economic status area in Madison, 1 in 35 for the low socio-economic status area, and 1 in 54 for the high socio-economic status area but this difference was not statistically significant. In Racine, on the other hand, the low socio-economic status area generated adult careers disproportionally at

the ratio of 1 to 16, the middle socio-economic status area 1 in 27, and the high socio-economic status area only 1 in 75. One of the interesting comparisons that can be made between Madison and Racine is the overall rate at which adult careers were generated--1 in 34 for Madison and 1 in 24 for Racine. It must be remembered that reasons for police contact in Racine were more skewed towards the serious categories of police contact than in Madison; we would therefore expect adult criminals to develop from juvenile careers at a higher rate in Racine than in Madison.

The relationships to which we have just referred suggest even more strongly than previously, that the socio-economic status of the area in which careers were generated, the age at which the juvenile has his first contact with the police and the length of a career or time span of a career are variables that may be of considerable use when we increase the number of inputs to our predictive device.

TABLE IV

SOCIO-ECONOMIC STATUS OF AREAS VERSUS
POTENTIAL PREDICTORS AND ADULT STATUS

	Madison	Racine
Chi-square for SES vs.		
Years a juvenile aged 6 through 17 during study period	2.36	8.65**
Age at first contact	17.52*	8.04**
Span of career in years	26.92*	8.19**
Adult status as criminal or non-criminal	1.81	5.32***

*Significant at the .001 level.
**Significant at the .02 level.
***Significant at the .10 level.

†Non-adult delinquents were excluded from these calculations.

Each school district in Madison and each in Racine was given a socio-economic status rank and a delinquency rank; the latter was based on the proportion of juveniles aged 6 through 17 in each school district who, during the course of the study, had one or more police contacts. Socio-economic status ranks were taken from the data presented in the tables in the previous chapter. Rank-order correlations were calculated

in two ways. In one, each school district was placed in its appropriate socio-economic status area--high, middle, or low. In the other, each school district was placed on a continuum of school district ranks from high to low. Each other variable was dichotomized as high or low in this series of correlations. Here we are attempting to get at essentially the same type of thing that we were concerned with earlier in the chapter, but the correlations are ecological rather than individual. This is consistent with our earlier statement to the effect that there is an ecological basis for predicting not only who will have a delinquent career, but who will have a more serious and continuing career of delinquency and who will have an adult career.

In Madison, delinquency and socio-economic status correlated from .426 to .600 depending on the cutting point selected, but was not significant at even the .05 level, although it came close to being so when the correlation was .600. Since previous presentations of the relationship of delinquency to the ecology of the city for Madison and Racine have generally referred to a significant relationship, these correlations suggest that a certain amount of the data are lost when school districts are ranked and ranks dichotomized as we have done at this point. We are dealing here with the number of juveniles who have had any contact rather than with a measure of contacts, per se, or with seriousness of careers. These disparate findings are based on the fact that the high socio-economic status area had 30.4 percent of the juveniles aged 6 through 17 during the period of the study and 21.7 percent of the contacts, while the low socio-economic status area had 39.9 percent of the juveniles and 48.1 percent of the contacts. When individual school districts were considered, the school district with the lowest index had eight percent of the juveniles and five percent of the contacts, while the school district with the highest delinquency index had three percent of the juveniles and four percent of the contacts. School district by school district, most did not have a greatly different percentage of the juveniles with contacts than juveniles. The really great differences that were found were based on, as we have indicated before, repetitiveness of police contacts among some of the juveniles in some areas.

While these data do, in a sense, repeat what we stated about the

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school districts and areas in the first chapter of the study, repetition at this point is necessary to put the rest of the series of tables in a proper perspective. Essentially the same finding was made for Racine with correlations of .492 and .514, neither being significant. Racine's high socio-economic area had 35.8 percent of the juveniles and 23.9 percent of the contacts, its middle socio-economic status area had 27.8 percent of the juveniles and 32.9 percent of the contacts, while its low socio-economic status area had 36.5 percent of the juveniles and 43.3 percent of the contacts. The school district with the highest index of delinquency had 10.8 percent of the juveniles and 17.5 percent of the contacts while the school district with the lowest index had 30.1 percent of the juveniles and 26.1 percent of the contacts. Here again, as one goes from school district to school district, except at the extremes, the percentage of the juveniles with police contacts in a school district is not really greatly different from that of the percentage of juvemiles aged 6 through 17 in that school district.

Next we turn to the relationship of the socio-economic status of school districts, to the age at which juveniles had their first police contact. This, as we have suggested, is a variable worth giving the most serious consideration. In Madison, depending on the cutting point selected, an r_4 coefficient as high as 1.00 was generaged; the eight lowest socio-economic status school districts were in opposite cells of a 2 x 2 table from the seven highest socio-economic status school districts with the high socio-economic status school districts having juveniles with later first contacts and the low socio-economic status school districts having juveniles with earlier first contacts. In this instance, the age at first contact cutting point was 12.8, with school districts having an average age of 12.8 or more having the highest socio-economic status and those having an average age of less than 12.8 having the lowest socio-economic status. The same approach resulted in a correlation of .528 for Racine, significant at the .10 level.

The average age of first police contact for juveniles in Madison varied from 10.9 years to 13.7 years by school districts. The average age for the low socio-economic status area was 12.3, for the middle socio-economic status area it was 12.5, and for the high socio-economic status area

it was 13.3. For Racine, the average age of first police contact ranged from 11.7 to 14.4 by school districts. The average by socio-economic status areas was 12.8 for the low socio-economic status area, 13.6 for the middle socio-economic status area, and 13.5 for the high socio-economic status area. This again emphasizes the likelihood that age at first police contact in combination with the area in which the delinquency is generated at its highest rate may well be a useful predictor of longer careers and later criminal careers.

However, when the delinquency rank of school districts in both Madison and Racine was correlated with the ranking of school districts according to the age at which delinquents had their first police contact, neither the Madison correlation of .391, nor the Racine correlation of .181 was statistically significant.

The relationship of span of time in which delinquent contacts were had with police, to delinquency rank and socio-economic status, should be fairly high and would be hypothesized as high if not higher than the relationship of age at first contact to both of these measures. Madison's school district with the shortest average span of contacts was 1.25 years while the longest average span of contacts was 2.99. In Racine, the shortest average span of contacts was 1.55 years and the longest was 3.13. When taken by areas, the high socio-economic status area had an average span of contacts of 1.88 years, the middle, 2.10, and the low, 2.36. In Madison, socio-economic status was correlated with time span of contacts .746, significant at the .02 level, and in Racine it was correlated .887, significant at the .01 level. The relationship of span of contacts to socio-economic status of the school districts in which juveniles reside was therefore well established. This also suggests that years of delinquent activity resulting in police contacts, in combination with socio-economic status of the area in which delinquency is generated, may be an excellent predictor variable. When those who have had only a one year career are eliminated, the difference between low socio-economic status school districts and high socio-economic school districts is maximized in Madison. In other words, the differences between high socio-economic status school districts and low socio-economic status school districts is emphasized and accentuated when one looks at long careers as contrasted

to shorter careers in Madison. When attention is focused on long careers in Racine, the difference between low and high socio-economic status school districts is accentuated as is the difference between low and high socio-economic status areas. On the other hand, neither the r_4 coefficient of correlation between average span of contacts during the period of the study nor delinquency rank (.492 for Madison and .528 for Racine), was significant at an acceptable level.

The next variable in this series is years in the study aged 6 through 17. Here we would hope that there would be very little difference in the average age juveniles were in the study from school district to school district and from socio-economic status area to socio-economic status area. This is what we find with that school district having the longest average age being 6.26 and the shortest 4.76. Most school districts had an average of five or a bit above it. The average years in the community aged 6 through 17 for the low socio-economic status area in Madison was 4.97, 5.43 for the middle socio-economic status area, and 5.10 for the high socio-economic status area. What we are saying is that there is probably little variation in years in the study aged 6 through 17 that is likely to influence the delinquency rates to be found school district by school district or area by area.

Essentially the same is true for Racine with the longest span being 8.19 years and the shortest being 6.69 with most being very close to 7 years. The low socio-economic status area had an average of 6.99 years, middle, 7.53, and high, 7.87. This would, as we have previously suggested, tend to increase the delinquency rate for the high socio-economic status area and the middle socio-economic status area as contrasted to the low socio-economic status area, but any distortion would be in the direction of reducing delinquency rates from area to area. Therefore, we need not be concerned about this in Racine.

Years a juvenile was age 6 through 17 during the study period had an r_4 coefficient of correlation with the delinquency rank of school districts of .238 for Madison and .169 for Racine, neither being statistically significant, although few years in the sample aged 6 through 17 was related to low delinquency rate.

When we turn to the relationship of years in the sample aged 6

through 17 to socio-economic status of school districts, quite a different finding is made. Here we would hope for a low correlation in order that there be no chance that length of time eligible for perception as a delinquent be related to socio-economic status, and thus an influence on the relationship between socio-economic status and delinquency. Unfortunately, this is not what we found. The highest correlation between socio-economic status and years aged 6 through 17 in the sample for Madison was .689 and this was significant at the .05 level. High socio-economic status tends to be related to high number of years aged 6 through 17 and low socio-economic status tends to be related to low number of years aged 6 through 17. Fortunately, the nature of this relationship in Madison is such that we do not need to be concerned about actual number of years aged 6 through 17, resulting in more exposure for the low socio-economic status school districts. It tends to reduce the difference between school district scores rather than to increase them, making for lower correlations where higher correlations would be expected. It is a conservative influence on the findings.

In Racine, the r_4 coeficient of correlation between years aged 6 through 17 in the sample and socio-economic status was .653 and significant at the .05 level, high socio-economic status being related to more years in the study aged 6 through 17 and therefore tending to reduce the correlation between socio-economic status and measures of delinquency rather than be an artifact that would present a misleading high finding.

From the standpoint of our interest in prediction, the last of this series of variables would hopefully produce the highest set of correlations. It does not. There is a correlation of .233 between delinquency rank and follow-up category as adult criminals versus adult non-criminals in Madison, and in Racine the correlation is .457, but neither are statistically significant. There was considerable variation in the ratio of adult criminals to juveniles with police contacts from school district to school district. Some high socio-economic status school districts had no juveniles who became adult criminals (with the ratio for all high socio-economic school districts about 1 in 50) while some at the low end of the continuum had a ratio of 1 in 15. In Racine, more school districts at the high socio-economic status end of the continuum tended to have none, or

very few, juveniles who ended up with adult criminal careers while those at the low socio-economic status end of the continuum tended to have a higher ratio of adult criminal careers with the highest being 1 in 10 for three of these school districts. While these correlations were relatively low, the enormous difference from school district to school district in the ratio of adult criminals to adult non-criminals leads us to continue to think of the ecology of delinquency as being the best approach to predicting adult criminal careers. But even here, only one cutting point produced a statistically significant correlation between the socio-economic status of school districts and follow-up categories--and that was for Racine, .648 and significant at the .05 level.

These correlations offer further evidence that age at first police contact, span of years in which police contacts took place, and the socio-economic status of school districts in which juveniles resided, should enable us to increase the efficiency with which we predict who will have either a serious delinquent career once they have had a police contact or who will have an adult criminal career, if they are properly combined. The coefficients of correlation that we have been discussing in this section of the report are presented in Table V.

Further Consideration of Measures of Delinquent Careers and Their Usefulness as Predictors of Later Criminal Careers

One question with which we have not yet adequately dealt is the relationship of various measures of police contacts of a juvenile to whether or not he had a later criminal career. In Madison, the average juvenile with an adult criminal career had 5.8 police contacts, while those who became adults but did not have a recorded criminal career had an average of 2.7 police contacts. In Racine, the average juvenile with an adult criminal career had 4.3 police contacts while those who were classified as adult non-criminals had 2.4 police contacts. Average differences are one thing, but predictability is another. No cutting point enabled us to predict who would have an adult criminal career, and as we have stated before, our best prediction would be that no one would have an adult criminal career. Be that as it may, simple number of police contacts should be part of the input to any predictive device in order to maximize its effectiveness.

TABLE V

THE INTERRELATIONSHIP OF TIME, AGE, SPAN AND ADULT CLASSIFICATION TO SCHOOL DISTRICT CHARACTERISTICS

	Madison	Racine
Age at first contact vs.		
Delinquency rank[1]	.391	.181
SES rank[2]	1.000*	.528##
HML SES rank[3]	.426	.326
Time span for police contacts vs.		
Delinquency rank	.492	.528##
SES rank	.746***	.887**
HML SES rank	.689#	.549##
Years a juvenile aged 6 through 17 during study vs.		
Delinquency rank	.238	.169
SES rank	.689#	.653#
HML SES rank	.426	.789**
Follow-up classification† vs.		
Delinquency rank	.233	.457
SES rank	.000	.648#
HML SES rank	.218	.514

[1]Delinquency rank is based on the proportion of the total population of juveniles aged 6 through 17 in each school district who had one or more police contacts.

[2]School districts were ranked from high to low according to a socio-economic status index. Based on data presented in Tables IV A and IV B, pp. 55 and 56 of this report.

[3]School districts were categorized as high, middle or low socio-economic status areas on a basis of the rank referred to above.

Level of significance of r_4 coefficient of correlations:

*Significant at the .001 level.
**Significant at the .01 level.
***Significant at the .02 level.
#Significant at the .05 level.
##Significant at the .10 level.

†Non-adult delinquents were excluded from these calculations.

The differences in police contacts between those juveniles with adult careers and those without recorded adult careers may be stated in another way. Of the juveniles in the Madison sample with adult criminal careers, 55 percent had more than three police contacts while only 31 percent of the adult non-criminals had more than three police contacts. In Racine, 58 percent of the adult criminals had three or more contacts while only 28 percent of the non-criminals had three or more contacts.

Similarly, Guttman scores did not enable us to increase our predictive efficiency over that which could be obtained from the marginal totals, but yet there was a definite relationship between Guttman score and status as adult non-criminals or adult criminals. This varied with the cutting point that was selected but yet the difference was always there and juveniles with higher Guttman scores were most likely to have had adult criminal careers. It will be remembered that in Madison, 41 percent of the adult criminals had a Guttman score of 3 or above, while only 21 percent of the adult non-criminals had such a high score. In Racine, 54 percent of the adult criminals had a Guttman score of 3 or above while only 19 percent of the adult non-criminals had a score this high.

Although we have discussed Geometric scores at some length and stated that they did increase predictive efficiency over the marginals, they, in combination with school district or socio-economic status area data, may be of greater utility as predictors than when simply used alone. For example, 75 percent of the juveniles with a Geometric score based on sex offenses were found in the low socio-economic status area in Madison and 71 percent of those with Geometric scores based on sex offenses plus other contacts were in the low socio-economic status area. Similarly, 60 percent of those who had a score based on assault plus other contacts were located in the low socio-economic status area and 52 percent of those who had a score based on robbery or burglary plus some other contact were in the low socio-economic status area. The disproportionate distribution of certain high Geometric scores suggests that outcome for some contact types should be considered in developing the predictive device. In Racine, similar findings were made; sex offenses and sex offenses in combination with others in the low socio-economic status area accounted for 61 percent and 52 percent of these categories. Assault only, assault plus

other categories of contact, and robbery and other categories were also disproportionately represented in the low socio-economic status area. This is what we would, of course, expect, considering the disproportionate distribution of single contact categories described in Chapter II of this report. Here we are merely commenting on the fact that certain contact categories in combination with others, as revealed by the Geometric scores, call attention to reasons for contact in relationship to type of area in which contacts were generated as possibly having greater utility in prediction than types of contacts alone.

The point can be made even better when specific types of Geometric scores are spooned out on a basis of their relationship to whether the juvenile has an adult career or not. For example, in Madison, one in five persons with assault plus other categories of police contact had adult criminal careers while only one out of approximately 120 with contacts for disorderly conduct had adult criminal careers. If certain types of careers are selected then our abiltiy to predict adult criminal careers becomes considerably greater than if we simply select the most discriminating point of the continuum on Geometric scores. To present a more comprehensive example, when those who had careers of the following types--incorrigibility, traffic plus incorrigibility or disorderly conduct or both, theft, theft plus other contacts, liquor plus other contacts, robbery plus other contacts, assault plus other contacts, and sex offenses plus others--are selected, we have 43 out of 51 or 84 percent of those with adult criminal careers. When predictive types are placed in a 2 x 2 table with adult status we obtain an r_4 of .1494, statistically significant at the .001 level. This compares with 67 percent and an r_4 of .1134 when the most efficient cutting point was selected on the Geometric continuum. If we consider only those juveniles who had certian individual Geometric scores falling, for example, in the assault plus other contacts category, then we have a category from which all became adult criminals. This is, of course, the extreme end of the continuum. At the other end, for example, we can select a group, none of which became adult criminals, such as those with contacts for disorderly conduct and incorrigibility. This is a common problem in prediction--a category at one extreme end of the continuum invariably falls in the adult criminal

category and a group at the other end invariably falls in the adult non-criminal category. For example, if a juvenile had a score that included all of the categories except sex offenses (15.7 percent of the adult criminals had scores that adult non-criminals did not have), he almost invariably became an adult criminal. The ratio of adult criminals to adult non-criminals for the categories of assault plus other contacts and liquor plus other contacts is low enough (1 out of 5.2 and 1 out of 9.4 respectively--29.4 percent of the adult criminals fell in these two categories) to indicate a greater likelihood of their becoming adult criminals than other categories. On the other hand, if the juvenile had contacts in the category of disorderly conduct and incorrigibility and the single contact categories of liquor, robbery, assault, or sex offenses (7.5 percent), he would not likely become an adult criminal. The ratio of adult criminals to adult non-criminals is such that one would predict that a juvenile with contacts in the categories of disorderly conduct, traffic, contact for suspicion, investigation, or information (36.3 percent) would not become an adult criminal.

Turning to Racine, we find a similar situation in which one out of five persons with sex offenses plus some other category of police contact became adult criminals while none of those with disorderly conduct became adult criminals and only 1 out of 110 with traffic contacts became adult criminals. When those categories that were most likely to become adult criminals were compared with other categories, the r_4 coefficient of correlation was .1184 and it was significant at the .01 level. Here again we have increased our predictive efficiency over that obtained when the continuum of Geometric scores was cut at the point most efficiently discriminating between adult criminals and non-criminals. Seventy-nine percent of the adult criminals had careers in the categories of theft, theft plus other contacts, contact for suspicion, investigation or information plus other contacts, liquor, robbery plus other contacts, assault, and sex offenses plus other contacts. This compares with 67 percent of the adult criminals having higher scores than the adult non-criminals when the most efficient cutting point was selected on the continuum. Thus, in Racine as well as in Madison, by taking into consideration types of delinquent careers, we could increase our predictive efficiency over

that which was obtained simply by choosing the cutting point on the continuum which best discriminated between adult criminals and non-criminals. For example, if a juvenile had a score that included robbery, theft, and disorderly conduct, he became an adult criminal; 30.3 percent of the juveniles that had adult careers had scores where there were no adult non-criminals and these fell mainly in the robbery plus other contacts and sex plus others categories. On the other hand, if the juvenile had contacts for disorderly conduct, traffic, disorderly conduct and traffic, contact for suspicion, investigation, or information, liquor plus other contacts, robbery, and sex offenses, he did not become an adult criminal; 54.8 percent of the adult non-criminals fell where there were no adult criminals or virtually none.

We have stated that the reaction of persons in authority to contacts with juveniles probably varied from time to time and from one area of the community to another but even more than that, there was a point of considerable difference between the two communities. Referral was much more likely to take place in Madison than in Racine as a consequence of the emphasis on professional handling of juveniles in Madison and emphasis on street level handling in Racine. At this point we are not so much concerned about how handling varied in relationship to the other factors that have been considered in the study but how it is related to outcome. Is it possible that those who had been referred were actually deterred from careers as adult criminals or is it possible that referral is a procedure that is in itself partially explanatory of how juveniles come to develop serious careers that carry on into their adult lives? There are basically two types of dispositions: One is referral and the other is release. The data with which we deal contains a certain number of juveniles who had a contact for suspicion, investigation or information--neither referral nor release would apply and a certain number who had no disposition given on the contact report and we would assume that these were released. For each juvenile who had one or more contacts, a variety of dispositions were possible during his career. A juvenile may have been referred, released, had a contact, or not had a disposition given, i.e., he may have fallen into two or three or into one of each of these four categories. In order to consolidate the data it was decided that if even a single referral had

taken place, then the juvenile would be classified as having been referred; if a release had taken place but the juvenile had also had contact for suspicion, investigation, or information and had contacts without disposition given, then the juvenile would be placed in the released category. Similarly, if the juvenile had had contact for suspicion, investigation, or information and also a not given, he would be placed in the contact category. This generated a table that was still a bit more complex than needed for our purposes, so further consolidation was made and all juveniles were classified as either having been referred one or more times or having other dispositions. The basic data are presented in Table VI for Madison and Racine.

TABLE VI

RELATIONSHIP OF NUMBER OF POLICE CONTACTS TO DISPOSITION BY ADULT STATUS AS CRIMINAL OR NON-CRIMINAL

Number of Police Contacts	Adult Criminals						Adult Non-Criminals					
	Referred		Other		Total		Referred		Other		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
					MADISON							
1	8	*57*	6	*43*	14	*100*	240	*33*	498	*67*	738	*100*
2	7	*78*	2	*22*	9	*100*	107	*43*	139	*57*	246	*100*
3-4	5	*71*	2	*29*	7	*100*	147	*63*	85	*37*	232	*100*
5-8	5	*63*	3	*38*	8	*100*	100	*80*	25	*20*	125	*100*
9-16	9	*100*	-	-	9	*100*	61	*92*	5	*8*	66	*100*
17-31	3	*75*	1	*25*	4	*100*	14	*93*	1	*7*	15	*100*
Total	37	*73*	14	*27*	51	*100*	669	*47*	753	*53*	1422	*100*
					RACINE							
1	4	*31*	9	*69*	13	*100*	181	*40*	268	*60*	449	*100*
2	-	-	1	*100*	1	*100*	80	*56*	63	*44*	143	*100*
3-4	5	*83*	1		6	*100*	74	*64*	42	*36*	116	*100*
5-8	9	*100*	-	-	9	*100*	77	*86*	13	*14*	90	*100*
9-16	3	*100*	-	-	3	*100*	16	*89*	2	*11*	18	*100*
17-33	1	*100*	-	-	1	*100*	3	*100*	-	-	3	*100*
Total	22	*100*	11	*33*	33	*100*	431	*53*	388	*47*	819	*100*

Having presented the basic data, let us see what kind of relationships are to be found. In Madison, the r_4 coefficient of correlation between disposition and outcome was .093, significant at the .001 level. Those who were referred were somewhat more likely to have become adult offenders. In Racine, the r_4 coefficient of correlation was .054 and was not statistically significant. Obviously disposition is not really related to outcome in the simple kind of analysis that has just been conducted. If number of contacts is controlled, the following finding is made. In Madison, for those with one contact, the r_4 coefficient of correlation was .071 and significant at the .10 level; in Racine, the r_4 coefficient of correlation was .107 and was significant at the .10 level. If we go a step further and compare adult criminals with three or more contacts and adult non-criminals with three or more contacts, for Madison, the r_4 coefficient of correlation is .027 and is not statistically significant; for Racine the coefficient of correlation is .125 and significant at the .10 level. It is not possible to say that the decision to refer or not to refer was a determining factor in outcome--it appears to have little or no relation to outcome.

Although there was a coefficient of correlation of .2123 among the adult criminals in Madison in terms of disposition versus number of contacts, it was not statistically significant. Among the adult non-criminals, the coefficient of correlation was .3024, significant at the .001 level, those having two or more contacts being disproportionally referred. In Racine, among the adult criminals, the coefficient of correlation was .6135, significant at the .01 level, while among the adult non-criminals the coefficient of correlation was .2711 and significant at the .001 level. In both cases there was a clear relationship between number of police contacts and the decision to refer.

In Madison, when the cutting point for adult criminals was placed at three or more, the r_4 coefficient of correlation between number of contacts and disposition was .1487 and not significant. Among the adult non-criminals, it was .3538 and statistically significant at the .001 level. This suggests that in Madison there is a definite relationship between number of contacts that a juvenile has with the police and the likelihood that he will be referred to the authorities, but that referral has

less bearing on outcome than propensity to engage in visible misbehavior has to likelihood of referral. In Racine, when the cutting point for adult criminals was placed at three or more, the r_4 coefficient of correlation between contacts and disposition was .6929, significant at the .001 level; those who were adult non-criminals had a coefficient of correlation of .2759, significant at the .001 level. The data suggest that authorities in Madison are disposed to referring juveniles but that referral comes with multiple contacts with little or no relationship to the likelihood that a juvenile's behavior is predictive of a career in adult crime. In Racine, as previously suggested, referrals have been more judicious and the correlation between number of contacts and referral is greater among those who had a later career in crime than among those who did not, and greater than for either category in Madison. It is quite apparent that referral in Racine is a more meaningful variable in relationship to serious delinquency than in Madison. Referral in combination with other variables may well be a useful predictor in Racine but it is doubtful if it will be of much assistance in Madison.

Summary

We have now examined in some detail a variety of variables that might be used as inputs in order to increase the predictive efficiency of our instrument. In the next chapter we shall commence by describing the kind of instrument that will be used, its predictive efficiency based simply on juvenile careers, and then its predictive efficiency when additional variables are utilized as inputs.

V

PREDICTING CRIMINAL CAREERS FROM DELINQUENT CAREERS, THEIR GENESIS AND SETTING, AND SUMMARY AND CONCLUSION

An Item Analysis Scale Based on Categories of Police Contacts

In this chapter we shall attempt to predict criminal careers from not only the extent and nature of a juvenile's contacts with police, but from other characteristics of a juvenile's career and the setting in which it has developed. We shall commence by constructing a simple item analysis scale based on the type of police contacts that a juvenile has had. The weight for each type of police contact will vary, the correlation of each category of police contact with later criminal careers being the basis for determining the weight of that particular type of police contact. The total score on such a scale summarizes the careers of each juvenile and arranges them on a continuum which may be partitioned in such a fashion as to maximize the potential predictability of later criminal careers from juvenile careers.

The police contact categories utilized were the same as those in Chapter II in developing both the Guttman and Geometric scales. They are as follows: 1) Theft [theft, auto theft, forgery, fraud]; 2) theft involving force [robbery, burglary]; 3) vices [liquor, narcotics and drugs, gambling]; 4) disorder or threats to order [disorderly conduct, vagrancy, family, obscene literature]; 5) incorrigibility [incorrigible, runaway, truancy, escapee]; 6) violence against persons and property [assault, homicide, weapons, violent property destruction]; 7) sex offenses; 8) traffic offenses [including moving vehicle], and; 9) contacts for information, suspicion or investigation.

The item analysis weight for each category of police contact based on the correlation of that item with status as adult criminal or adult non-criminal is shown in Table I for both Madison and Racine.[1]

[1]It should be noted that of the 1643 juveniles in Madison, there were 164 non-adult delinquents who still had not reached the age of 21 and

The most delinquent juvenile in Madison could have a score of 1.0010 and the most delinquent juvenile in Racine could have a score of 1.0723.

One immediately notes that the greatest weight went to the theft category in both Madison and Racine. We are concerned, as has been indicated, with whether or not the kind of contacts that a juvenile has had are efficient predictors of which juveniles have adult criminal careers and which do not, in this case giving each type of contact a weight based on its correlation with the criterion adult non-criminal versus adult criminal. These weights generate a continuum of scores which tend to separate the adult non-criminals who are skewed toward the lower end of the continuum from the adult criminals who are somewhat skewed toward the higher end of the continuum of scores. Although there is a significant difference between scores of the adult criminal and the adult non-criminal groups at the .001 level for both communities, the coefficient of correlation is only .1073 for Madison and .1446 for Racine. The best prediction to be made, regardless of scale score, is that everyone in either Madison or Racine will become an adult non-criminal. The scores simply do not separate adult criminals from adult non-criminals to such an extent that prediction of later status from police contact scores is more efficient that predicting that everyone will be in the modal category--adult non-criminal. It should be added that a variety of cutting points have been utilized, yielding somewhat different coefficients of correlation, all of which were significant at the .001 level but not high enough to yield sufficient predictability to consider this item analysis scale as a useful device. The point has been previously made, but must be made again, that if correlations are to be indicative of predictive efficiency, that is efficiency greater than would be obtained by utilizing the modal category of the marginals, they must approach unity unless the marginals of the variable to be predicted are fairly evenly balanced. The further the marginals deviate from a 50-50 distribution, the higher must be the coefficient of correlation to account for enough of the variance to even

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6 non-adult delinquents who had police contacts between the ages of 18 and 21 but who were not 21 at the time of the restudy. In Racine, out of the 1166 juveniles in the study, 304 were not 21 at the time of the restudy and 10 were not 21 at the time of the restudy but had further police contacts beyond the age of 17.

begin to think of it as a useful predictor.

TABLE I

ITEM ANALYSIS WEIGHTS FOR ADULT CRIMINALS AND ADULT NON-CRIMINALS

Category of police contact	Madison	Racine
Theft (theft, auto theft, forgery, fraud)	.2959	.3677
Theft involving force (robbery, burglary)	.0943	.1741
Incorrigibility (incorrigible, runaway, truancy, escapee)	.1364	.1656
Traffic offenses (including moving vehicle)	.0278	.1064
Sex offenses	.0160	.0846
Contact for information, suspicion, or investigation	.1047	.0649
Violence against persons and property (assault, homicide, weapons, violent property destruction)	.0972	.0602
Vices (liquor, narcotics and drugs, gambling)	.1543	.0368
Disorder or threats to order (disorderly conduct, vagrancy, family, obscene literature)	.0744	.0120

TABLE II

ITEM ANALYSIS SCORES BASED ON TYPES OF POLICE CONTACTS

Scores	Adult Criminals		Adult Non-Criminals		Total	
			MADISON			
.200 -	17	*33%*	882	*62%*	899	*61%*
.200 +	34	*67%*	540	*38%*	574	*39%*
Total	51	*100%*	1422	*100%*	1473	*100%*
	$\chi^2 = 15.86$, $p < .001$; $r_4 = .1073$					
			RACINE			
.200 -	9	*27%*	521	*64%*	530	*62%*
.200 +	24	*73%*	298	*36%*	322	*38%*
Total	33	*100%*	819	*100%*	852	*100%*
	$\chi^2 = 16.31$, $p < .001$; $r_4 = .1446$					

An Item Analysis Scale Based on Frequency and Categories of Police Contact

Having presented a simple item analysis scale based on categories of police contacts, we shall now turn to a somewhat more complex type of scale in which the number of times that a person has had a contact for each of the offense categories is taken into consideration. Here the same weights apply but the score is what one might call "twice or more additive," since a person receives a weight for a contact of a given category times the number of contacts that he has had in that particular category. This increases scale scores considerably and slightly increases the correlation between scale scores and status as an adult criminal or adult non-criminal in both Madison and Racine. The data for both communities are presented in Table III. When scale scores were calculated on

TABLE III

ITEM ANALYSIS SCORES BASED ON WEIGHT OF POLICE CONTACT CATEGORY TIMES NUMBER OF CONTACTS FOR EACH CATEGORY

Scores	Adult Criminals		Adult Non-Criminals		Total	
			MADISON			
.800 -	34	*67%*	1285	*90%*	1319	*90%*
.800 +	17	*33%*	137	*10%*	154	*10%*
Total	51	*100%*	1422	*100%*	1473	*100%*
	$\chi^2 = 27.06$, $p < .001$					
	$r_4 = .1420$					
			RACINE			
.800 -	21	*64%*	747	*91%*	768	*90%*
.800 +	12	*36%*	72	*9%*	84	*10%*
Total	33	*100%*	819	*100%*	852	*100%*
	$\chi^2 = 24.12$, $p < .001$					
	$r_4 = .1782$					

this basis, the coefficient of correlation was .1420 for Madison, significant at the .001 level, and .1782 for Racine, also significant at the .001 level. The most discriminating cutting points for the simple item analysis

scores resulted in opposite cells having either a little less than two-thirds or a little more than two-thirds of the juveniles for that category; but the best cutting point for the continuum of item analysis scores presented in Table III divided the distribution somewhat differently. The adult non-criminals were markedly skewed toward the low end of the distribution of scale scores while the adult criminals, although skewed toward the low end of the distribution on the basis of the cutting points selected, were not skewed as much as were the adult non-criminals. It was possible to change the cutting points for both Madiosn and Racine so that opposite cells would have more than half of the juveniles in either the adult criminal or adult non-criminal categories but the correlations were not as high as those presented in Table III. But here again it is easy to see that scale scores do not enable one to predict later criminal careers. We have simply not approached the point in the development of a predictive device that those who have adult criminal records are sufficiently separated by their scale scores from those who failed to have adult records.

An Item Analysis Scale Based on Police Contacts, Their Genesis and Setting

Since we indicated in earlier chapters that variables other than the nature of a delinquent career (as measured by categories of police contact) might be useful in predicting whether or not a juvenile would have a later criminal career, we shall now turn to the possibility of developing a scale based on data for which we have measures and which represent other facets of a juvenile's career, either in terms of its genesis or setting. Among those factors that we touched upon earlier in the paper are the socio-economic status of the area from which the juvenile came, the delinquency rate of the area, the crime rate of the area, the age of the juvenile at the time of his first contact with police, the span of years over which he had police contacts, and whether or not he was referred as a consequence of any of these contacts with the police. Accordingly, the correlation of each of these factors with whether or not a juvenile was an adult criminal or adult non-criminal at the time of the restudy was the basis for the calculation of the weight of that factor in the total scale score. Thus, a juvenile with numerous police contacts in the categories having the highest weight and who came from a low socio-economic status area, a high

TABLE IV

ITEM ANALYSIS WEIGHTS FOR THE FACTORS RELATED TO GENESIS AND SETTING OF DELINQUENT CAREERS

Additional Factors	Madison	Racine
Crime rate of school districts[1]	.2837	.2185
Span of time committed offenses[2]	.2082	.2659
Referral of police contacts[3]	.2557	.1404
Delinquency rate of school districts[4]	.0978	.1973
Socio-economic status of school districts[5]	.0013	.2528
Age at first police contact[6]	.0341	.2166

[1]School districts were divided into two groups: Individuals from the seven school districts in Madison and nine in Racine with the highest crime rates received the weight; those from the nine school districts in Madison and eight in Racine with the lowest crime rates did not receive the weight. The crime rate was determined by the ratio of adult criminals to adult non-criminals for each school district and for the "outside" group. The "outside" group for both cities was considered to have a high crime rate and received the weight.

[2]Individuals whose careers spanned 1-2 years did not receive the weight and those whose careers spanned 3-12 years received the weight.

[3]Individuals who had at least one referral received the weight; those who did not have any referrals did not receive the weight.

[4]Individuals from the ten school districts in both cities with the highest delinquency rates received the weight; those from the six school districts in Madison and seven in Racine with the lowest delinquency rates did not receive the weight. The weight was computed using only individuals found within the school districts. The "outside" individuals were then assigned one-half the resulting weight as it could not be determined whether they were from "low" or "high" delinquency areas.

[5]Individuals from the lowest nine socio-economic status school districts in Madison and ten in Racine received the weight; those from the highest seven socio-economic status school districts in both cities did not receive the weight. Again weights were computed using only those from the school districts and "outside" individuals received one-half the computed weight as it could not be determined whether they were from "low" or "high" socio-economic status areas.

[6]Individuals whose first contact with police came at ages between 3 and 14 received the weight and those whose first contact was between 15 and 17 did not.

delinquency or high crime rate area, who had police contacts at an early age, who had police contacts over a period of years, and who was referred would have had the highest scale score.

Weights for each of these additional factors are shown in Table IV. Table V presents the dichotomized item analysis scores based on police

TABLE V

ITEM ANALYSIS SCORES BASED ON WEIGHT OF CATEGORY TIMES NUMBER OF CONTACTS FOR EACH CATEGORY OF CONTACT PLUS WEIGHTS FOR GENESIS AND SETTING FACTORS

Scores	Adult Criminals		Adult Non-Criminals		Total	
			MADISON			
.800 -	18	*35%*	1011	*71%*	1029	*70%*
.800 +	33	*65%*	411	*29%*	444	*30%*
Total	51	*100%*	1422	*100%*	1473	*100%*
	$\chi^2 = 28.29$, $p < .001$; $r_4 = .1427$					
1.000 -	25	*49%*	1137	*80%*	1162	*79%*
1.000 +	26	*51%*	285	*20%*	311	*21%*
Total	51	*100%*	1422	*100%*	1473	*100%*
	$\chi^2 = 26.47$, $p < .001$; $r_4 = .1385$					
1.800 -	39	*76%*	1348	*95%*	1387	*94%*
1.800 +	12	*24%*	74	*5%*	86	*6%*
Total	51	*100%*	1422	*100%*	1473	*100%*
	$\chi^2 = 26.84$, $p < .001$; $r_4 = .1429$					
			RACINE			
.800 -	6	*18%*	405	*49%*	411	*48%*
.800 +	27	*82%*	414	*51%*	441	*52%*
Total	33	*100%*	819	*100%*	852	*100%*
	$\chi^2 = 11.20$, $p < .001$; $r_4 = .1207$					
1.000 -	9	*27%*	550	*67%*	559	*66%*
1.000 +	24	*73%*	269	*33%*	293	*34%*
Total	33	*100%*	819	*100%*	852	*100%*
	$\chi^2 = 20.63$, $p < .001$; $r_4 = .1621$					
1.800 -	21	*64%*	759	*93%*	780	*92%*
1.800 +	12	*36%*	60	*7%*	72	*8%*
Total	33	*100%*	819	*100%*	852	*100%*
	$\chi^2 = 30.92$, $p < .001$; $r_4 = .2017$					

contacts and other facets of juvenile careers. Although these coefficients of correlation are higher than some coefficients previously obtained, they are not sufficiently higher to have made the operation worthwhile, except as a matter of satisfying intellectual curiosity.

Three different cutting points are utilized for the data presented in this table; scores for the adult criminals are skewed toward the high end of the scale compared to the adult non-criminals for both Madison and Racine. But even with the background variables added one cannot predict who will continue to violate tha law and who will fail to have a criminal career after the age of 21.

Summary

Basic delinquency rates and trends, as represented by police contacts with juveniles, were described in Section I for Madison and Racine. The focus of this report, it was emphasized, was not on the actual rate of contact in the two communities, but on differences between communities and within communities--reasons for police contact, variation by year, and variation in referrals.

Differences were to be expected based on two different, but not necessarily conflicting explanations. One explanation hypothesized that police contacts represent juvenile misbehavior generated within a social context, behavior generated as a result of the organization of the community, and even more specifically behavior generated within a social system that operates in such a way as to yield greater social and economic rewards to juveniles in the highest socio-economic status groups and fewer rewards to those in the lower socio-economic status groups. The second explanation hypothesizes that differences in the social organization of communities produce differences in attitude toward juvenile misbehavior on the part of those who make decisions about the extent to which various types of juvenile misbehavior should be tolerated or dealt with officially. These differences result in variation in police policy between communities and generate different rates of police contact for juveniles.

Differences in delinquency rates within communities may also be based on either of these explanations, or on both. In essence, we are saying that delinquency rates vary on a basis of differences in juvenile behavior, how adults look at the behavior, and the extent to which they

demand that their perceptions be translated into official action. Contact rates for juveniles are probably more representative of what juveniles are doing than are referral rates, the latter perhaps being more indicative of how adults look at what juveniles are doing.

The data revealed that police contacts per thousand juveniles age 6 through 17 had not risen over the years in a systematic manner in either Madison or Racine. Although increases in rates of police contact with juveniles took place in some years, decreases in rates of police contact were observed in others. It was concluded that differentials in police administration and emphasis on reporting probably had more to do with temporal and intercity variation in rates and patterns than did actual behavioral differences among youth.

Perhaps the most striking statistic suggesting that delinquency rates are generated by police administrative policies is that Madison had an average police contact rate per thousand juveniles per year of 138, while Racine had an average police contact rate of only 84. For an educational and governmental city such as Madison to appear to have more delinquent behavior than an industrial city such as Racine is almost unexplainable except in terms of a difference in police behavior rather than juvenile behavior; in this case the statistics seem to show that the Madison police department places a greater emphasis than the Racine police department on recording juvenile contacts, particularly in categories that permit discretion. Whereas Racine had a rate of 17 contacts per thousand juveniles per year for all types of theft and burglary as compared to 21 in Madison, there was a wider variation on the more loosely definable category of incorrigible and runaway with Racine recording a rate of not quite 15 contacts and Madison a rate of more than 27 contacts per thousand juveniles per year. Although pressures on the police to report and refer contacts undoubtedly resulted in the generation of what would appear to be a higher rate of juvenile delinquency in Madison, we cannot overlook the influence of the subculture of lower socio-economic groups in generating a disproportional amount of more serious types of delinquency in Racine.

Further insight into the role of the public, professionals, and the police in generating relatively higher delinquency rates for Madison

than Racine can be obtained by careful examination of the pattern of referrals for both cities. Madison referred an average of 40 percent of its juveniles with police contacts during the period 1950 through 1955, which represented an increase in the proportion referred from 15 percent to close to 50 percent from the beginning to concluding year of the study. Racine referred an average of about 24 percent of its juvenile police contacts, a fairly stable percentage which fluctuated only a few percent one way or the other in seven of the 11 years of the study. To give an example of referral differences between Racine and Madison, 63 percent of Madison's contacts for theft and burglary were referred but only 28 percent of Racine's contacts were referred. Although police contact rates are probably not completely representative of juvenile misbehavior, they are probably more representative than are referral rates. Referral rates, as we have suggested, are more indicative of how adults, particularly police officers, differentially perceive the seriousness of what juveniles are doing. Juvenile misbehavior undoubtedly differs in quantity and quality, so to speak, in Madison and Racine, but adults perceive juvenile police contacts differently in Madison than in Racine. Thus, differences between the two cities may be magnified by adult perception and response to perception in such a way as to completely distort differences in behavior between the two communities.

While significant differences in rates and patterns of police contacts from socio-economic status area to socio-economic status area and school district to school district were found in both Madison and Racine, it could not be said whether these differences were based entirely on differences in the social organization of the sub-communities or on differences in the extent to which police recorded contacts with juveniles from area to area. The fact that rates and patterns of police contact varied significantly, systematically, and in a sociologically meaningful way, within each community by socio-economic status area and school district, gave some support to the hypothesis that variations in contacts with juveniles are based on behavioral differences related to the socio-economic status and social organization of the area or school district.

We may summarize by saying that the nature of differences in

police contact patterns and rates between the two cities over periods of time suggest that police administration is an important variable in determining how delinquency will be observed and recorded, while differences in social organization and sub-cultures between and within cities are related to differences in juvenile behavior.

In Section II of the report, two approaches to the construction of scales were dealt with at great length--Guttman-type scales and Geometric-type scales. Problems were encountered in each case, and it was necessary to reject the hypothesis of unidimensionality, that is, the hypothesis that delinquency varies along a continuum in an internally consistent fashion from the most serious types of delinquent careers to the least serious types of delinquent careers. We then turned to the possibility that various types of juvenile careers are discrete and qualitatively different rather than continuous and quantitatively different. Delinquency, instead of being a continuum, might consist of a few sociologically meaningful types best represented by Geometric scores. Such a possibility had to be rejected as well. Over two-thirds of the total juvenile careers were represented by single contact types; if persons with two or three categories of police contact were also included, then three-quarters of all juvenile careers were represented. It was necessary to conclude that careers in juvenile delinquency do not fall into discrete, meaningful categories but constitute a basketful of divergent types. Following this conclusion from the earlier study, it was decided to select a limited number of relatively homogeneous and sociologically meaningful categories of police contact under which all other categories of police contacts would be subsumed. The data would then be dealt with again in an effort to see if a Guttman scale could be developed or if not a Guttman scale, a Geometric scale. Nine police contact categories were decided upon and the data rescaled for both Madison and Racine. When the recoding operation was completed, 1643 cases were left for Madison and 1166 were left for Racine. The net result was, however, that in neither the Madison nor the Racine case was a Guttman scale generated which could be considered a true Guttman scale. When a Geometric scale was constructed it was likewise found that about 85 percent of the cases in either Madison or Racine were single contact types or included only two or three categories of contact.

It was therefore concluded, as in the earlier analysis of the data, that delinquents found in Madison constituted a mixed bag of types since the multiple contact categories failed to constitue meaningful types--they were a heterogeneous lot. When the distribution of dichotomized Geometric scores was presented by socio-economic status areas, the distribution was significantly different for both Madison and Racine, particularly Madison.

In Section III of the report, three measures of delinquency are related to each other. What became most apparent as relationships of various types of scores to each other were examined, is that a person's delinquency score varies markedly depending on the type of scale that is used. The question then arises as to which is the best measure of delinquency and it can only be said that it depends on what one wishes to do with it. If some idea of the various types and patterns of delinquency are desired, then Geometric scores are the best representation of police contacts, but if some quantitative index of how often a juvenile comes into contact with the police is desired, then simple number of contacts is most useful.

In Madison, the number of police contacts that a juvenile had during his recorded career had the highest correlation with socio-economic status, .82, while the Geometric median had the highest correlation in Racine, .77. The question is whether or not either measure is a good predictor of what we wish to predict.

A more appropriate test of the value of one measure of delinquency in comparison with another is its ability to predict later criminal careers. The facts of the case are that neither Guttman scores, Geometric scores, nor simple police contacts were efficient predictors of later criminal careers, although all varied significantly in relation to later careers. But no matter which measure was used, the best prediction was that a juvenile would not have a later criminal career. And this was true whether Madison or Racine was being considered.

When the data were recoded into nine meaningful categories of police contact and rescaled the same approach to prediction was again attempted; although statistically significant differences existed between adult non-criminals and adult criminals the differences were not sufficient that scale scores could be used in order to predict outcome differ-

ences in either Madison or Racine, that is, whether a person would be an adult non-criminal or an adult criminal. No matter which cutting points were selected on any of the distributions of scale scores with adult non-criminals skewed toward the low end of the scale and adult criminals either skewed toward the high end of the scale or not quite so much toward the low end of the scale, none of the cutting points were sufficiently discriminating to permit a prediction that would be better than predicting from the modal category that all juveniles would fail to have adult careers.

In Section IV, added inputs to the predictive device were presented and their relationships to other variables described. It is here that we examined the possibility of utilizing the socio-economic status of areas within which juveniles resided, age at first police contact, span of time inwwhich juveniles had police contacts, the delinquency rate of the area in which the juvenile resided, the crime rate of the area in which the juvenile resided, and whether or not he was referred as a result of police contacts. Ideally, these items should have had low correlations with each other, low correlations with scale scores based on police contacts and high correlations with adult status, if they were to markedly increase the efficiency of the predictive device. Of these variables, only time span in which police contacts occurred was closely related to eachoof the measures of delinquency, number of police contacts, Guttman scores and Geometric scores. Unfortunately, time span did not have a high correlation with later status as adult criminal or adult non-criminal. And to further decrease the likelihood that added inputs would markedly increase the efficiency of a predictive device, the inputs were correlated with each other to about the same degree that they were correlated with the status of juveniles at the follow-up period.

The failure of added inputs to significantly increase the predictive efficiency of an item analysis scale was described in the first part of this chapter. In conclusion, we shall turn to a discussion of the theory behind this approach to predicting criminal careers and suggest the next steps that should be taken, building upon the research that has been described in this report.

Conclusion and Suggestions for Future Research

Underlying this project has been the assumption that there is continuity in behavior patterns, that human behavior is repetitive. That certain aspects of human behavior are repetitive over designated time spans is fairly incontrovertible. But the more general proposition of continuity in behavior has probably not been questioned to the extent that it probably should be questioned by persons in the behavioral sciences. This does not happen, in all probability, because a large proportion of those involved in research having this as an underlying assumption have a psychological or social psychological orientation of such a nature that they must accept the idea of more continuity in human behavior than is probably warranted.

This is not the place to go into any lengthy review of the literature on human behavior or, more specifically, on delinquency and crime, but there has been great emphasis on the idea of continuity in delinquent and criminal careers, when in fact, the idea of continuity in careers has been based on illustrative examples that may not be representative of the delinquents and criminals in our society, much less other societies. And in those studies that have been based on large numbers of cases, the idea of continuity has been drawn from studies of juveniles who were in a sample or a population because there was already some continuity in their careers. They are representatives of a type that by the nature of their career has consistently come to the attention of the authorities and thus been referred to either public or private agencies as a consequence of their behavior. The question is, then, how can one avoid the impression of continuity in careers if persons are selected for study on a basis of criteria that almost guaranteed a finding of continuity because some continuity has already existed in the careers of those included in the study?

As a consequence of the orientation of a large proportion of the persons in the behavioral sciences who are interested in this problem, that is, a thoroughly outmoded orientation towards traits, or what are very often called personality characteristics, it is concluded that rather stable characteristics (at least they are held to be fairly stable after early years) in individuals are the determinants of behavior that has not been found stable, at least at this point, by carefully designed research.

Since there is some continuity in characteristics acquired relatively early in life it is assumed that individual patterns of delinquency and crime likewise have continuity and persist over long periods of time.

The assumption here is that understanding delinquency and crime comes from studying individuals and how they develop or acquire repetitive patterns of behavior. Whatever value this may have, it is probably limited in that only a portion of the juvenile delinquency may be explained in this way and even a smaller portion of the adult crime can be explained in terms of evolving careers. As a consequence of this only partially correct assumption, research has followed the principle that careers are likely to be continuous and we have attempted to develop measures of careers with emphasis on this facet of them. The research that we have just conducted and reported upon casts grave doubt on the principle of continuity in careers.

Much of the research that led to the conclusion that delinquent and criminal careers must be continuous was conducted by persons who also drew maps and located juveniles and criminals on them, that is, had what might be considered an ecological perspective because they did show that delinquent careers and criminal careers were concentrated in some areas of the community at much higher rates than in others. The same persons also related delinquency and crime to the organization of the community and fostered an interest in a processual look at delinquency and crime. By that we mean that they emphasized the learning process in becoming delinquent and criminal, but once learned, propositioned that it was more likely to continue than not. This approach, while ecological in the sense that delinquency and crime were located in some spaces and not in other spaces was not without its social psychological component. Much attention was also given not only to the process of interaction between the juvenile and his peers and adult role models, but also to the perception that juveniles had of their home, their companions, authority figures in the neighborhood, and so on, as well as their perception of themselves.

All of this is, of course, a contribution to an understanding of the process by which juveniles acquire the knowledge that they need in order to successfully pursue a career in delinquency and rationalize it to themselves and to their peers. Furthermore, this research has shown

how some juveniles have exercised sufficient intelligence and persistance to make it into the adult criminal world. But this is only part of the picture.

What we have failed to do is to take all of the criminals from a given area, a community such as Racine, for example, commencing at any one of several levels--which could be at the prison, at the court, or even at the arrest level, and trace their careers backward to see if their adult behavior can really be shown to have evolved from their juvenile behavior. In this study we have taken a sample of juveniles who had at least one contact with the police and attempted to relate their juvenile careers, as measured by police contacts and other aspects of their careers, to whether or not they could be characterized as adult criminals or adult non-criminals. This resulted in finding only an extremely small proportion of the juveniles in the category of adult criminals after the age of 21. This could in part be due to the fact that not a sufficient number of years had elapsed after the age of 21 for many persons in the sample, or to the fact that many could have committed offenses outside of Wisconsin and thus not be in the files of the Division of Criminal Statistics in Madison. Even if the number who had adult careers were doubled, we would have only dealt with a proportion of those who had been processed through the courts in Racine during that period of time. While the study did tell us something about continuity in delinquent careers or criminal careers, or lack thereof, it did not give us much information about the extent to which juvenile delinquency contributed to the total picture of adult crime.

What we have completely failed to consider is the fact that only some juveniles acquire everything they need in order to engage in delinquent behavior and later criminal careers between the age of 6 and 17 in the setting in which they find themselves. Although many juveniles engage in behavior that results in the acquisition of a record of police contacts, in some cases referrals and official dispositons of their cases, they have, after reaching the age of 21, moved into different social positions or spaces as a consequence of their age, even though they may reside in the same residential area for their entire lives. Residence is only one of their social positions and much of the time after the age of, say, 18 or 21, their activities are so prescribed that living in the same

spatial place (social position) does not call for the kind of behavior that got them into difficulty as a juvenile. And although they may continue to reside in the social space in which their juvenile career was developed, their work or other activities outside of home results in non-criminal patterns of behavior throughout their remaining life.

Now then, there is the other group of persons who have acquired the label of criminal or law breaker, in some cases whether they have been convicted of crimes or not, but who have not had a juvenile career. While juveniles, the social position that they occupied was such that delinquency was not likely to become a pattern of behavior. In other cases they may have engaged in behavior that could have been defined as delinquent but their social spaces either prevented or limited the probablility that they would acquire either police contacts or court records which would place them in samples of persons to be studied. Then, later in life, when in a different social position based on their age and the experiences they have had in the world of work, which may have resulted in either upward or downward occupational mobility, or when in different social spaces in terms of their marriage and their family, they committed an offense resulting in a court record, perhaps conviction and institutionalization. These people have not had the kind of careers in delinquency that would place them in a study such as ours and there is no evidence that the behavior that they engaged in could in any way be perceived of as a continuation of some sort of earlier behavioral patterns. These people are overlooked if one attempts to understand delinquency and crime by studying only those who have already engaged in behavior of such a nature that they are persons with continuing careers. On the other hand, this is not too important if it is made quite clear that one's only concern is in predicting who among the delinquents will continue into a life of adult crime.

In order to obtain a better perspective on delinquency and crime and perhaps better evaluate the worth of research that attempts to predict crime from delinquency, a different approach is necessary than has most often been utilized in the past where the problem is approached from either the delinquency end or the criminal end of the cycle.

It is therefore suggested that all persons over the age of 21 in a community such as Racine be listed and that either a sample be selected

from them to be studied retrospectively by turning to the records of the Division of Criminal Statistics in Madison, or if not a sample, a cohort be selected that has had sufficient time to develop a criminal career or at least some adult police contacts. This cohort would then be traced backwards to juvenile records in an effort to discern what proportion of the criminals are a product of juvenile careers and what proportion are not of the continuing type. Simultaneously, a complete listing of the juvenile population would be selected for an appropriate year going back far enough that everyone would have had a chance to experience an adult career. Either a sample or a cohort would be selected, a cohort old enough to have lived through the major portionoof an adult career, would be ideal for following through in order to determine the extent to which the continuity principle is applicable. In this way it will be possible to answer questions about the proportion of the adult criminal population who have had continuous careers and the proportion of the juvenile population who developed continuous careers. Since we have access to data in Racine and have had access to the files of the Division of Criminal Statistics in Madison, such a study would be quite feasible and add to the information that we have already acquired about crime and delinquency in Racine.

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