

The Contagion of Criminal Violence¹

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Statistical and graphic analyses of data from 40 U.S. cities indicate that President Kennedy's assassination in November 1963 and the Speck and Whitman crimes in the Summer of 1966 were followed by unusual increases in the number of violent crimes. Although we cannot exclude the possibility that only police actions (such as reporting violent crimes) were affected, the findings are suggestive of a contagion of criminal violence. Non-violent crimes did not appear to be affected. Some of the processes theoretically contributing to this kind of contagion are discussed.

In his book, *Penal Philosophy*, first published in 1890, the French sociologist Gabriel Tarde discussed a number of violent crimes. Labeling these incidents "suggesto-imitative assaults," he maintained that news of sensational crimes stimulated aggressive ideas in many readers and prompted some of them to similar actions. News stories of the Jack the Ripper murders in London in 1888 had just this effect, he contended.

"... in less than a year, as many as eight absolutely identical crimes were committed in the great city. This is not all; there followed a repetition of these same deeds outside of the capital (and abroad) . . . Infectious epidemics spread with the air or the wind; epidemics of crime follow the line of the telegraph" (1912:340-341).

Similar observations have been made in this country. Commander Francis Flanagan of the Chicago Police Department has reported (*Look*, Sept. 19, 1967:30), for example, that Richard Speck's murder of eight nurses in Chicago in July, 1966, and Charles Whitman's shooting of 45 people from the University of Texas tower the next month had instigated a rise in homicides in Chicago. Five murders in Arizona were apparently influenced by the

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violence of the summer of 1966. About three months after the Texas outburst, Robert Smith, an 18-year-old high school senior, walked into a Mesa, Arizona, beauty school and killed four women and a child. He later told the police he had gotten the idea for a mass killing after reading the news stories of the Speck and Whitman cases. Smith said he had been planning the shootings from the time his parents had given him a target pistol as a present (*Ithaca Journal*, Nov. 14, 1966).

Many other illustrations of contagious violence can be cited. To single out just two: In Gravesend, England, probation officers reported a sharp rise in offenses by local delinquents after a sex killing of two teenagers (*London Sunday Times*, Apr. 24, 1966); and a German house painter shot the student radical, Rudi Dutschke, saying that he had gotten the idea from the assassination of Martin Luther King (*Madison Capital Times*, Apr. 13, 1968).

Assuming these incidents do reflect more than a series of coincidences, they suggest that the following reactions occur in many of the people seeing mass media depictions of violence. One, aggressive ideas and images arise. Most of these thoughts are probably quite similar to the observed event, but generalization processes also lead to other kinds of violent ideas and images as well. Two, if inhibitions against aggression are not evoked by the witnessed violence or by the observers' anticipation of negative consequences of aggressive behavior, and if the observers are ready to act violently, the event can also evoke open aggression. And again, these aggressive responses need not resemble the instigating violence too closely. Three, these aggressive reactions probably subside fairly quickly but may reappear if the observers encounter other environmental stimuli associated with aggression—and especially stimuli associated with the depicted violence. The violent story might then have a relatively long-lasting influence, as was apparently the case in the Arizona murders.

These speculations are supported by a number of studies. Bandura (1965: 1–55) has advanced a somewhat similar conception upon reviewing research on imitation. Observed experiences, he proposed, lead to imaginal and verbal representations of these events, and these, in turn, can produce imitative versions of the witnessed action, especially if rewards are anticipated for repeating the behavior. In addition to the studies cited by Bandura, an unpublished experiment by West, Parker and Berkowitz shows how comic book violence can stimulate aggressive ideas even in “normal” readers. Third-grade school children given a war comic book to read (*Adventures of the Green Berets*) had a reliably greater increase in their use of hostile words to finish ten incomplete sentences than did the control children required to read a non-aggressive comic book (*Gidget*).

But even though these aggressive ideational reactions may be fairly common, both Bandura and the senior author point out that media portrayals of violence do not necessarily instigate violent outbursts from the audience. According to Berkowitz (Berkowitz and Rawlings, 1963; Berkowitz et al., 1963; Berkowitz, 1965; Berkowitz and Geen, 1967), if the witnessed violence is regarded as "wrong" or unjustified, many observers will restrain their aggressive inclinations for at least a brief period of time. President Kennedy's assassination could have had this kind of aggression-inhibiting effect; here was the murder of a man, the death of a father figure, an attack on the symbol and ideals of a nation, and a potent threat to the social order. For all of these reasons, the President's murder could have generated considerable anxiety which then suppressed the aggressive inclinations also evoked by the violent crime. This restraint might have been only short-lived, however. As the anxiety declined with the passage of time, the murder's violent consequences could have become all too apparent.

We can guess about some of the conditions governing the persistence of these aggressive after-effects. Bandura (1965) has suggested that the imaginal and verbal representations of an observed incident will be better learned if the witness thinks about the event and rehearses it in his mind. Robert Smith, the Arizona murderer, evidently brooded about the Whitman and Speck killings for quite a while, thereby keeping the effects of these crimes alive within him. He had also been given a gun to play with, which might have facilitated the rehearsal of the Texas and Chicago shootings. The gun could also have served as an aggressive stimulus which evoked aggressive reactions (such as violent fantasies) within him in the months between the mass murders and his own outburst (see Berkowitz and Le Page, 1967), and again, the effects of the spectacular crimes were strengthened. In sum, we are proposing here that a variety of conditions could prolong the aggressive consequences of witnessed violence. This violent event, as a matter of fact, could even increase the likelihood that the observer will then seek out situations stimulating and reinforcing aggression.

In an unpublished study, Boyanowsky and Newton have obtained evidence illustrative of this kind of process. They examined the attendance at two Madison, Wisconsin, movie theaters before and after a co-ed was brutally murdered on the campus. One theater was showing a film about lesbians ("The Fox"), while the other had a movie about a true life murder case ("In Cold Blood"). Attendance declined from the level of a week earlier in both theaters the day the campus murder was reported in the papers, perhaps because of the usual drop in interest after a film had been shown for a week. This reduced attendance, moreover, was about the same in both theaters. The next day, however, there was a further decline in attendance at the film about lesbians but a sharp rise in the number of people viewing the murder movie.

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The killing of the co-ed had apparently created an increased interest in the violent picture. This film (or movies of this type), in turn, might have stimulated aggressive ideas and perhaps even aggressive actions in some members of the audience. Because of these aggressive responses and/or the murder film itself, some people might also have developed at least a temporary preference for further scenes of violence, and these latter experiences could perhaps have led to still more aggressive reactions.

The original violent crime, in other words, creates a chain of responses much as a stone does when thrown into a pool of water, at least as far as aggressive after-effects are concerned. Ripples of reaction spread out from the source, gradually diminishing with time, and then disappearing altogether unless another stone stirs the water again.

These considerations led us to ask whether several widely published crimes had simulated an increase in aggressive crimes in the United States. The first of these was President Kennedy's assassination in late November of 1963, and the others were Speck's murder of eight student nurses in Chicago in July, 1966, and Whitman's shooting of 45 people in Texas about a month later. (Since the last two crimes occurred within a brief period of time, it is difficult to keep their effects separate. Largely for convenience, then, we will later talk about the consequences of the Speck murders because these took place first, but these after-effects were probably intensified by the consequences of the Texas tower shootings.) The killing of the President is obviously not the same kind of crime as the other murders; it represents a greater threat to the American social order, as we noted earlier, and thus might have aroused greater general anxiety. As a result, as we also pointed out, aggressive reactions—including criminal actions—might have been suppressed for a few weeks afterwards. This anxiety conceivably might have diminished fairly quickly, however. We thought that even this murder could then be followed by the same rise in aggressive crimes that the 1966 killings produced. We do not know how long this type of crime-enhancing effect would last, but the above reasoning indicates that it could persist at least for several months. Finally, because of generalization processes, we expected the spectacular crimes to affect a range of aggressive offenses, such as aggressive assaults and armed robberies, as well as murders. Indeed, since murders are relatively rare in most American cities, data pertaining to this latter crime are readily influenced by chance factors and are comparatively unreliable.

METHOD

Description of the Data

Sources. For many years, the Federal Bureau of Investigation has collected monthly counts of specific crimes from almost all law enforcement agencies

in the country. The FBI supplied us with copies of report sheets giving the monthly frequencies of homicide, negligent manslaughter, forcible rape, robbery and aggravated assault in each of 40 cities for the seven years 1960 to 1966. In addition to these figures, we made use of the FBI's annual publication, the *Uniform Crime Reports* (UCR) for analyses of month-to-month and year-to-year trends.

Note that our data generally have to do with *victims* with the exception of robberies; should a thief wave his gun at ten people in a tavern and take money from all of them, we would have only one robbery. Except for murder and manslaughter, attempted (unsuccessful) crimes are also counted. The statistics therefore refer to the number of offenses rather than arrests.

Crime Definitions and Problems in Data Collection. Homicide, rape, aggravated assault and robbery are usually considered to be crimes of violence, and the unweighted sum of the four is traditionally used as an index of violent crime.

Negligent manslaughter is not regarded as a crime of intentional violence. Since data on this crime are on the same record sheets as data on violent crimes, we were able to use negligent manslaughter as a "control" crime in some of our analyses.

Homicide. Homicide refers to the *willful* killing of one human being by another. Non-negligent manslaughter (e.g. unpremeditated but willful killing) is included in the present homicide count. Authorities generally believe there is relatively little problem in data collection for homicide and probably no systematic bias in the summary statistics.

Negligent Manslaughter. Killings which are the result of culpable negligence on the part of someone behaving in a normally legal manner are termed negligent manslaughter. The great majority of cases in this category are traffic fatalities. This crime, like murder, is relatively accurately recorded.

Rape. The definition of rape is "carnal knowledge of a female forcibly and against her will" with statutory rape and other sex offenses excluded. There is a wider margin of error in this category than in the other classes of crimes. Victims at times fail to report rapes because of embarrassment or fear of disapproval or because the assaulter is an acquaintance or relative, but also, according to the President's Commission on Law Enforcement and Administration of Justice, the police often do not accept the victim's version of what happened even when a report is made. "Unfounded" cases are not always erased from police records.

Aggravated Assault. Aggravated assault is defined by the FBI as

" . . . an unlawful attack by one person upon another for the purpose of inflicting severe bodily injury accompanied by the use of a weapon or other means likely to produce death or great bodily harm. . . . It is not necessary that any injury result . . ." (*Uniform Crime Reporting Handbook*, 1962:20).

An assault coincident with robbery or rape is counted as robbery or rape. If the victim dies, the record is changed to homicide. According to the *UCR Handbook*, events termed simple assault, assault and battery, fist-fighting, etc., are not defined as aggravated assault. The officer dealing with a case of non-fatal violence obviously has some discretion about labeling it, and in some cases the assaulter is charged with a lesser crime. Efforts to record such crimes as aggravated assault regardless of the charge made began about 1961, but the major effect of this recording change (e.g., increasing the published assault rates) is not seen until 1965.²

Robbery. As the FBI defines this crime, "to obtain the . . . thing of value, the robber uses force or violence on the victim or puts the victim in fear by use of threat, weapons, etc." (*UCR Handbook*, 1962:20).

Geographical Replication. Our data are from four cities in each of the ten "ZIP Code" areas designated by the Post Office. These cities are listed by ZIP Code in Table 1. The four cities within each area range in size from about 260,000 to 1,400,000 people. The total population for each set of four cities was approximately equal. Our data are from the area covered by the police department bearing the name of the core city. In most cities, this core political unit does not incorporate the total urban area usually referred to by the core city's name.

Plan of Analysis

The statistical model employed here was, as far as we knew, a new one in the study of crime. Shortly after its formulation by our statistical consultants, Glass (1968:55-76) and Campbell and Ross (1968:33-54) published reports of a study which involved a somewhat similar analysis. The plan we arrived at was a three-pronged attack. The first procedure was statistical. We transformed the individual city data to minimize gross variations due to city size, instability of the data, and large differences in intra-city variability. The transformed data were then subjected to analysis according to the least squares models described below. The results provide us with relative magnitude and probability figures for the effects of several variables (first and second-order general trend components, seasonality, area differences, and sensational crimes). Our chief interest here is in the total number of aggressive crimes,

² The 1965 UCR estimate of 1964 aggravated assaults was higher than that published in the 1964 UCR, without any change in the population estimate. Apparently, at this time the FBI began adding assaults resulting in a less serious charge to their data, and for comparison purposes, later revised the 1954 figures. Thus, our 1965 and 1966 data probably include cases which would not have been recorded as aggravated assaults between 1960 and 1964. More important, the 1964 data used in this study do NOT include this revision, and are therefore possibly TOO LOW in relation to the later data.

TABLE 1

List of Cities by Zip Code Area

Area (Zip)	Reporting Unit	Area (Zip)	Reporting Unit
	Paterson, N. J.		
	Worcester, Mass.		
	Springfield, Mass.		
	Portland, Maine		
	Buffalo, N. Y.		
	Syracuse, N. Y.		
	Wilkes-Barre, Pa.		
	Johnstown, Pa.		
	Baltimore, Md.		
	Lynchburg, Va.		
	Charleston, S. C.		
	Charlotte, N. C.		
3	Atlanta, Ga.		
3	Nashville, Tenn.		
3	Mobile, Ala.		
3	Jacksonville, Fla.		
4	Dayton, Ohio		
4	Canton, Ohio		
4	Indianapolis, Ind.		
4	Grand Rapids, Mich.		

but the four crimes making up this total were also examined separately using the same models.

The second procedure was to examine the graphic representations of the total number of aggressive crimes and of the frequency of each individual crime summed across the 40 cities. These graphs allow us to describe trends across time, both expected and unexpected deviations from trend, and differences between the aggressive crimes and manslaughter.

The third prong of our attack was to search published crime reports for analyses relevant to our hypothesis and to our interpretation of the statistical and graphic outcomes. Those we found useful were UCR analyses of the yearly trends in the various crimes, and the monthly-variation patterns published on a yearly basis in the UCR.

Development of the Statistical Model

Data transformation. Across the seven year period covered by our data, some of our 40 cities grew in population and some shrank, some changed in composition toward a greater proportion of high crime-risk citizens, some showed a faster rise in crime than others, and some simply showed more

variability than others, even with population taken into account. Transforming the data by the usual computation of rates per 100,000 population was possible, but it took care of only part of the problem, and in any event we had good population figures only for 1960, a census year.

In attempting to solve these problems, the data were transformed into Z scores; for each city, the 84-month mean (1960–1966) and the deviation of each month's crime count from that mean were calculated and the resulting figure divided by the standard deviation of the 84-month set. These Z scores have the advantage of homogeneity of variance for the data sets from different cities at the same time that they maintain the trend patterns seen in the raw data. Thus, larger cities or cities with a faster rate of crime increase do not count for more *in the statistical analysis* than smaller cities with slower-growing crime.

Least Squares Model. The model we used on all the 1960–1966 data was developed over a series of trials exploring the shape of our data. We found significant linear and cubic trends across the 84 months, and our model takes account of these trend components. Initially, we combined the two test periods and found a significant rise in the level of crime in each of the four months following the occurrence of the sensational crimes. However, the graphs indicated there were somewhat different patterns for the post-JFK-assassination-months and for the months following the 1966 summer murder, so the subsequent analyses separated these two periods in order to produce more information. A further change was to extend the test period to five months, since the preliminary analyses suggested that the criminal after-effects of the spectacular murders tapered off very slowly over time. In these analyses, we also found a small but significant portion of variance attributable to seasonality (i.e., monthly differences repeated each year).

On one trial of this model, we tested for area differences. None of these reached significance and those that approached significance were not all the expected ones. Because of this (and also because inclusion of area differences in the model increased the problem of estimating significance levels with multiple t-tests), we dropped area differences in the final analysis.

A least squares model of the following form was used for the final analysis on all data:

$$Z_{ijt} = \text{constant} + Q_1 Z_{ij,t-1} + Q_2 Z_{ij,t-2} \\ + Q_{12} Z_{ij,t-12} + (\text{Kennedy effects}) + (\text{Speck effects})$$

This model was applied to each aggressive crime separately as well as to the total violent crime figures. These separate analyses of course, involve increased instability in the data, but we were curious to test the rises and dips observed in the graphs for statistical significance. Since murder and rape

are infrequent within a city (many months yielding zero scores for these crimes), it was necessary to sum across cities. Thus, the degrees of freedom for the latter analyses total only 83, while for the other three analyses the total *d.f.* are (84) (40)—1, or 3359. The data transformation described above was applied to the total violent crime figures and to the figures for assault and robbery. For the murder and rape data, the transformation served no purpose since the cities were combined.

This analysis is quite conservative in that determination of the overall trend is based in part on the critical months following the Dallas and Chicago crimes. Although many economists compute trend lines in just this manner in searching for unusual occurrences, we believe this procedure might mask relatively slight but still significant effects; to use an analogy, it is almost as if we tested an experimental treatment by comparing the experimental group with a combination of the control group *and* the experimental condition. For this reason, a subsidiary analysis was conducted in which the deviations of the months following the spectacular crimes were tested against trend lines based only on the months preceding John Kennedy's assassination, i.e. from January, 1960, through November, 1963.

Statistical significance was determined in both analyses by means of t-tests. The procedure is equivalent to testing the difference between the actual figure for a given post-spectacular-crime month and the figure to be expected on the basis of the computed trend and seasonal components.

Graphic Analysis

Figures 1 through 6 report the data for the single crimes (including manslaughter a comparison crime) and for the sum of the four aggressive crimes added across all 40 cities in our sample. The scores used here are the deviation of each month's crime from the seven year average for *that month*. Since no one month showed wider swings than other months, division by each month-set's standard deviation was not deemed necessary. Note that the 40 cities' individual contributions to the sums represented in these graphs are not controlled here, unlike the statistical analysis.

Total Violent Crime

Statistical Analysis. The coefficients, *t* statistics, and level of significance resulting from the statistical analysis of the total crime scores are reported in Table 2. There is a significant positively accelerated rising trend for all crimes across the 84 months, and a small but significant seasonal pattern. Preliminary analyses had revealed a significant increase in these crimes after all three sensational murders were considered together, with a significantly

greater rise after the Speck murders than after the Kennedy assassination. The final analysis adds significant detail to these early findings. There is no immediate shift in the general trend in the month following the JFK assassination (December, 1963). Compared with the preceding month, the December figures from other years and the general linear trend, the December figure is at just slightly above the expected level.

However, the significantly positive coefficients for January suggests that there was a delayed effect. As we will see in the other crime statistics, this pattern is repeated in the separate violent crimes as well, and may well be a reliable phenomenon: There is at first no sizeable increment following the President's murder, but then there is a sharp jump in January, perhaps as if a numbing shock had worn off. The coefficient for the following month, February, is close to zero, indicating that the January rise had tapered off somewhat.

Table 3 summarizes the reanalysis of these post-JFK data using only the pre-assassination months from January, 1960, to November, 1963, to establish the trend components. As can be seen here, the December total aggressive crime figure is significantly above the preceding trend. Unlike the previously reported analysis, then, this procedure reveals a significant jump in violent crimes in the month following John Kennedy's murder. We suspect that the finding of a significant positive coefficient for December, 1963, in this reanalysis may reflect the generally high level of crime in the period March, 1963, to December, 1963, which was not predicted by the preceding trend. But then, as in the more conservative analysis, the January coefficient is significantly positive and substantially higher than the December coefficient, again indicating that there had been an abrupt rise in violent crimes during this month as compared to the preceding months. The February coefficient declined somewhat but is still significant, showing a tapering off but not a drop back to earlier levels.³ The March and April figures are again significantly higher than the pre-assassination trend. In summary, then, there is a rise in aggressive crimes after the JFK murder which continues at least through April, 1964.

Returning to the more conservative analysis summarized in Table 2, we see that there was a significant jump in violent crimes above the 84-month trend line in four of the five months following Speck's murder of the Chicago nurses (excepting September). Here, too, in other words, the spectacular

³ The February coefficient would probably be much higher if it reflected only the relationship of the February crime total to the linear trend and the preceding Februaries; however, the preceding month was exceedingly high and, since our statistical model takes this into account, in a sense the observable difference between the February level and the preceding trend is canceled out in the statistical analysis by the preceding month's high level.

TABLE 2

Time Series of Analysis of Aggressive Crime Coefficients and Significance Levels^a

Variables ^b	Total Violent Crimes		Aggr. Assault		Robbery		Murder		Rape		Mansl.	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Z(t-1)	.40	21.50***	.35	18.88***	.31	16.74***	.21	1.86*	.52	3.74***	.26	1.84*
Z(t-2)	.17	9.35***	.21	11.16***	.13	6.97***	.06	.57	.01	.04	.14	1.03
Seasonality	.14	8.26	.11	6.11***	.16	8.75***	.62	5.54***	.45	3.34***	.55	3.83***
JFK:												
Dec., 63	.17	1.38	.05	.35	.27	1.94*	-13.77	1.14	-21.82	1.01	-3.42	.29
Jan., 64	.54	4.33***	.33	2.54**	.54	3.86***	13.35	1.12	16.88	.79	14.49	1.25
Feb., 64	-.02	.15	.13	1.00	.04	.30	-15.81	1.31	5.41	.25	-8.82	.78
Mar. 64	.18	1.43	.27	2.06**	.01	.10	4.62	.38	27.74	1.30	-14.37	1.25
Apr., 64	.18	1.45	.34	2.58**	.03	.20	16.77	1.39	-10.99	.51	-4.76	.42
Speck:												
July, 66	.88	7.01***	.81	6.14***	.49	3.45***	-.14	.01	21.49	.96	16.76	1.46
Aug., 66	.61	4.78***	.34	2.56**	.79	5.60***	12.70	1.01	-1.87	.08	-2.02	.18
Sept., 66	.13	1.03	.26	1.93*	.06	.39	13.78	1.08	-10.01	.44	-1.33	.11
Oct., 66	.64	5.04***	.62	4.72***	.56	3.95***	-7.39	.57	35.60	1.60	3.84	.33
Nov., 66	.38	3.04***	.25	1.93*	.54	3.78***	7.19	.57	-14.05	.63	3.49	.30

* p .10.

** p .05.

*** p .01.

^a A positive coefficient indicates that the observed figure is higher than expected or, in the case of trend components, than the observed trend is upward.

^b Z(t-1) provides an estimate of linear trend; Z(t-2) provides an estimate of cubic trend. Higher-order trend components were not found to be significant in the initial data analysis.

TABLE 3

Time Series Analysis of Aggressive Crime, Jan., 1960, to April, 1964, only: Coefficients and Significance Levels^a

Variable	Total Violent Crime		Aggrav. Assault		Robbery	
	Coeff.	t	Coeff.	t	Coeff.	t
		12.26***		10.38***		9.97
		4.72***		6.88***		3.25***
		1.25		1.50		2.63**
	.48	3.36***	.26	1.83*	.51	3.41***
	.95	6.61***	.69	4.78***	.83	5.48***
	.27	1.86*	.45	3.08***	.13	.84
	.60	4.10***	.68	4.65***	.16	1.08
	.52	3.62***	.72	4.98***	.21	1.39

* p .10.

** p .05.

*** p .01.

^a A positive coefficient indicates that the observed figure is higher than expected or, in the case of trend components, than the observed trend is upward.

^b Z(t-1) provides an estimate of linear trend; Z(t-2) provides an estimate of cubic trend; higher-order trend components were not found to be significant in the initial data analyses.

violence seems to have produced a heightened incidence of violent crimes that continued for at least several months.

Graphic Analysis. The graphic representation of the total aggressive crime data (Figure 1) shows an irregular and initially slightly decreasing trend from 1960 to 1962, with an irregular rise after 1962. December, 1963, is somewhat low. In January, 1964, however, the violent crime figures jump, and no *succeeding* month reveals a figure as low as that for the *preceding* months (January, 1960, to December, 1963). After January there is a highly regular tapering off to July, 1964.

January of 1965 again shows a rise, in this case probably an artifact of the recording of aggravated assaults, a matter which will be discussed below.

In July of 1966, the month in which the Speck murders took place, there is another jump in the number of violent crimes. Again, there is a change in level, with August showing very little decrease, September somewhat lower, and October, November and December continuing high.

The total violent crime data clearly support our hypothesis. Whatever the cause, the preceding trend over time did not predict the rise in aggressive



FIGURE 1

crimes that these 40 cities experienced after the sensational murders. The persistence of the high crime rate in the year or two after the President's assassination and then again in the period following the Speck murders could well be due to the phenomenon of crime breeding crime.

Separate Crimes

At this point we will turn to the graphical and statistical analyses of the separate violent crimes, and then we will deal with the variety of interpretations which can be offered for our results.

Aggravated Assaults. Figure 2 displays the 1960–1966 data for aggravated assaults. There was, in this period, an initial downward trend and then a sharp rise (for unknown reasons) beginning in the fall of 1961. This heightened level continued irregularly, with another sharp jump in February–March, 1963. President Kennedy's murder in late November, we can see, was followed by a slight decline in aggressive assaults in December and then an abrupt and extraordinary rise in recorded assaults in January, 1964.

The trend analyses summarized in Tables 2 and 3 indicate that there was a significant increase during this 84-month period. More important, both analyses also reveal significant increments above the trend line for assaults

after the Dallas assassination. Our initial analytic procedure (Table 2) shows a significant rise in January, a petering off in February, and then again significant departures from the overall trend in March and April of 1964. The more sensitive statistical analysis based on the pre-November, 1963, trend, on the other hand, reveals a reliable rise in the number of aggravated assaults over the preceding trend in each of the four 1964 months investigated (Table 3), including February. In short, both the statistical and graphical

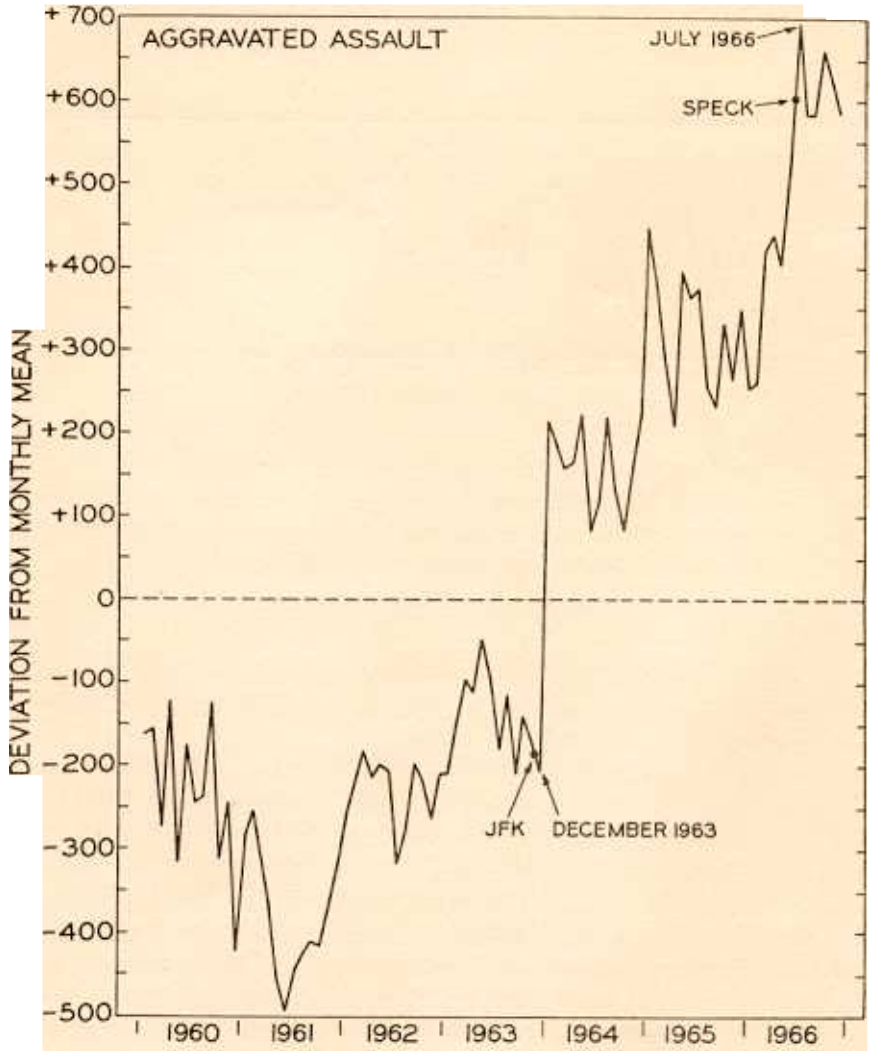


FIGURE 2

analyses show a significant rise in assaults in January, 1964, which continues for several months.

The Speck murders in 1966 were also followed by a significant increase in aggravated assaults above the 84-month trend, as can be seen in Table 2. There was a sharp and significant jump in July, somewhat of a decline in August and September, although the figures for these months were still above the six-year trend, and then again, a rise in October, 1966.

Robbery. The graph of the robbery data (Figure 3) is somewhat more regular than the graph of the assault data. Robbery, too, shows a significant increase over the seven years. December of 1963 did not have a particularly low level of robbery, unlike the other crimes. The analyses summarized in Tables 2 and 3 indicate that the December, 1963, level was significantly

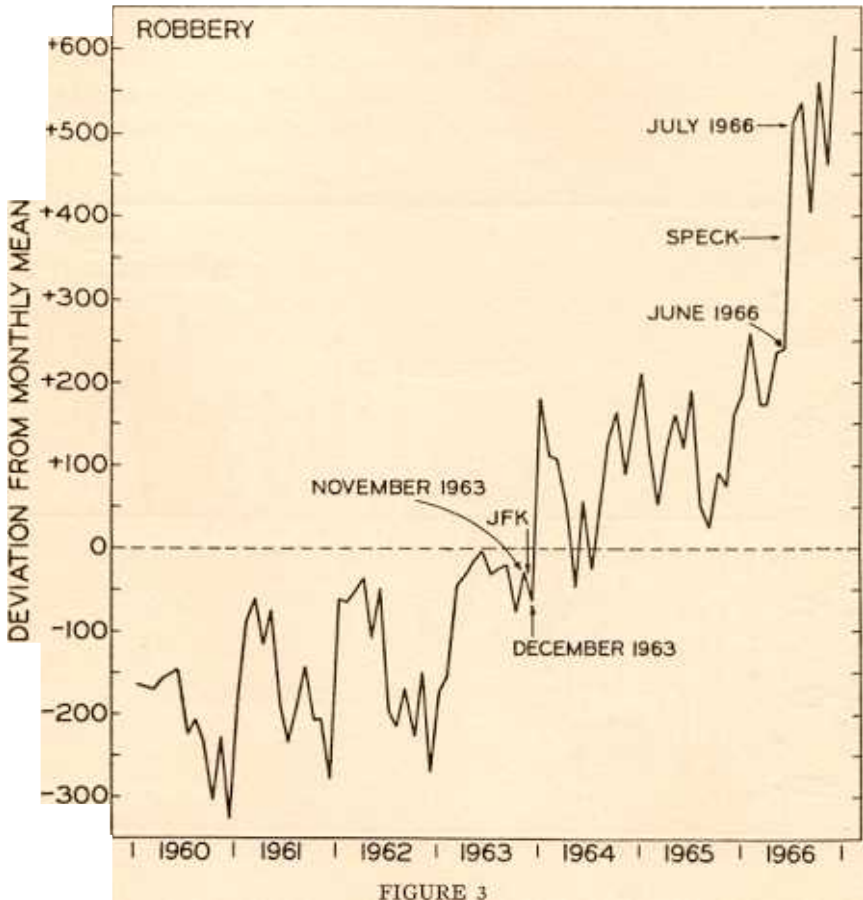
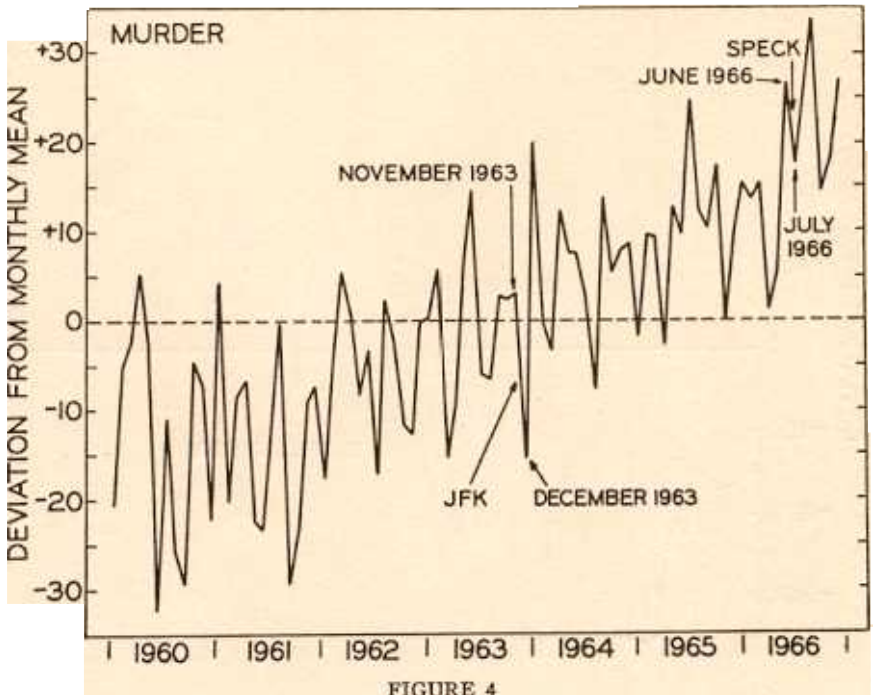


FIGURE 3

higher than the figure to be expected from either the overall or previous trend. January of 1964 shows a much higher coefficient, reflecting the jump seen in Figure 3. Unlike the pattern for aggravated assaults, the incidence of robberies then declines sharply so that the figures for the next three months are not above either the overall trend (Table 2) or the pre-JFK-assassination trend (Table 3).

As is apparent in Table 2, and in Figure 3, there was a jump in the incidence of robberies in July of 1966 after the Speck murders. This increase is significant, and as with assault, the number of robberies continues high through the end of 1966, with the exception of a dip in September. Thus, robbery data gave the same general picture as the assault data.

Homicide. Figure 4 portrays the great fluctuation in the incidence of homicides from month to month, and as is indicated in Table 2, there is a large seasonality factor in the incidence of this type of violent crime. There is also a near-significant ($p = .10$) linear trend in the seven years covered by our data. However, probably because of the generally wide swings in the number of homicides, i.e., the unreliability of the data, the months following the two sets of sensational crimes do not show any statistically sig-



nificant increments, as Table 2 also reveals. (No subsidiary analysis based on the pre-November, 1963, trend was attempted because of the unreliability of the measure).

Despite these negative results, other considerations suggest that the President's assassination in late 1963 and the brutal slayings in the summer of 1966 did influence the number of murders in the country. Table 4 gives the FBI-computed yearly increases in the rate of various crimes for the nation as a whole during the years 1961 through 1966 (controlling for population size). Looking at the murder data, shown on the top line, we can see particularly great rises in 1964 and 1966. Furthermore, as is also apparent in these murder data, the 1966 increase is largely due to unusual jumps occurring in the third and fourth quarters of the year—which is what we would expect from our hypothesis.

Returning to Figure 4, the extremely wide swings in the incidence of homicides immediately after John Kennedy's death is particularly noteworthy; there is a sharp drop in December and then an extreme and sudden rise in January. Since the homicide rate is typically high in December, this December decline is fairly unusual. Inspector Daunt of the FBI Uniform Crime Reporting section directed our attention to the fact that the December, 1963, national homicide rate was four percent below the average rate for that year—but *only in one other year (1953) since 1948 has December's crime been lower than the annual average*. Furthermore, for 12 of the 19 years from 1948 to 1966, the December murder rate has been at the highest point of the year. In short, the low level of murder in the month following the President's assassination is clearly unusual.

The January, 1964, homicide level also deviates from the usual monthly

TABLE 4

Crime Rate Increases in % Above Preceding Year, for Separate Crimes

	1961	1962	1963	1964	1965	1966
Violent Crimes						
Murder	-6	-4	0	7	6	10
Rape	-1	0	-1	20	8	8
Agg. Assault	0	3	4	15	5	9
Robbery	-3	2	4	10	5	13
Other Crimes						
Manslaughter	-1	7	3	9	9	7
Burglary	2	3	8	11	4	9
Larceny	2	7	12	11	7	12
Auto Theft	0	7	10	14	4	12

pattern, but this time, as expected, in the opposite direction. The January murder level from 1948 to 1966 is normally well below the annual average. The 1964 level, by contrast, is only three percent below the annual average, a figure matched or exceeded only in 1949 (+ 3%), 1961 (- 2%) and 1959 (- 3%). Thus, in relation to the 1964 total, January claims a greater proportion of the total than it does in most other years.

The incidence of murder in the month preceding the Speck murders (June, 1966) seems much higher, in Figure 4, than the preceding months, and the months following show the same high number. A rise in the preceding month therefore may have masked an effect stemming from the Speck murders. However, the monthly homicide figures for 1966 (shown in the first graph in Figure 5) suggest that when the country as a whole is considered, the increase in murders may have begun in July rather than in June. The dotted line in Figure 5 represents the usual monthly pattern for murder. The black 1966 line rises above the usual pattern in July and remains above it. Thus, as we also saw in the quarterly data (Table 4), the second half of 1966 accounted for more of the 1966 murders than the second half of a year usually does.

All in all, the general pattern suggests that the murder incidence following the JFK assassination and the Speck murders was unusual—clearly low in December, 1963, and high in January, 1964, and July, 1966.

Rape. Rape data show a statistically significant rise across the seven years (Table 2). The rise is irregular and appears to be positively accelerated (Figure 6). This could, of course, be due to changes in public willingness to report rape offenses or in police willingness to record them as such.

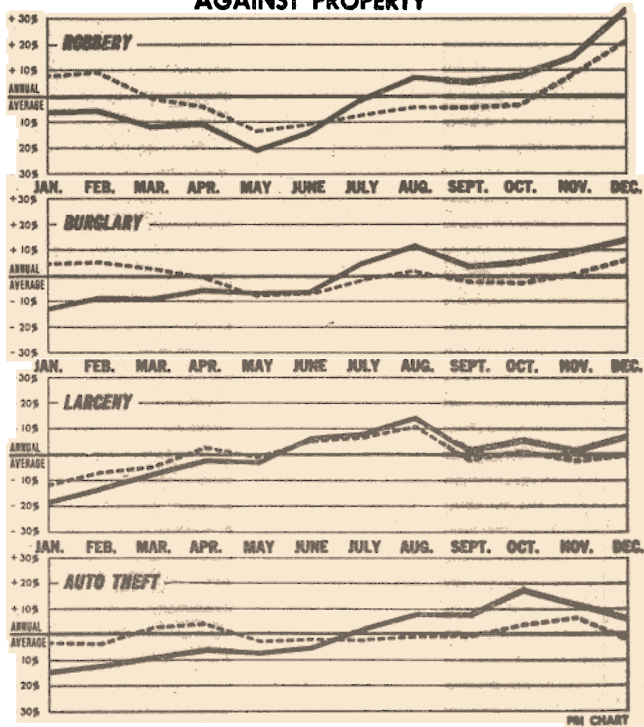
As with homicides, the statistical analysis reveals no significant deviations from trend. This may be as much a matter of power of the analysis as of lack of non-random deviations. Figure 6 shows December of 1963 (after the JFK murder) with a low incidence of rape, but rape figures for preceding months are also low. In January, 1964, the number of rapes increases and remains high with no substantial dips until October, 1964. The overall 1964 increase is 20% of the previous year (Table 4)—remarkably large.

As with the other crimes, there was a high number of rapes in the month following the Speck murders, but preceding months were also high in this crime, beginning in December, 1965. The UCR monthly pattern graph (Figure 5) shows that the 1966 figures form a pattern almost identical to that of preceding years. Thus, if the Speck murders had an effect (possibly keeping rape incidence high), this is masked by the preceding rise. On the other hand, rapes are probably not influenced by the same socio-cultural factors influencing the other types of violent crimes.

BY MONTH

— VARIATIONS FROM 1966 ANNUAL AVERAGE

AGAINST PROPERTY



CRIMES

KEY: - - - - - 1961-1965 MOVING AVERAGE

AGAINST THE PERSON

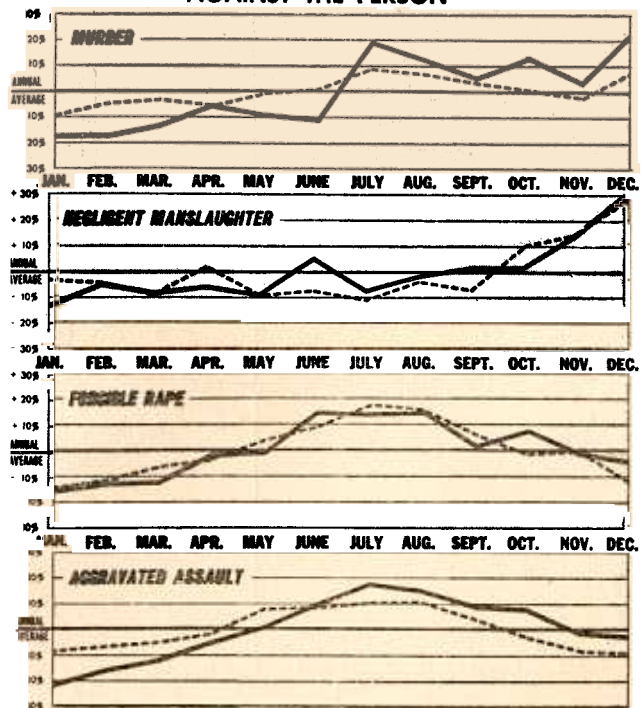


FIGURE 5

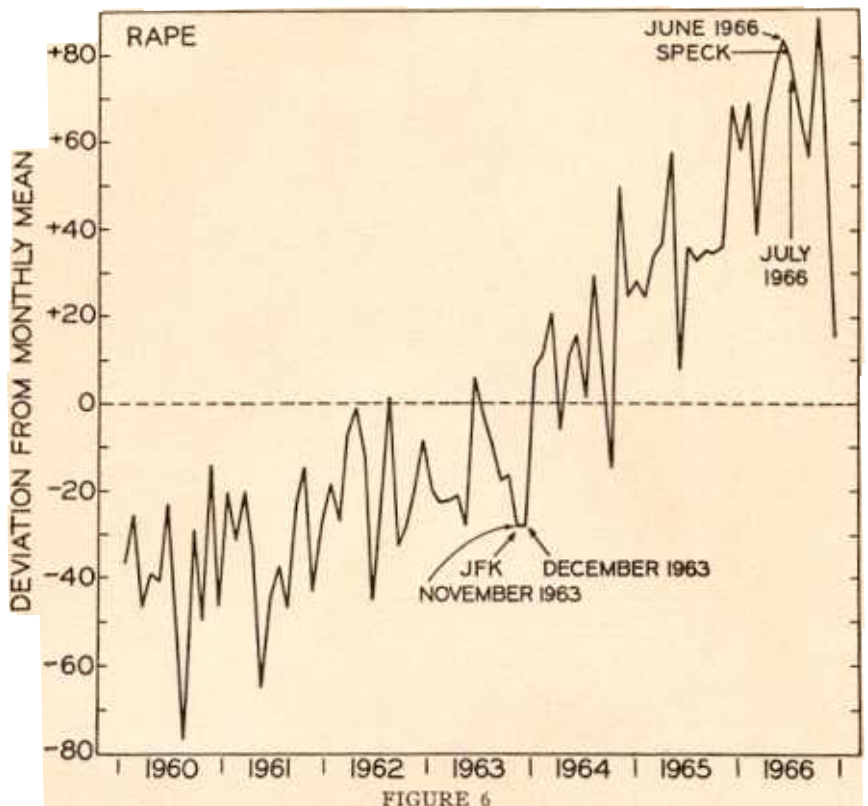
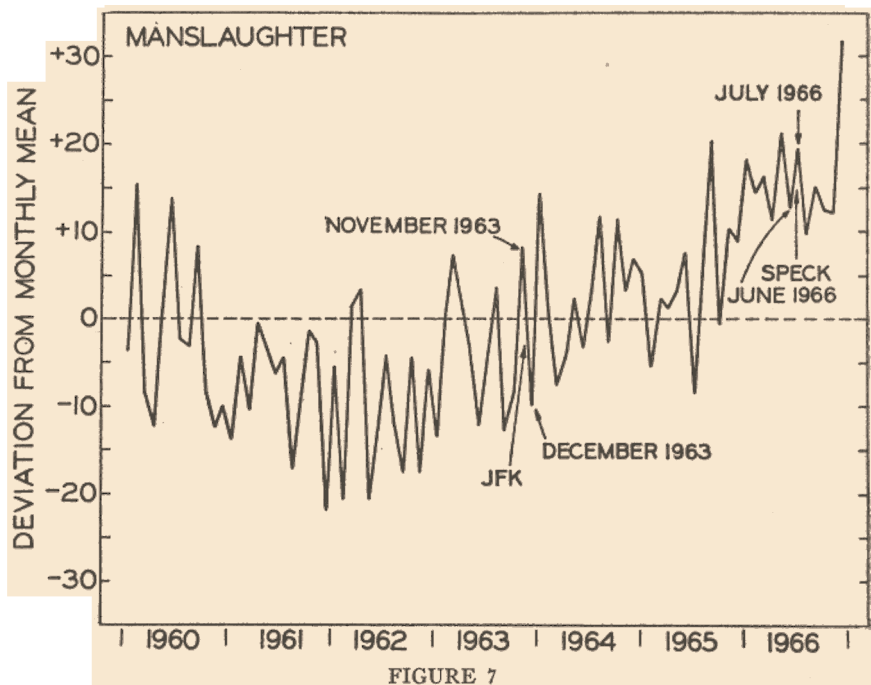


FIGURE 6

Comparisons with Other Crimes

Larceny, Burglary and Auto Theft. The question now arises whether the trends and patterns found in violent crimes are also revealed in less aggressive crimes. We can make use of the UCR annual rate increase figures for property crimes as a comparison. The three property crimes in the UCR crime index (in addition to robbery) are larceny over \$50, burglary and auto theft. As with manslaughter, these crimes may have an aggressive element and may be somewhat susceptible to aggression-eliciting stimuli. However, we would expect such effects to be small, particularly in the case of larceny, which undoubtedly reflects economic motives more than other crimes do. As Table 4 indicates, property crimes increased steadily through the early 1960's, unlike the more violent crimes. In 1964 rises in property offenses are great, but not much greater than in previous years, unlike the 1964 increase in violent crime. Nineteen sixty-five had a slowed rate of increase for property crimes as well as for violent crimes, with 1966 again revealing a large increase for both types of crime

Manslaughter. Figure 7 shows a general pattern for manslaughter which is not similar to that seen with the other crimes except that even with population controlled, a steady rise in manslaughter is observable (as Table 4 indicates). The increase in manslaughter, however, does not appear to be as large in 1964 or in 1966 as the increases in violent crimes. December of 1963 has a low incidence of manslaughter, and January, 1964, is high (Figure 7), but the incidence in succeeding months is not particularly great. More-



over, the 1964 monthly pattern does not show the December, 1963, or the January, 1964, manslaughter counts deviating sharply from the usual pattern as murder figures did for these months. Finally, when we turn to the 1966 manslaughter data, we find no similarity in pattern to the violent crime data. Our conclusion, then, is that there are factors affecting the incidence of aggressive crimes which do not influence manslaughter.

DISCUSSION

Many of the alternative explanations of the present findings are fairly obvious. One possibility, for example, has to do with a change in police records: The spectacular crimes might have led police to report more crimes, either because they became more alert to violent offenses or because they

wanted to reinforce the seemingly threatened social order. There is no independent evidence of such a change, however. The Uniform Crime Reporting Section of the Federal Bureau of Investigation does not know of any widespread revision in crime-recording procedures *immediately after John Kennedy's assassination and then again after the Speck murders* that could have produced the rises in aggressive crimes shown in this study, and did not itself institute such a modification on these occasions. Even if the general rise in reported crimes over the last few decades does stem from a decreased tolerance for, or a heightened awareness of, law-breaking, rather than a true increase in crime rates, as some writers have argued, official policies did not change *after each of the spectacular murders*.

Nor is there any concrete reason to think that individual policemen around the country were influenced by these tragic outbursts of violence with or without the intervention of their superiors. These crimes could have stimulated aggressive ideas in them, and these thoughts might have made them more attentive to violent offenses that they otherwise would have neglected, but can the striking increases in crime rates highlighted in Figure 1 and Tables 2 and 3 be due merely and entirely to such perceptual effects? A policeman might perhaps dismiss or report an incidence of aggravated assault depending upon his definition of the situation and his mood at the moment, but robberies are relatively objective events which should be fairly impervious to these biasing influences. As our findings indicate, the sensational murders led to a sharp rise in robberies as well as assaults. Moreover, although this is much more ambiguous, the pattern of the incidence of murders is somewhat similar to that for assaults and robberies, and it is difficult to view these figures as stemming from mere reporting changes.

An altogether different objection to the present reasoning would accept the results at face value but would prefer to reinterpret them. The jump in violent crimes following President Kennedy's assassination and then again in the summer of 1966 might be attributed to a general weakening of social controls or restraints. Instead of stimulating specifically aggressive ideas and actions, these murders could have generally lowered inhibitions against all sorts of offenses. As we have already seen, there are no good indications of such an effect. While aggravated assaults and robberies (and murders, to a less clear-cut extent) were apparently influenced by the sensational crimes, the patterns for rape, property crimes and manslaughter were considerably different. These offenses seem to be governed by other determinants and do not point to any broad societal breakdown following the Kennedy and Speck incidents. This is not to say, however, that the spectacular outbursts of violence did not lower any restraints. If this did occur, it probably was fairly specific; particular groups of people—especially those disposed towards violence—could have become less inhibited against aggression. Still, for theo-

retical and empirical reasons which cannot be gone into exhaustively here, we propose that the sensational crimes elicited aggressive reactions as well as reduced restraints against these responses.

One final comment. Some critics might ask why other time periods also showed sudden, sharp jumps in the frequency of violent crimes. There were at least two such abrupt rises in the years 1964–1965, and we might legitimately be asked how we explain these. The answer is, of course, that we cannot. Nonetheless, we are not here offering a general theory of crime or even a theoretical analysis of all violent offenses. Our thesis does not maintain that most (or even a substantial proportion) of violent crimes are instigated by news reports in the mass media. Other determinants undoubtedly are more important in the great majority of these incidents. These other factors could have produced the increases and declines seen in our graphs as well as the overall trends. Contagious influences operate on top of these determinants, and probably in conjunction with a number of them. It is this factor of contagion, we propose, which can be seen in the violent after-effects of President Kennedy's assassination and the Speck slayings.

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