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Norman Ansley and Lawrence S. Beaumont, J.D.

# A STUDY OF THE RELATIVE EFFECTIVENESS OF

#### PHYSIOLOGICAL DATA IN FIELD POLYGRAPH EXAMINATIONS

#### By

## James Allan Matte and Ronald M. Reuss

#### Abstract

From 122 sets of charts, all confirmed as either truthful or deceptive, information was obtained about the effectiveness of each of the four recorded channels of physiological information. The test format was quadri-zone and the tests were either conducted at the Buffalo Police Department or the Matte Polygraph Service, Inc. Of those original tests, 62 were called "deception indicated" (DI) and 53 "no deception indicated" (NDI). Subsequently these decisions were verified as correct. In addition, there were seven inconclusive decisions, of which five proved to be innocent and two guilty. The instruments were electronically enhanced four-channel Stoelting polygraph units which recorded abdominal and thoracic respiration, electrodermal (GSR), and cardiovascular activity.

The most productive of the physiological channels was the pneumo tracing at 43%, followed by the cardio at 32% and the electrodermal at 24%. Among men, the most productive channel for the innocent cases was the pneumo at 67%, the cardio at 22%, and the electrodermal at 11%. For guilty men the most productive was the cardio at 46%, the pneumo at 37%, and the electrodermal at 15%. Among innocent women the most productive was the electrodermal at 43%, and the cardio at 18%. For guilty women the most productive channel was the pneumo at 44%, the cardio at 39%, and the electrodermal at 17%.

Other combinations of truth and deception, effectiveness of each channel, and their interaction with gender are explored. Many of the differences reach statistical significance.

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Relative Effectiveness of Physiological Data in Field Polygraph Examinations

## Background

This author (Matte) attended the Backster School of Lie Detection in 1972 and there learned that male polygraph subjects were predominantly stomach or abdominal breathers and female subjects were predominantly chest or thoracic breathers. At that time this was especially meaningful because a great percentage of polygraph instruments had only one pneumograph channel which was mechanical rather than electronic requiring a decision as to where to place the single pneumograph component. The administration of several thousand polygraph examinations by this author (Matte) using polygraph instruments that contained double pneumograph components which recorded both stomach or abdominal breathing patterns and chest or thoracic breathing patterns appeared to support the teachings of the Backster School.

In August 1986 at the 21st Annual APA Seminar at Smuggler's Notch, Jeffersonville, Vermont, a presentation was made by Dr. Gordon H. Barland in reporting on research he had conducted regarding the effectiveness of the pneumograph versus the GSR and the Cardiograph. Barland showed several polygraph charts projected on a screen which reflected significant physiological arousals at a particular stimulus marking in the GSR and Cardio tracings but none in the pneumograph tracing. Barland had used only one pneumograph in this experiment because in order to use the plethysmograph he had to sacrifice one of the pneumograph channels. The message conveyed by Barland's presentation was that the pneumograph had been ineffective in identifying deception compared to GSR and Cardiograph tracings. The subject sample in Barland's experiment consisted of six males and six females. Barland had positioned the single pneumograph component over the chest of the male subjects and under the breast of the female subjects.

In a research project conducted for the National Institute of Law Enforcement and Criminal Justice, by Drs. David Raskin, Gordon Barland and John Podlesny(1978), it was reported that the Galvanic Skin Response was clearly superior to the pneumograph and cardiograph both in laboratory experiments and with criminal suspects in field situations. It was further stated that the cardio and respiration measures showed significant identification of innocent but not guilty subjects, but it was noted that in Experiment II the respiration was measured with a device different from that typically employed in the laboratory or field, and the cardio was measured using a low-pressure cuff at an inflation pressure between 50 and 60 mmHq. There is no mention of the sex of the subjects and the location of the pneumograph component on the subjects' person. In Experiment I it is reported that both thoracic and abdominal respiration were recorded and measured and both measures of respiration produced clear indications of greater suppression in respiration amplitude following relevant questions for guilty subjects and control questions for innocent subjects. Thoracic respiration showed an increase in amplitude following relevant questions for innocent subjects but a similar effect did not occur in abdominal respiration. However, there is no mention of the sex distribution of the subjects used in this experiment.

In subsequent research conducted by Brian C. Jayne (1990) involving quantitative analysis of 100 verified sets of field polygraph records, the results indicated that respiration, electrodermal, and cardiovascular

parameters each provide significant discrimination between truthful and deceptive subjects. The combined evaluations of these three parameters provided an accuracy and conclusive rate which was higher than the analysis of any individual parameter. However, the respiration parameter yielded the most consistent and accurate discrimination between truthful and deceptive subjects. There was no significant difference between false positive and false negative errors in the respiration or cardiovascular parameters. Conversely, the electrodermal (GSR) parameter produced the greatest number of errors, the highest overall inconclusive rate, and had a statistically significant rate of false negative errors. When inconclusive opinions are excluded, the optimum accuracy for respiration was 87%, for the cardiovascular 83%, for the GSR 69%. The respiration and cardiovascular measurements yielded no significant difference in accuracies between truthful and deceptive subjects, however the GSR yielded a false positive error rate of 21% and a false negative error rate of 41%. Since the three parameters each produced an independent accuracy which was significantly different from the other two parameters, Jayne went further and attempted to optimize the accuracy of the quantitative results by multiplying the total score of each parameter by a factor of its independent accuracy, but found that it did not significantly affect the accuracy of quantitative evaluations. It should be noted that in Jayne's research, the field polygraph instruments had a double-pneumograph and the test format was the Reid Control Question technique. A unique rank order scoring system was used by Jayne, with a view to incorporating it into a computer system. It bore more resemblance to the Horizontal Scoring System (Gordon and Cochetti) and the Rank Order Scoring System (Honts and Driscoll) than the traditional numerical methods. Excluding Inconclusive opinions, numerical scoring of polygraph charts produced an average accuracy of 92% with a 3% false positive result as opposed to the more common quantitative measurement method which yielded an average accuracy of 89% with a 2% false positive bias. The differences in accuracy, inconclusive results and distribution of false positive/negative errors between quantitative evaluation and numerical scoring was not statistically significant.

Richard I. Thackray and Martin T. Orne conducted a study (1968) using a mock paradigm to determine the effectiveness of several physiological parameters which included respiration, Galvanic Skin Response (GSR), Skin Potential Response (SPR), and systolic blood pressure. However they used only one pneumograph component which was positioned at the base of the subjects' rib cage. Thirty male students were used as subjects in this study. Furthermore, the cardiograph component consisted of a Beckman Fels Model Systolic Monitor, which employs a finger cuff and sensor which was attached to the first finger of the subject's right hand. This device was adjusted to yield a measure of systolic pressure approximately every fourth heart beat. The results of this study showed that the GSR and SPR were effective in significantly discriminating deception. Respiration revealed evidence of significant but inconsistent discrimination, while the systolic blood pressure did not perform better than chance. This study was designed only to identify the guilty; no innocents were used.

Stanley M. Slowik and Joseph P. Buckley conducted a study (1975) using thirty verified real-life cases wherein a Stoelting Polygraph instrument was used to record both abdominal and thoracic respiration, blood pressure/pulse

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rate and galvanic skin reflex. This study measured the ability of seven well trained and experienced polygraphists in identifying the overall veracity of the thirty subjects by examining each polygraph tracing separately and then collectively. The results revealed an average accuracy of 87.2% when all three physiological indices were reviewed, but were only correct in 80.5% of the cases using respiration alone, 80.0% using the GSR alone, and 77.1% using only the cardiograph tracing. The polygraphists accuracy in making individual question decisions as to truth or deception resulted in 81.0% when using all three indices to evaluate the 141 individual test questions but the averages of the independent parameters were 77.5% for respiration, 73.5% for GSR and 72.9% for the cardiograph tracing.

In a laboratory study conducted by Robert J. Cutrow, Arthur Parks, Nelson Lucas and Kathryn Thomas (1972), several psychophysiological measures were used including respiration, Galvanic Skin Response (GSR), and heart rate, but did not record blood pressure changes, hence no blood pressure arm cuff was used. The single pneumograph component was positioned over "subject's lower sternum" for both male and female subjects, which may be interpreted to mean under the breast of females and over the lower chest of males. This study found that, using mock paradigms, only the GSR yielded a sex difference in that its detection of personal stimuli was significantly more successful than detection of involvement or neutral stimuli. However no data was given and there was no discussion of which sex was more affected by the GSR. It is unclear from the graphs of Table 1 as to which of the factors was most significant. Of the three parameters of interest in this study, the GSR was the most productive, followed by respiration, then heart rate. Interestingly, Cutrow, et al., mentioned that the heart rate increased in some deceptive subjects as expected but other deceptive subjects showed significant decrease in their heart rate in response to lie stimuli which they attribute to a milder arousal state possibly due to the subject being unimpressed by the experimental circumstances or perhaps possessing a higher arousal threshold. These findings regarding heart rate increase/decrease are similar to the results of an experiment conducted by this author (Matte 1980) wherein a blood pressure cuff was used which recorded both heart rate and blood pressure changes. However the cause for these differences in subject's heart rate responses are reported and explained by this author as physiological in nature rather than psychological.

Robert P. Ryan conducted a field study (1989) to replicate the Slowik/Buckley study of relative accuracy of polygraph parameters using a more objective design with the primary change being the use of a numerical scoring system of chart evaluation to replace the visual inspection method. A three-position scale of chart analysis as used rather than the seven-position scale as used in the Backster Tri-Zone and Matte Quadri-Zone Comparison Techniques. Unlike the Slowik/Buckley study which included Inconclusives as errors, Ryan tabulated the Inconclusives separately in order to address relative utility of each parameter. Furthermore, no minimums core or threshold was established to determine truth or deception; this decision was left to the discretion of the polygraphist. The primary reason cited was the use of a Secondary Relevant question also known as Secondary Control in the Reid Technique, which could dampen or be dampened by the more serious/stronger relevant questions contained in the same test. A Stoelting polygraph instrument which recorded both thoracic and abdominal respiration,

Galvanic Skin Response (GSR) and cardiovascular recording with a blood pressure cuff was used. The results revealed that the GSR was the most accurate parameter overall (87.6%) and with regard to the deceptive subjects the GSR was not only significantly more accurate than the cardio (64.6%) and respiration (67.7%) parameters, but also the combination of all three parameters used simultaneously (80.6%). However for the truthful subjects, respiration was accurate (81.0%), GSR (80.5%) and Cardio (66.7%), with an overall accuracy using all three parameters 92.5%. With truthful subjects the use of all three parameters proved to be significantly more accurate than the use of the GSR alone and significantly more accurate than both the and respiration parameters. Regarding utility rate when cardio inconclusives are omitted from the data, the respiration parameter was found to be significantly more useful than the GSR and the cardio parameters for both truthful (R 72.5%) (G 51.2%) (C 67.5%) and deceptive (R 81.2%) (G 60.0%) (C 60.0%) subjects. The use of all three parameters revealed an accuracy of 83.7% for the truthful and 77.5% for the deceptive subjects.

This paper reports data collected during the Validation of the Polygraph Quadri-Zone Comparison Technique (Matte & Reuss 1989).

## Procedure

All polygraph specific-issue tests conducted with the Quadri-Zone Comparison Technique at the Buffalo Police Department from January 1985 through December 1987 were reviewed. There were 113 cases of which 32 were later solved by confessions, investigations, convictions, and combinations of these methods. In addition, all specific-issue tests conducted with the Quadri-Zone Comparison Technique at Matte Polygraph Service, Inc., from January 1986 through April 1987 were reviewed. There were 145 cases of which 90 were subsequently solved by one or more of the previously mentioned methods. Thus, 122 of the total of 258 available cases (47%) were subsequently solved, providing a base of confirmed cases for study. (For more detail regarding ground truth data and explanation of Quadri-Zone Technique, see Validation Study of Quadri-Zone Technique in <u>Polygraph</u> (1989), <u>18</u>(4).

The Polygraphists' decisions at the end of these 122 cases were: 62 deception indicated (DI), 53 no deception indicated (NDI), and 7 inconclusive (Inc). Of the 7 inconclusive cases, 5 were solved as innocent and 2 as guilty. The subject population of the 122 cases included 64 men and 58 women. There were 84 while persons, 37 black persons, and one American Indian. The age range was 16 to 60 and averaged 32. The educational level ranged from 8 years to 16 years and averaged 13 years. The average education level for the guilty was 13 years and the innocent 12 years. There were 85 crimes against property, 37 against persons.

The three polygraphists were James Allan Matte, Ph.D., Detective Thomas E. Annitage, Polygraphist, Buffalo Police Department, and Detective Ciro F. LaCorte, Polygraphist, Amherst Police Department. The polygraph instrument used at Matte Polygraph Service in the years 1986-1987 was a Stoelting electronic four-pen, double pneumograph, Ultra-Scribe, and the polygraph instrument used at the Buffalo Police Department in the years 1985-1987 was a Stoelting electronic four-pen, double pneumograph Polyscribe. Relative Effectiveness of Physiological Data in Field Polygraph Examinations

The aforementioned 122 verified cases yielded a total of 311 polygraph charts. All of these polygraph charts contained both an upper pneumograph tracing for thoracic breathing patterns and a lower pneumograph tracing for abdominal breathing patterns. These polygraph charts also contained a galvanic skin response tracing obtained from finger electrodes, and a cardiograph tracing obtained from a blood pressure cuff normally wrapped around the left or right bicep. All of these tracings were electronically enhanced inasmuch as both of the aforementioned Ultrascribe and Polyscribe polygraph instruments are fully electronic. In this study all the thoracic patterns were on the upper channel and all the abdominal patterns were on the lower channel.

The polygraph charts in this study were examined to determine which of the two pneumograph tracings, thoracic or abdominal, was the most productive on the basis of the clarity and purity of its tracing, and adequacy of its amplitude. The key question was whether there was a significant difference in the pneumograph tracings for the persons tested. The possibilities were that the tracings might have been equal, or the upper pneumo or the lower pneumo showed a more significant physiological response. We have also asked the question whether there were any sex differences in the pneumo tracings. A further question was whether there were any differences for the innocent versus the guilty responses in the pneumo tracing, with a further breakdown by sex.

All of the polygraph charts in this study were also examined to determine which of the three parameters, Pneumo, GSR, or Cardio, was the most productive tracing on the basis of the sum of the verified scores attained in each tracing. Therefore the tracing which accumulated the highest score consistent with ground truth was deemed the most productive, followed by the next highest score consistent with ground truth and so forth. IT should be noted that the Quadri-Zone Comparison Technique employs a seven position scale (+3, +2, +1, 0, -1, -2, -3) with clearly defined rules for the assignment of each score (Matte, 1978, 1980, 1989). The scores are obtained from a comparison between each control question and its neighboring relevant question; a negative score for the relevant greater than the control, positive for the control greater than the relevant, and zero if the arousals are about even, with the exception that when there is equal but strong arousal in either the pneumo or cardio tracing, a -1 score is assigned to this question pair. We also asked the question whether there were any differences in the most productive tracing for male/female and guilty/innocent subjects.

#### Results

The most productive tracing overall tends to be the Pneumo (43%), to the Cardio (32%), and the GSR (24%) (Table 2A). They were of equal physiological responses in only 2% of the cases. One might think they should be randomly distributed equally or of equal response. According to the data, we reject the hypothesis that they are randomly distributed equally (p = .0376) (Table 3,2A2) and we strongly reject the hypothesis that they are of equal response, (p = .000001) (Table 3, 2A1). This was also equally rejected for both male and female subjects. According to the Chi Square - Goodness of Fit test on the data, we also reject the concept that there is an equal

chance distribution of response in the three tracings for males, (p = .0048) (Table 3,2A2). The data indicates that there is a strong response on the Pneumo and Cardio for males with a significantly lower response in the GSR. The female distribution is more equal for the three tracings and we fail to reject the hypothesis that there are significant differences (p = .33) (Table 3,2A2). Since there was no significant difference in the responses for females, we could not define a dominant physiological tracing for the females.

When the males were compared for the Innocent cases versus the Guilty cases, the most productive overall tracing for the Innocent cases was quite predominantly the pneumo (67% versus the Guilty cases which was the Cardio (46%) followed closely by the Pneumo for the Guilty (37%). The GSR was lowest for both the Innocent (11%) and Guilty cases (15%) (Table 3B). Clearly the pneumo tracing was the more significant overall physiological tracing for the Innocent male (67%) but dropping to only 37% for the guilty males. This shift was caused by the increased productivity of the Cardio tracing for the Guilty (46%) versus the Innocent (22%) (Table 2E).

When the females were compared for the Innocent versus the Guilty cases, the most productive overall tracing for the Innocent cases was predominantly the GSR (43%) followed by the Pneumo (38%) and the Cardio (19%). The most productive overall tracing for the Guilty cases was the Pneumo (44%) followed by the Cardio (39%) and the GSR (17%). Clearly the GSR was the more significant physiological tracing for the Innocent females (43%) versus the Guilty (17%) (Table 4B). For the females the Cardio shifted from being the least productive in the Innocent (18%) to the second most productive in the Guilty (39%) (Table 2F).

The most productive overall tracing for all of the Innocent cases is the Pneumo (47%) followed by the GSR (33%) and the Cardio (19%) (Table 2B).

The most productive overall tracing for all of the Guilty cases is the Cardio (44%) followed by the Pneumo (39%) and the GSR (16%) (Table 2C).

The overall distribution is significantly different showing that the Pneumo tracing is the significant racing, with Cardio a close second and GSR the least commonly dominant response. There is also a significant sex difference in the response with the males showing stronger Pneumo and Cardio curves versus the females with a more likely balance among the physiological tracings.

For the pneumo tracings which produced particularly diverse results, the Lower (abdominal) tracing was most productive for 52% of the cases, the Upper (thoracic) 16%, and they were the same in 33% of the cases. According to the Goodness of Fit test (Table 3) using the Chi Square, assuming there should be a random chance of either to predominate or they should be equal, we reject the hypothesis that there are no significant difference (p = <.05level)(Table 3, 1A1). There is a strong indication that there is a dominant trace overall (the lower pneumo), with the upper being significant in the least number of cases. Relative Effectiveness of Physiological Data in Field Polygraph Examinations

There are major sex differences in the pneumo tracings (Table 1A). The Upper is more significant in 33% of the females, but not in the males. The Lower is significant in 75% of the males, but in only 26% of the females. The Upper and Lower are about the same for 41% of the females, but only 25% of the males. This difference was found to be significant (p = There is a major difference in the breathing <.0000011)(Table 3,1A2). response of males and females. For the females 74% produce an Upper breathing response, or produce an equal Upper and Lower response. Only 26% of the females show a lower dominance in breathing response. For the males 100% favor a Lower response or an equal Upper and Lower breathing response. In this study no males showed an upper dominance in breathing response. This sex difference was found to be significant (p = <.0000015) (Table 3,1A2). This indicates that males show a definite tendency to show stronger Lower breathing responses. We fail to reject the hypothesis that there is a significant difference for females (p = <.339) (Table 3,1A2). This indicates that there is a stronger probability of an equal chance of Upper, Lower, or Equal dominance in the pneumo tracing for females.

When the males were compared for the Innocent cases versus the Guilty cases, the most productive pneumo, the lower was predominant for a greater percentage of Innocent cases (83%)(Table 1B) compared to Guilty cases (72%)(Table 1C). When the females were compared for the Innocent cases versus the Guilty cases, 75% of the Innocent cases showed an Upper breathing response (40% of all the cases) or an equal Upper and Lower breathing response (35% of the cases)(Table 1B). However, for the Guilty female cases there was a shift away from the Upper Pneumo toward the equalization of Upper and Lower Pneumo (56%)(Table 1C).

The most productive pneumograph tracing for all of the Innocent cases is the Lower (Abdominal) (43%) versus equal productivity (Upper-Lower) (29%) and Upper (Thoracic) (28%)(Table 1D). The most productive pneumo tracing for all of the Guilty cases is the Lower (39%) versus equal productivity (Upper-Lower) (36%) and Upper (25%)(Table 1D).

# Discussion

In comparing the results of our field research study with aforementioned previous research on the effectiveness of the Pneumo, GSR and Cardio polygraph components, it becomes apparent that the ineffectiveness of the pneumograph in some of these studies (Barland 1986, Thackray 1968, Outrow 1972) was most likely due to the positioning of the single pneumograph component on the least productive breathing area. The results of this study show that whenever possible a double pneumograph that records thoracic and abdominal breathing patterns should be used in all polygraph examinations. If for any reason a polygraphist or research scientist is limited to one pneumograph component, then that single pneumograph component should be positioned over the breast (thoracic area) of female subjects and over the stomach (abdominal area) of male subjects. However, because there are exceptions to that rule, a trial chart should be conducted with the pneumograph component placed first in the recommended area, than in the opposite area for confirmation. In our study all of the cases contained verified charts and the accuracy and utility of each polygraph tracing was based on scores obtained from a 7-position scale with an increasing threshold rather than a 3-position scale with no threshold (Ryan). Further, the Quadri-Zone Comparison technique, a single-issue test which employs no secondary relevant question was used in this study. We believe that the 7-position scale offers a more precise and refined evaluation of the degree of arousal than the 3-position scale, and that the dampening effect that secondary relevant questions may have on primary relevant and control questions may cause a failure of those affected questions in producing to their optimum capacity, hence reducing the accuracy of its evaluation. This difference in technique and in scoring may also account for some of the results being different from those produced by other studies.

We note that mock crime studies of the GSR is the most effective overall parameter (Raskin <u>et al</u>., Thackray <u>et al</u>., Cutrow <u>et al</u>.), but in the field studies the Pneumograph is the most effective overall parameter (Jayne, Slowik & Buckley, Matte & Reuss) and the GSR is often the least effective parameter (Jayne, Matte & Reuss). In Ryan's study the GSR was most effective in identifying the Guilty, but respiration was the most effective in identifying the innocent. When Inconclusives are omitted from Ryan's data, the respiration parameter was found to be significantly more useful than the GSR and Cardio for both the truthful and deceptive subjects.

Interestingly, in our study the Pneumo was the most productive parameter (43%), followed by Cardio (32%), and GSR (24%). However, when males were compared for the Innocent versus Guilty cases, the most productive tracing for the Innocent cases was predominantly the Pneumo (67%) versus the Guilty cases where it was the Cardio (46%) followed closely by the Pneumo (37%). The GSR was lowest for both the Innocent (11%) and Guilty (15%). This shift from the Pneumo for the Innocent to the Cardio for the Guilty males is the results of increased productivity of the Cardio tracing for the Guilty (46%) versus the Innocent (22%). When the females were compared for the Innocent versus Guilty cases, the productivity of the GSR shifted from being the most productive tracing at 43%, then pneumo at 38%, and cardio at 18% for the Innocent to the least productive tracing, GSR at 17%, pneumo at 44%, and cardio at 39% for the Guilty. The Cardio shifted from being the least productive tracing (18%) with the female Innocent to the second most productive tracing (39%) for the Guilty.

We believe that the difference in psychodynamics between subjects in mock paradigms (Laboratory studies) and field studies (real-life cases) explain the significant differences seen in the reported research for these different types of studies. The key factors for the psychodynamic differences are felt to be the "Fear of Detection" by the Guilty and the "Fear of Error" by the Innocent.

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#### - TABLES -

# TABLE 1

# MPP MOST PRODUCTIVE PNEUMOGRAPH

# TABLE 1A MPP-A MOST PRODUCTIVE PNEUMOGRAPH-OVERALL Compares the pneumograph tracings for the most productive among the cases on this study.

	UPPER	LOWER	SAME	TOTALS	
MALES	0 0%	48 75%	16 25%	64 52%	
FEMALES	19 33%	15 26%	24 41%	58 48%	
TOTALS	19 16%	63 52%	40 33%	122 100%	

#### PNEUMOGRAPH

#### TABLE 1B MPP-B MOST PRODUCTIVE PNEUMOGRAPH - INNOCENT CASES

Compares the pneumograph tracings for the most productive among the Innocent Cases on this study.

#### PNEUMOGRAPH

	UPPER	LOWER	SAME	TOTALS	
MALES	0 0%	15 83%	3 17%	18 31%	
FEMALES	16 40%	10 25%	14 35%	40 69%	
TOTALS	16 28%	25 43 <b>%</b>	17 29%	58 100%	

# TABLE 1C MPP-C MOST PRODUCTIVE PNEUMOGRAPH-GUILTY CASES

Compares the pneumograph tracings for the most productive among the Guilty cases on this study.

# PNEUMOGRAPH

	UPPER	LOWER	SAME	TOTALS	
MALES	0 0%	33 72%	13 28%	46 72%	/
FEMALES	3 17%	5 28%	10 56%	18 28%	
TOTALS	3 5%	38 59%	23 36%	64 10 <b>0</b> %	

# TABLE 1D MPP-D MOST PRODUCTIVE PNEUMOGRAPH-OVERALL-2

Compares the pneumograph tracings for the most productive among the cases separated by Innocent or Guilty on this study.

# PNEUMOGRAPH

		UPPER	LOWER	SAME	TOTALS	
INNOCENT	M F TOTAL	0 16  16 28%	15 10  25 43%	3 14  17 29%	18 40  58 48%	
GUILIY	M F TOTAL	0 3  3 5%	33 5  38 59%	13 10  23 36%	46 18  64 52%	
TOTALS		19 16%	63 52%	40 33%	122 100%	

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# TABLE 1E MPP-E MOST PRODUCTIVE PNEUMOGRAPH-MALES CASES

Compares the pneumograph tracings for the most productive among the male cases on this study.

	PNEUMOGRAPH					
	UPPER	LOWER	SAME	TOTALS		
INNOCENT	0 0%	15 83%	3 17%	18 28%		
GUILTY	0 0%	33 72%	14 28%	46 72%		
TOTALS	0 0%	48 75%	16 25≹	64 100%		

### TABLE 1F MPP-F MOST PRODUCTIVE PNEUMOGRAPH-FEMALE CASES

Compares the pneumograph tracings for the most productive among the female cases on this study.

PNEUMOGRAPH							
	UPPER	LOWER	SAME	TOTALS			
INNOCENT	16 40%	10 25%	14 35%	40 69%			
GUILIY	3 17%	5 28 <b>%</b>	10 56%	18 31%			
TOTALS	19 33%	15 26%	24 41%	58 100%			

TABLE 2 MPO MOST PRODUCTIVE OVERALL TRACE

TABLE 2A MPO-A MOST PRODUCTIVE TRACE - OVERALL Compare the physiological tracings for the most productive among the cases on this study.

	CARDIO	PNEUMO	GSR	EQUAL	TOTALS	
MALES	25 39%	29 45%	9 14%	1 2%	64 52%	
FEMALES	14 24%	23 40%	20 34%	1 2%	58 48%	
TOTALS	39 32%	52 43%	29 24%	2 2%	122 100%	

# MOST PRODUCTIVE TRACINGS

TABLE 2B MPO-B MOST PRODUCTIVE TRACE - INNOCENT CASES Compares the physiological tracings for the most productive among the Innocent cases on this study.

## MOST PRODUCTIVE TRACINGS

	CARDIO	PNEUMO	GSR	EQUAL	TOTALS
MALES	4	12	2	0	18
	22%	67%	11%	0%	31%
FEMALES	 7 18%	15 38%	17 43%	1 2%	40 69%
TOTALS	11	27	19	1	58
	19%	47%	33%	2% :	100%

TABLE 2C MPO-C MOST PRODUCTIVE TRACE - GUILITY CASES Compares the physiological tracings for the most productive among the Guilty cases on this study.

	CARDIO	PNEUMO	GSR	EQUAL	TOTALS	
MALES	21 46%	17 37%	7 15%	1 2%	46 72≹	
FEMALES	7 39%	8 44%	3 17%	0 0%	18 28%	
TOTALS	28 44%	25 39%	10 16%	1 2%	64 100%	

# MOST PRODUCTIVE TRACINGS

TABLE 2D MPO-D MOST PRODUCTIVE TRACE - OVERALL-2 Compare the physiological tracings for the most productive among the cases separated by Innocent and Guilty on this study.

#### MOST PRODUCTIVE TRACINGS

		CARDIO	PNEUMO	GSR	EQUAL	TOTALS
INNOCENT	F	4	12	2	0	18
	М	7	15	17	1	40
TOTA	IS	11	27	19	1	58
		19%	478	33%	28	48%
GUILTY	F	21	17	7	1	46
	М	7	8	3	0	18
		-				
TOTA	LS	28	25	10	1	64
		44%	39\$	16%	28	52%
TOTALS		39	52	29	2	122
		32%	43%	24%	28	100%

Relative Effectiveness of Physiological Data in Field Polygraph Examinations

TABLE 2E - MPO-E MOST PRODUCTIVE TRACE - MAIES CASES Compares the physiological tracings for the most productive among the male cases on this study.

	CARDIO	PNEUMO	GSR	EQUAL	TOTALS	
INNOCENT	4 22%	12 67%	2 11%	0 0%	18 28%	
GUILTY	21 46% 	17 37%	7 15%	1 2%	46 72%	
TOTALS	25 39%	29 45%	9 14%	1 2%	64 100%	

#### MOST PRODUCTIVE TRACING

TABLE 2F MPO-F MOST PRODUCTIVE TRACE - FEMALE CASES Compares the physiological tracings for the most productive among the Female cases on this study.

#### MOST PRODUCTIVE TRACINGS

	CARDIO	PNEUMO	GSR	EQUAL	TOTALS
INNOCENT	7 18% 	15 38%	17 43%	1 2%	40 69%
GUILIY	7	8	3	0	18
	39%	44%	17%	0%	31%
TOTALS	14	23	20	1	58
	24%	40%	34%	2%	LOO%

## TABLE 3 GOF-2 GOODNESS OF FIT - CHI SQUARE TESTS

To test whether there are any significant differences in the data for Overall Most Productive Tracing and Most Productive Pneumograph Tracing for Males and Females Based on data for Table 1 A-F - MOST PRODUCTIVE PNEUMOGRAPH and Table 2 A-F MOST PRODUCTIVE OVERALL

TABLE 1A MMP-A MOST PRODUCTIVE PNEUMOGRAPH - OVERALL

1. Assuming They	Should be the Same:		
DF = O	DF = 1	M 36	F 19.9
Chi-Sq+ 55.11	Chi-Sq (M&F) = 55.9		
P = .0000013	P + .0000011		

2. Assuming There Should Be Equal Random Distribution

Table 1A TOTALS - MOST PRODUCTIVE PNEUMO UPPER LOWER SAME DF = 211.8 .024 11.8 Chi-Sq = 23.63P = .0000073Table 1A MALES - MOST PRODUCTIVE PNEUMO UPPER LOWER SAME DF = 221. 34.7 1.19 Chi-Sq = 56.9P = .0000015Table 1A FEMALES - MOST PRODUCTIVE PNEUMO UPPER LOWER SAME DF = 21.3 0 .84 Chi-Sq = 2.16P = .339

TABLE 1B MMP-B MOST PRODUCTIVE PNEUMOGRAPH - INNOCENT

1. Assuming they Should Be the Same:<br/>DF = 0DF = 0DF = 0DF = 0DF = 0DF = 0Chi-Sq = 28.98Chi-Sq (m) = 12.5Chi-Sq (F) = 16.9P = .00000023P = .000000238P = .0000

2. Assuming There Should Be Equal Random Distribution

Table 1B TOTALS - MOST PRODUCTIVE PNEUMO OVERALL - INNOCENT UPPER LOWER SAME DF = 2.47 1.89 .21 Chi-Sq = 2.58P = .275Table 18 - MALES - MOST PRODUCTIVE PNEUMO - INNOCENT UPPER LOWER SAME DF = 26. 13.5 1.5 Chi-Sq  $\approx$  21. P = .000027

Table 1B - FEMALES	- MOST	PRODUCTIVE	PNEUMO - INNOCENT
	UPPER	LOWER	SAME
DF = 2	.69	.69	7.6
Chi-Sq - 1.46			
P = .48			

TABLE 1C - MMP-C MOST PRODUCTIVE PNEUMOGRAPH - GUILITY

1. Assuming They Should Be the Same: DF = 0DF = 0DF = 0Chi-Sq - 26.3 Chi-Sq(M) = 23.6 Chi-Sq(F) = 3.56P = .00000012P = .00000035P = .00002. Assuming There Should Be Equal Random Distribution Table 1C TOTALS - MOST PRODUCTIVE PNEUMO OVERALL - GUILTY UPPER LOWER SAME DF = 2.76 5.76 2.3 Chi-Sq = 8.86P = .0119Table 1C MALES - MOST PRODUCTIVE PNEUMO - GUILITY UPPER LOWER SAME DF = 22.4 .27 4.27 Chi-Sq = 5.93P = .031Table 1C FEMALES - MOST PRODUCTIVE PNEUMO - GUILITY LOWER UPPER SAME DF = 2.17 .67 1.5 Chi-Sq = 2.33P = .311

TABLE 1D MMP-D MOST PRODUCTIVE PNEUMOGRAPH - OVERALL

1. Assuming They Should Be the Same: DF = 0 Chi-Sq = 55.11P = .0000013

2. Assuming There Should be Equal Random Distribution

Table 1DTOTALS - MOST PRODUCTIVE PNEUMO OVERALL<br/>UPPERUPPERLOWERSAMEDF = 211.811.8.024Chi-Sq = 23.63<br/>P = .0000073P.0000073

Table 1DMOSTPRODUCTIVEPNEUMOINNOCENTUPPERLOWERSAMEDF = 2.471.89.21Chi-Sq = 2.58P = .275.25Table 1DMOSTPRODUCTIVEPNEUMO - GUILITYUNDEDLOWER

	UPPER	LOWER	SAME
DF = 2	2.3	.76	5.76
Chi-Sq = 8.86			
P = .0119			

## TABLE 1E - MMP-E MOST PRODUCTIVE PNEUMOGRAPH - MALE CASES

1 Assuming Tf DF = 0 Chi-Sq = 36.0 P =00000071	ney Should Be Di Ct 15 P	the Same: F = 0 ni-Sq (I)= 12.5 = .00000023	DF = 0 Chi-Sq (G) = 23.7 P = .00000035
2. Assuming 1	here Should F	3e Equal Random Di	stribution
Table 1E TO	ALS - MOST PF UPPER	ODUCTIVE PNEUMO O LOWER	VERALL - MALES SAME
DF = 2 Chi-Sq = 30.8 P = .00000024	21.0	6.9	3.0
Table 1E - MOS	T PRODUCTIVE	PNEUMO - INNOCENT	
<b>67</b> 6	UPPER	LOWER	SAME
DF = 2 Chi-Sq = 21.0 P = .000027	6.	13.5	1.5
<b>Table 1E - MOS</b>	T PRODUCTIVE	PNEUMO - GUILITY	()) <b>(</b> )
DF = 2 Chi-Sq = 36.9 P = .00000041	15.0	11.00 21.6	27.0

#### TABLE 1F MMP-F MOST PRODUCTIVE PNEUMOGRAPH - FEMALE CASES

1. Assuming They Should Be the Same:DF = 0DF = 0DF = 19.9DF = 16.9P = -.0000P = .0000P = .0000P = .0000

2. Assuming There Should be Equal Random Distribution

Table 1F TOTALS - MOST PRODUCTIVE PNEUMO OVERALL - FEMALES UPPER LOWER SAME DF = 2.0 .84 1.3 Chi-Sq = 2.16P = .339Table 1F - MOST PRODUCTIVE PNEUMO - INNOCENT UPPER LOWER SAME DF = 2.69 .69 .077 Chi-Sq = 1.46P = .48Table 1F - MOST PRODUCTIVE PNEUMO - GUILITY UPPER LOWER SAME DF = 21.5 .17 2.67 Chi-Sq = 4.33P = .115

TABLE 2A MPO-A MOST PRODUCTIVE TRACE - OVERALL

1. Assuming They Should Be the Same - Equal Overall DF = 0DF = 1F 56 M 62 Chi-Sq = 118Chi-Sq 118 P = .0000014P = .00000092. Assuming There Should Be Equal Random Distribution - Overall Table 2A TOTALS - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 2.097 2.95 3.51 Chi-Sq = 6.56P = .0376Table 2A MALES - MOST PRODUCTIVE TRACE CARDIO GSR PNEUMO DF = 2.76 3.04 6.85 Chi-Sq = 10.67P = .0048Table 2A FEMALES - MOST PRODUCTIVE TRACE GSR CARDIO PNEUMO DF = 21.3 .84 .053 Chi-Sq = 2.21P = .33TABLE 2B MPO-B MOST PRODUCTIVE TRACE - INNOCENT CASES 1. Assuming They Should Be the Same - Equal Overall DF = 0DF = 0DF = 0Chi-Sq = 56Chi-Sq(M) = 18Chi-Sq(F) = 38P = -.0000011P = -.00000024P = -.000000722. Assuming There Should Be Equal Random Distribution - Overall Table 2B TOTALS - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 23.36 3.36 0.0 Chi-Sq = 6.74P = .034Table 2B MALES - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 2.67 6.0 2.67 Chi-Sq = 9.33P = .0094Table 2B FEMALES - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 22.76 .31 1.2 Chi-Sg = 4.31P = .116

TABLE 2C - MPO-C MOST PRODUCTIVE TRACE - GUILITY CASES 1. Assuming They Should Be the Same - Equal Overall DF = 0DF = 0DF = 0Chi-Sq = 62Chi-Sq(M) = 44Chi-Sq (F) = 18 P = -.00000024P = .00000017P = -.000000112. Assuming There Should Be Equal Random Distribution - Overall Table 2C TOTALS - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 22.3 .76 5.76 Chi-Sq = 8.86P = .0119Table 2C MALES - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 22.4 .27 4.27 Chi-Sq = 6.93P = .031Table 2C FEMALES - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 2.17 .67 1.5 Chi-Sq = 2.33P = .311TABLE 2D MPO-D MOST PRODUCTIVE TRACE - OVERALL -2 1. Assuming They Should Be the Same - Equal Overall DF = 0Chi-Sq - 118 P = .00000142. Assuming There Should Be Equal Random Distribution - Overall Table 2D TOTALS - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR 2.95 DF = 2.097 3.51 chi-Sq = 6.56P = .0376Table 2D INNOCENT - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 23.36 3.36 0.0 Chi-Sq = 6.74P = .034Table 2D GUILIY - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR .76 DF = 22.3 5.76 Chi-Sq = 8.86

P = .0119

TABLE 2E MPO-E MOST PRODUCTIVE TRACE - MALES CASES 1. Assuming They Should Be the Same - Equal Overall DF = 0DF = 0DF = 0Chi-Sq = 62Chi-Sq (I) = 18Chi-Sq (G) = 44P = .00000018P = .00000024P = .000000122. Assuming There Should Be Equal Random Distribution - Overall Table 2E TOTALS - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 2.76 3.04 6.85 Chi - Sq = 10.7P = .0048Table 2E INNOCENT - MOST PRODUCTIVE TRACE GSR CARDIO PNEUMO DF = 2.67 6.0 2.67 Chi - Sq = 9.33P = .0094Table 2E GUILTY - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 22.4 .27 4.2 Chi-Sq = 6.93P = .031TABLE 2F MPO-F MOST PRODUCTIVE TRACE - FEMALE CASES 1. Assuming They Should Be the Same - Female Cases DF = 0DF = 0DF = 0Chi-Sq = 56Chi-Sq (I) = 38Chi-SQ (G) = 18 P = .00000071P = -.0000011P = .000000242. Assuming There Should Be Equal Random Distribution - Overall

Table 2F TOTALS - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 21.3 .84 5.26 Chi-Sq = 2.21P = .331Table 2F INNOCENT - MOST PRODUCTIVE TRACE CARDIO PNEUMO GSR DF = 21.23 2.77 .30 Chi-Sq = 4.31P = .116Table 2F GUILITY - MOST PRODUCTIVE TRACE PNEUMO CARDIO GSR DF = 2.17 .67 1.5 Chi-Sq = 2.33P = .311

### SELF-REPORTED WORK-PLACE THEFT, USE OF ILLICIT DRUGS

# AND THE PERSONAL CHARACTERISTICS OF JOB APPLICANIS

#### By

# Frank Horvath

# Abstract

The purpose of this study was to explore the relationship among work-place theft, drug usage, and certain personal characteristics of those who engage in such theft. Data were collected from a consecutive sample of 599 job applicants who made self-reports of involvement in theft from previous employers and the use of illicit drugs both on and off the job. Fifty-four percent of the sample admitted work-place theft, 35% minor theft, and 18% major theft. Involvement in theft was significantly (P < .05) related to the age and gender of the respondent; in general, younger (<24) persons were likely to be involved in minor theft than were older persons, and males were more likely than females to admit major theft activity. More frequent and more serious use of illicit drugs was related to increasing involvement in work-place theft. The effect of gender was pronounced; in general, the findings pertained to males but not to females.

#### Introduction

The problem of "crime against business" is extremely costly, not only to American businesses, but to the consumer as well. A little over a decade ago, the American Management Association (AMA, 1977) reported that the problem cost between 30 and 40 billion dollars a year, excluding indirect costs such as insurance, preventive measures, and so forth. As much as 30% of the cost of some categories of merchandise has been attributed to crimes against business, and losses due to those crimes increase by at least 10% each year. These statistics, of course, would likely be considerably greater today.

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### Work-Place Theft and Personal Characteristics

The largest proportion of "crimes against business" can be attributed to theft by employees. Of the 9.2 billion dollars estimated as lost to crime in the service industries alone, the U.S. Chamber of Commerce (1974) reported that employee theft (used synonymously with work-place theft) is a primary cause. Moreover, it is commonly accepted that more than 30% of all business failures annually are a result of stealing by employees and that the business community loses as much as 10 billion dollars per year to that theft (AMA, 1977). When compared with the amount lost to other types of crimes committed against business, burglary and vandalism at \$2.5 billion, shoplifting and insurance fraud at \$2 billion, arson at \$1.3 billion, and check fraud at \$1 billion, it is obvious that theft by employees, for economic reasons alone, is a crime of considerable import.

Aside from the economic dimension of work-place theft, there have been numerous statistics offered about the proportion of the work force involved in such crime. These estimates, generally by experienced professionals in the private security industry, are sometimes as low as 9% (<u>U.S. News and World Report</u>, 1977) and, at others, higher than 70% (Schmidt, 1975; Zeitlin, 1971). Based on the best available empirical data, the figures would seem to range between 20% and 37%, averaging perhaps 28% (Hollinger, 1979), although there is some evidence that it varies considerably between different sectors of the business community (Clark and Hollinger, 1981).

Although almost all sources agree that it costs is great and the proportion of the work force engaged in it substantial, we know surprisingly little about work-place theft. There are several reasons for this. First, many, perhaps most, instances of employee theft are never detected; such losses become merely part of the annual "shrinkage" and operating cost of business. Moreover, even when detected, employee theft incidents are unlikely to be handled in a way conducive to research, many business persons believing that even to acknowledge openly such occurrences is detrimental to their public image.

Second, given the reluctance of business persons to call attention to instances of employee theft, those involved in the formal criminal justice system, police and prosecutorial officials particularly, seldom initiate any efforts to deal with the problem. In that employee theft may be considered merely a private loss and a relatively inconsequential matter, public officials, for a variety of reasons, devote attention to "street crimes." Efforts to deal with that are clearly overwhelming; there are sparse resources available to deal with additional and less visible problems.

Finally, social scientists, criminologists in particular, do not appear to be any more than remotely interested in employee theft. Even though such theft may, by some definitions of that term, be considered a part of "white collar crime" (Chamber of Commerce, 1974; Clarke, 1978; Robin, 1974), a phenomenon receiving some attention by criminologists, empirical studies of employee theft are very sparse. Thus, the difficulty of investigating employee theft, the lack of publicly available data sources about the nature and extent of the problem, and the focus of public attention on "street crime" all have contributed to the general neglect of research.

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The research that does exist is not well integrated and deals primarily with the perceptions of employee theft held by various work groups (Cressey, 1953; Dalton, 1959; Ditton, 1977; Mars, 1973, 1974; Zeitlin, 1971) and with how best to explain that phenomenon (Bologna, 1980; Cressey, 1953, 1980; Horning, 1970). Questions such as "What is the relationship between structural control mechanisms and the prevalence of employee theft?; What is the extent of employee theft within various industries?; What is the relationship between theft from employers and the personal characteristics of employees?; and others of a similar nature have received only limited attention, primarily in the recent, ground-breaking research by Clark and Hollinger (1981).

In the Clark and Hollinger (1981) study, 35 organizations, representing three business sectors--retail, manufacturing, and service--in three metropolitan areas (Minneapolis-St. Paul, Cleveland, and Dallas-Ft. Worth) were enlisted. A random sample of the present employees of those organizations was queried by anonymous self-administered questionnaire. The employees were asked to respond to a number of items regarding their personal characteristics, perceptions of various aspects of their work place, and their actual involvement in theft and other activities.

The results reported by Clark and Hollinger (1980, 1981) showed that theft by employees varied between 2% and 37% of the work force, with the exception of "misuse of the discount privilege," reported by more than one-half of the sample in the retail sector. Employees involved in theft were typically those with the greatest opportunity; they were also younger, unmarried, and less satisfied with some aspects of their employment and had a greater degree of contact with co-workers outside of the work place than those who reported no theft. More important, however, Clark and Hollinger found that there was a close relationship between work-place theft and other counter-productive behavior; in other words, work-place theft is only one manifestation of deviance including deliberately sloppy work, excessive misuse of leave time, and use of alcohol and drugs.

The results reported by Clark and Hollinger are extremely important and provide the best and most direct empirical evidence about employee theft and the persons who engage in it (AMA, 1977; Chamber of Commerce, 1974; Leininger, 1975; U.S. Department of Commerce, 1977). Yet, those findings are limited by methodological concerns, including the following: First, there was a relatively low response rate in that study of 51%; it might be assumed that that fact and the use of a self-administered questionnaire would tend substantially to underestimate the actual volume of employee theft. Persons who fail to respond in such surveys may be those most heavily involved in theft; those who do respond may seriously under report their involvement. Second, the personal characteristics of those who report theft in such circumstances may be quite different from those who do not. Persons heavily engaged in theft may be the most secretive, devious, and suspicious and thus the most reluctant to report their behavior even if anonymity is guaranteed. Since all data in that study were derived from current employees, the respondents had reason to be suspicious about reporting their actual involvement in theft. Third, the organizations in that research tended to be relatively large and thus perhaps more stable and more likely to attract employees who differ substantially from those employed in or

seeking employment in smaller, higher-turnover organizations in which theft might be more prevalent. Finally, the data on some behaviors, such as reported alcohol and drug usage, were apparently too infrequently reported to permit reliable statistical analysis.

For these reasons, there is a need for additional research on workplace theft and, in particular, on the relationship between theft and other behaviors, especially the use of illicit drugs, which, according to a recent report (Baker and Westin, 1987), concerns most organizations at least as much as theft. This study was designed to address some of these issues; here self-report data obtained not from written questionnaires, as done by Clark and Hollinger (1981), but from personal interviews with applicants seeking employment in a variety of business organizations were analyzed. Because these interviews were highly structured and without ties to current employment, they represent a source of information about work-place theft complementary to that collected by Clark and Hollinger (1981) and others (Baker and Westin, 1987; Franklin, 1975; Hollinger, 1979; Jaspan and Nagel, 1978; Schmidt, 1975).

The data here were used to explore several issues raised by the Clark and Hollinger (1981) research and by the observation of practitioners in the private security and loss prevention field (Leininger, 1975); these included: What proportion of employees acknowledge involvement in workplace theft? What is the relationship between theft and the personal characteristics of those who engage in it?, and What is the relationship between work-place theft and involvement with illicit drugs?

# Method

All data for this research were collected by systematic review of information available in the dossiers of all 656 persons who volunteered for preemployment polygraph examinations at a leading polygraph testing and training facility<sup>1</sup> during 1 calendar year. During the review it was found that in 57 instances necessary information was incomplete or unavailable; therefore, these cases were discarded. Thus, the sample consisted of the 599 persons for whom complete information was available.

All persons in the sample had volunteered to undergo a preemployment polygraph examination upon referral by an employer interested in hiring each person for a particular position. Because that process is commonly misunderstood and may vary from location to location, the essential points about the processing that was used here are described briefly in the following paragraphs.

Upon application for an available position, an employer referred each of the 599 applicants to an appointment with the polygraph consulting company. At the time of that appointment, each applicant was given a preemployment polygraph examination by a trained, experienced, and licensed (MI) examiner in accordance with a standardized procedure. Each examination consisted essentially of three stages: the pretest interview; polygraph testing; and the post test interview. The pretest interview ranged between 30 and 60 minutes during which the polygraph examiner collected certain demographic and other data of interest from the applicant. In the

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interview, the examiner and the applicant also discussed all of the relevant issues to be asked during the subsequent polygraph testing. The primary question areas (to be asked about during polygraph testing) were the following: theft of money and merchandise from previous employers, history of past criminal activities including both convictions and crimes that went undetected, receiving and selling stolen merchandise, history of drug use, and falsification of the job application.

During the pretest interview, the applicant was permitted and indeed encouraged to clarify any involvement in the areas of *inquiry* in order that polygraph testing would verify the applicant's answers to test questions. In other words, an applicant who acknowledged having used marijuana on two occasions might have been asked during polygraph testing, "Have you used marijuana on more than two occasions?" Hence, in this way, the polygraph testing was used primarily to verify the self-reports, if any, made prior to the testing rather than to discover unrevealed information (Horvath, 1985).

Following the pretest interview, the polygraph testing was carried out. During this stage, the applicant was asked the previously reviewed questions worded, of course, in a manner that permitted the examiner to "verify" whatever information the applicant had revealed.

Once all testing was completed, the examiner inspected the polygraphic data and determined if further interviewing or testing was necessary. If so, additional self-report information may have been offered by the applicant. This information was recorded by the examiner and, taken together with all other pertinent information developed at earlier stages of the process, forwarded to the employer. The employer used the information to decide whether the applicant was or was not a suitable candidate for the available position.

In the present research, all self-report information derived from the 599 applicants was analyzed irrespective of the stage of testing, i.e., the pretest or post test, in which they were collected. There are several points to be emphasized about those data. First, in all cases, the information recorded by the examiner on "interview" sheets was used regardless of the examiner's decision regarding truthfulness. Thus, there was no confirmation of the validity of the self-report data. In this way, of course, the controversy surrounding the accuracy of polygraph testing itself was avoided (Horvath, 1985, 1987; Horvath and Phannenstill, 1987). Since the lack of independent confirmation is inherent in almost all self-report research, that problem is not a unique one. Second, all self-report data generated by the examiners were analyzed regardless of the employment decision, "hired" or "not hired," made by the employer. Hence, the data developed and recorded by the examiners during their interviews with the applicants were treated merely as interviewer-assisted, self-report information about work-place theft and other related phenomenon without regard for their utility for employment decision making. Finally, it is to be pointed out here that it is commonly acknowledged in the literature, both favorable and unfavorable to polygraph testing, and indeed there are some empirical data to support the position (Clark and Tifft, 1966; Horvath, 1985; Jones and Sigall, 1971; Quigley-Fernandez and Tedeschi, 1978), that there is a surprising and quite common tendency for people to be more truthful and forthright during these

polygraph sessions than in other similar interview situations; this tendency for compilation of "honest" self-report information, perhaps more than any other factor, accounts for the widespread use of the polygraph in employment screening in the past decade or so (Horvath, 1985).

The dossiers of the 599 applicants were reviewed, and from each, information was extracted regarding marital status, age, history of drug usage, type of job being applied for, and involvement in theft from previous employment situations. These variables were operationalized as follows: Marital status was dichotomized as "Married" or "Single"; age was dichotomized as "Younger" (24 years or less) and "Older" (25 years or older). Type of drug use was recorded as "None" (no admission of any drug usage), "Marijuana only" (admitted use only of marijuana), and "Hard drugs" (admitted use of any drug, excepting alcohol, other than marijuana). The frequency of marijuana use was also separately analyzed and operationalized as "None" (no admitted use of marijuana), "Occasional" (admitted use of marijuana less than five times per month), and "Frequent" (admitted use of marijuana more than fives times per month). In addition to these two variables, data were also separately tabulated for admissions regarding the use of illicit drugs on the job.

Since there were numerous employment positions for which the applicants were applying, these were categorized as "Management" (management sales and trainees); "Technical" (exterminators and pharmacists); and "Blue collar" (truck drivers, stockboys, retail cashiers, armored car drivers, security guards, service drivers, money counters, civilian police dispatchers, and clerical workers).

Finally, information regarding employment theft was operationalized by combining the actual dollar amount of money and merchandise than an applicant acknowledge having stolen from previous employers. This variable, "Employment theft," was categorized as "None" (no admission of employment theft of either money or merchandise); "Minor" (admission of \$50.00 or less in either money or merchandise or less than a total of \$50.00 money and merchandise together); and, "Major" (admission of more than a total of \$50.00 of either money or merchandise or both from previous employers).

Unless otherwise specified, data analyses were performed using  $X^2$  tests to check for statistical significance; the strength of the relationship between variables was estimated with the Gamma (G) statistic for ordinal variables and the contingency coefficient (C) in other cases. In all instances, the .05 level was used as the criterion for statistical significance.

#### Results

Table 1 displays descriptive data pertaining to the sample of 599 applicants. As shown, most of these persons were male (63%) and unmarried (61%); 62% made application for "blue collar" positions, 25% for "technical" jobs, and 13% for "management" positions. The age of these persons ranged between 16 and 65 years with a mean of 26 (SD = 8.9); years of education ranged from a low of 8 to a high of 18 with a mean of 13 (SD = 1.9).

Item	F	ę
Gender		
Male	376	63
Female	223	37
Marital Status		
Married	234	39
Single	365	61
Position sought		
Management	78	13
Technical	151	25
Blue collar	370	62
Age (years)		
Range	16-65	
Mean	26	
Median	23	
Standard deviation	8.9	
Education (years)		
Range	8-18	
Mean	13	
Median	12	
Standard deviation	1-9	

## TABLE 1. SELECTED CHARACTERISTICS OF SAMPLE

The proportion of the sample admitting some involvement in work-place theft was 54% (321/599); 36% (214/559) acknowledged "minor" theft and 18% (107/559) "major" theft. Table 2 shows data pertinent to the statistically significant relationship  $[x^2 (2) = 7.56, p = .02]$  between those admissions and age groupings; this relationship, though very weak (G = .04), showed a tendency for younger persons to admit to minor theft, whereas older persons were more likely to acknowledge major theft. Corresponding results for gender are shown in Table 3. It can be seen that males generally were more frequently involved in major work-place theft than were females  $[x^2 (2) =$ 13.8, P = .02, C = .15].

Table 2.	Involvement in Work-place Theft for H	Both
	Younger and Older Job Applicants	

	Young	yer	Older	
	<u>(&lt; 2</u> 4	<u>4)</u>	<u>(&gt; 25)</u>	
Work-place theft	N	(%)	N	(%)
None	157	(46)	121	(47) <sup>a</sup>
Minor	136	(39)	78	(31)
Major	51	(15)	56	(22)

 $a_{x^2} = 7.6$ , df = 2, P = .02; G = .04.

Neither the type of position sought nor marital status produced statistically significant relationships with work-place theft; these variables, therefore, are not dealt with here.

	Gender						
	1	<u>Males</u>	Fer	nales			
Work-place theft	N	(8)	N	(%)			
None	166	(44)	112	(50%) <sup>a</sup>			
Minor	126	(34)	88	(39)			
Major	84	(22)	23	(10)			

# Table 3. Involvement in Work-place Theft for Males and Females

 $a_{x^2} = 13.8$ , df = 2, P = .00; C = .15.

Tables 4-6 display data pertaining to the relationship between workplace theft and, in order, type of illicit drug use, frequency of use of marijuana, and use of drugs on the job. As can be seen in those tables, each of these bivariate relationships was statistically significant, of moderate strength, with Gamma values of .31 in both Tables 4 and 5 and C = .17 in Table 6 and showed that as the use of illicit drugs increased the involvement in work-place theft was correspondingly greater. In other words, those who did not use illicit drugs were less likely to be involved in work-place theft than were drug users, those who used only marijuana were less likely to steal than were hard drug users, and those who used marijuana only occasionally tended to be less involved with theft than those who used it frequently. The use of drugs on the job was significantly associated with increasingly more serious work-place theft.

	Type of drug usage						
	No	ne	O 	nly juana	Hard	s	
Work-place theft	N	(*)	N	(%)	N	(*)	
None	154	(58)	87	(40)	37	(32)a	
Minor	76	(28)	94	(44)	44	(38)	
Major	37	(14)	34	(16)	36	(30)	

Table 4. Involvement in Work-place Theft for Each Category of Type of Illicit Drug Usage

 $a_{x^2} = 36.2$ , df = 2, P = .00; G = .31.

The literature suggests that males are disproportionately involved in work-place theft (Clark and Hollinger, 1981) and in crime generally (U.S. Department of Justice, 1988). It was decided, therefore, to introduce gender as a control variable in order to elaborate some of the findings. Because the interest here was in only those who involved in work-place

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theft, these analyses were performed without the group not involved in stealing.

Use of marijuana							
N	ione	Occasional		Frequent			
N	(%)	N	(%)	N	(%)		
158	(57)	32	(44)	88	(35)		
77	(28)	36	(49)	101	(40)		
40	(15)	5	(7)	62	(25)		
	N N 158 77 40	None N (%) 158 (57) 77 (28) 40 (15)	Use of <u>None</u> Occa N (%) N 158 (57) 32 77 (28) 36 40 (15) 5	Use of marijuar     None   Occasional     N   (%)   N   (%)     158   (57)   32   (44)     77   (28)   36   (49)     40   (15)   5   (7)	Use of marijuana     None   Occasional   Free     N   (%)   N   (%)   N     158   (57)   32   (44)   88     77   (28)   36   (49)   101     40   (15)   5   (7)   62		

Table	5.	Involveme	ent	in	Work-p	lace	Theft	for
	Ca	tegories	$\mathbf{of}$	Mau	cijuana	Usag	ge.	

 $x^2 = 37.3$ , df = 2, P = .00; G = .31.

Table 6.	Involvement in Work-place Theft and in Use
	of Illicit Drugs on the Job

	Use drugs on job				
	Yes		No		
Work-place theft	N	(%)	N	(%)	
None	266	(48)	12	(24)	
Minor	196	(36)	18	(37)	
Major	88	(16)	19	(39)	

 $x^2 = 18.6$ , df = 2, P = .00; C = .17.

In Table 7, data are shown regarding the relationship between age and work-place theft when gender was controlled. As can be seen, younger persons were involved in minor work-place theft, whereas older persons tended to be involved in major theft; this was true, however, only for males  $[x^2 (1) =$ 4.2, P = .04; conditional G = .30]. Thus, there was an interaction between gender and degree of involvement in work-place theft. A similar interaction effect was observed when gender was introduced as a control variable in the relationship between work-place theft and the use of marijuana, as shown in Table 8 [for males,  $x^2$  (1) = 5.5, P = .02, conditional G = .61]; for females,  $x^2$  (1) = 1.7, ns], and in the relationship between work-place theft and the use of drugs on the job [for males,  $x^2$  (1) = .8, P = .03; condition-al G = .45; for females,  $x^2$  (1) = 0.0, ns], as displayed in Table 9. (Using gender as a control variable in the relationship between theft and type of drug use did not produce any significant findings; for that reason, those findings are now shown.) Thus, as inspection of Tables 7-9 show, the relationship between work-place theft and drug usage, whether on the job or otherwise, is primarily restricted to males and, within that group, the seriousness of work-place theft seems to increase with age.

# Work-Place Theft and Personal Characteristics

·	Age			
	Younger		Older	
Work-place theft	N	(%)	N	(%)
	Mal	es		···
Minor <sup>a</sup>	72	(67)	54	(52)
Major	35	(33)	49	(48)
	Femal	es		
Minorb	- 64	(80)	24	(77)
Major	16	(20)	7	(23)

# Table 7. Involvement in Work-place Theft for the Two Age Groupings for Males and Females

a Corrected  $x^2 = 4.23$ , df = 1, P = .04; conditional G = .30. b Corrected  $x^2 = .00$ , df = 1, N.S.

> Table 8. Involvement in Work-place Theft and Frequency of Marijuana Use for Males and Females

	<u>Use c</u>	<u>of marijuana</u>	
Occasional		Frequent	
N	(%)	N	(\$)
Ma	les		
21 4	(84) (16)	63 49	(56) (44)
Femal	les		
15	(94)	38	(75)
1	(6)	13	(25)
	<u>Occas</u> N Ma 21 4 Fema 15 1	<u>Occasional</u> N (%) Males 21 (84) 4 (16) Females 15 (94) 1 (6)	Occasional Freque   N (%) N   Males 16 49   21 (84) 63   4 (16) 49   Females   15 (94)   1 (6) 13

<sup>b</sup> Corrected  $x^2 = 1.7$ ; df = 1, N.S.

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<u></u>		Use of dru	<u>iqs on job</u>	
	Yes		No	
Work-place theft	N	(%)	N	(%)
	Mal	les	_	
Minor <sup>a</sup> Major	115 67	(63) (37)	11 17	(39) (61)
• • • • • • • • • • • • • • • • • • •	Fema	ales		
Minor <sup>b</sup>	81	(79)	7	(78)
Major	21	(21)	2	(22)

# Table 9. Involvement in Work-place Theft and Drugs on the Job for Males and Females

<sup>b</sup> Corrected  $x^2 = 0.0$ ; df = 1, N.S.

# Discussion

The finding here with respect to the proportion of the work force involved in work-place theft, at 54%, is consistent with the reports of security professionals but somewhat higher than that found in other systematic surveys. For example, Tatham (1974) reported a figure of 50%, Schmidt (1975) found that 62% of the 1400 employees in a particular organization admitted theft; that increased to 72% in follow-up questioning accompanied by polygraph testing. Several other reports by security professionals indicate similar statistics (Leininger, 1975). On the other hand, a pilot study by Hollinger (1979) showed a figure of 28% and the Clark and Hollinger (1981) research showed theft rates ranging between 2% and 37%. Obviously, neither the data reported in this study nor those reported elsewhere can be regarded as definitive. However, when one considers that Clark and Hollinger (1981) had firm reason to believe their statistics were conservative and that Schmidt (1975) had evidence that the theft rate in his example was actually higher than the 62% initially reported, there seems little doubt that the best data show that work-place theft is a crime of substantial dimensions, perhaps involving as much as one-half of the work force in some industries.

There are two differences between this study and others that are important to note. First, here it was not possible to account for the organizational and circumstantial factors in which theft was carried out. Admissions of work-place theft were recorded without regard for those issues. Second, this method of data collection probably produced more information than that yielded by other methodologies that have been used. Anonymous

# Work-Place Theft and Personal Characteristics

questionnaires, such as used by Clark and Hollinger (1981), for a variety of reasons, some of which were outlined earlier in this paper, would be expected to produce lower reports of theft and reduced valuations of materials Similarly, personal interviews such as used by Schmidt (1975), stolen. which permit greater exploration of sensitive issues like work-place theft, might, under some circumstances, yield more valuable data than do questionnaires, but the conditions under which that might be possible are probably very infrequent. The available research, therefore, suggests that polygraph-assisted interviews, as used here, would be likely to yield data that are as accurate and complete as possible (Clark and Tifft, 1966; Horvath, 1985; Jones and Sigall, 1971; Quigley-Fernandez and Tedeschi, 1978; Schmidt, 1975). It is not being suggested here, of course, that polygraph testing ought to be used as a routine method of data collection; rather, merely, that given the relative merits of different methods of data collection there is reason to believe that the method reported here may have advantages in comparison with others.

One of the major purposes of this research was to explore the relationship between work-place theft and other "deviant" activities, specifically the use of illicit drugs both on and off the job. Although such a relationship has been suggested previously, prior studies have dealt with only the extent of drug usage by employees (Terris, 1979; Terris and Jones, 1980) or the proportion of employees who report to work under the influence of drugs (Clark and Hollinger, 1981). The data compiled by Clark and Hollinger (1981), however, though not directly on point, did show consistent patterns of counterproductive behavior among employees; persons who were involved in theft also were likely to be disproportionately involved in production and time deviance (e.g., slow or sloppy work, use of drugs at work, excessive lunch and coffee breaks, and so forth). The present results are unique and move our knowledge a bit further; they showed drug usage to be quite consistently related to work-place theft. As drug usage, whether on or off the job, became more frequent and more serious (e.g., using only marijuana versus using "hard" drugs), involvement in work-place theft increased. Τt is not possible to determine with the data here what factors best explain this relationship. One could hypothesize that, as is commonly assumed, the increasing use of illicit drugs requires an unusual amount of money to purchase them, thus leading to involvement in theft. It is more plausible, however, that the factors that contribute to deviant work-place activities also are acting to some extent on involvement in nonemployment-related deviance (Clark and Hollinger, 1981). This suggests that although internal control mechanisms may be used to reduce work-place deviance, the common preference of security professionals to deal with "security" problems at the time of hiring by attempting to screen out those who are undesirable may, in fact, be more effective.

Much of the previous literature has shown that younger workers are more significantly involved in work-place theft than are older workers (Franklin, 1975; Clark and Hollinger, 1981). In the present study, the findings showed that theft by younger workers tended to be of a minor nature whereas older persons were more involved in major theft. This finding, however, is difficult to interpret relative to other research because of the difference in the way in which the variables were operationalized. In most prior research, the frequency of involvement in theft was of interest; here, work-

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place theft was a measure of the monetary value of items stolen from employers. The relationship between theft rates and valuation of items stolen is not known. In addition, the employment history for persons in this study was not known. Older persons, of course, generally have more extensively employment records and thus greater opportunity for work-place theft and perhaps greater exposure to valuable items.

There is a need to be cautious about these findings related to gender differences since it was not possible to control for occupational history, opportunity for theft, and other important factors. Yet, there was a much greater tendency for males, as opposed to females, to be more frequently and more significantly involved in theft. This result confirms the observations of some security practitioners (Leininger, 1975), is consistent with other information about involvement in crime and deviancy (U.S. Department of Justice, 1988), and reinforces the impressions of Clark and Hollinger (1981) about the effect of gender on their data. Clearly, there is a need for a better understanding of the role of gender in work-place theft and deviancy. The theoretical, practical, and policy implications of this issue with respect to work-place security are far reaching, and it is difficult to justify the lack of attention in the available research.

In summary, the findings reported here confirm the data reported by recent researchers and the observations made by many practitioners in the loss prevention field for a number of years: Theft by employees is a relatively common, and likely very costly, feature of the work place. There is reason to believe that those who are most seriously involved in work-place theft also may engage in other forms of on-and-off job deviancy, including use of illicit drugs. Although research in this area has been very limited, the fact that alternative methodologies have yielded essentially similar general findings supports the call for refinements in and continued empirical investigation of this feature of employee behavior.

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# Note

<sup>1</sup> The use of polygraph testing has been extremely controversial for the last decade. In 1988, the U.S. Congress passed legislation essentially prohibiting almost all private employers from using polygraph testing in employment-related situations. This act, known as the Employee Polygraph Protection Act, took effect on December 27, 1988. It is of some interest to note here that there are many states that have enacted legislation to both license and regulate polygraph examiners. The licensure requirements in
Michigan, in force for over a decade, are among the most rigorous: examiners must hold a college degree, be certified graduates of state-approved polygraph training schools, undergo an extensive internship, and satisfactorily complete a state-administered examination (see, Ansley, 1989).

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### COMPARISON OF TWO SCORING SCALES

Michael H. Capps and Norman Ansley

#### Background

In 1960 Backster introduced the "spot analysis" chart interpretation technique. In 1961 Backster implemented the seven-position scale as part of that technique, including a numerical rating system by which polygraph charts could be evaluated (Backster, 1991). The "spot" is a pairing of a relevant and a control question which are compared one against the other. Summed scores for pairs of spots on each chart and then a set of charts determine the decision of truth, deception, or inconclusive. By use of Backster's scoring scale, examiners could assign a weighted numerical value to reactions based on the magnitude and duration of the same. Although Professor John E. Winter of West Virginia University used numbers to indicate the magnitude of cardiovascular and respiratory reactions of 25 suspects in a theft case in 1936, the concept was not raised again until 1951 when Cleve Backster lectured on a numerical system at the Keeler Institute (Winter 1936, Ansley 1951). However, it was Backster's comprehensive 1961 system that established the first standardized numerical method. After the development of a scoring scale for evaluation of polygraph charts, it was necessary to determine what scores would be used as cutoffs for determining truth or deception. Backster's original cutoff for truthful was +9 and for deceptive -9 on a two spot zone with two charts; and evaluating only the two most productive components. This was modified quickly at the United States Army Military Police School (USAMPS) at Fort Gordon, Georgia into a cutoff of +6 for a truthful score and -6 for a deceptive score, based on three charts, evaluating all three components. There seems to be no documented evidence as to why or exactly when these variances occurred. The cutoffs implemented by Backster are printed in his 1962 standardized notepack but documentation concerning those cutoffs used by the USAMPS (and now taught at the DoD Polygraph Institute) are unavailable for review. We have reported on these two versions of Zone Comparison because of their widespread use. In fact, all of the 14 courses currently accredited by the American Polygraph Association teach a Zone Comparison technique.

In the mid-seventies other researchers began to look at the numerical cutoffs used in polygraph examinations to identify truthful or deceptive subjects. Research from confirmed case charts indicated that the optimum cutoff was in the region of +/-2 to +/-4 (Raskin & Hare, 1978), based on three charts, scoring all three components. Further research corroborated this, demonstrating that the optimum cutoff level was in the region of +/-4 (Raskin et al., 1978). Indeed, in 1985 Shterzer and Elaad, in using varied cutoff scores, found that +/-1 as a cutoff provided a significant degree of accuracy, comparing favorably with a +/-6.

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In addition to the difference in numerical cutoff scores between Backster and USAMPS, differences existed in the number of spots, number of charts necessary for scoring and the number of components evaluated for final score. Backster's Zone Comparison test only contained two relevant question spots compared to three in the Army version. According to Backster, the Army's addition of a third relevant question to the Zone was through a misunderstanding by Army. Backster said that he taught that only two relevant questions about direct involvement would be used in the first two charts. However, if the results were NDI, a third control and relevant pair could be added to a third chart with the relevant asking about lesser involvement. The Army decided, somehow, to ask that extra pair of each chart in every test. Backster also taught briefly as an option (in 1961) that a SKY extension could be added to the third chart beginning in the ninth question position. Army adopted that, for a period of time, as an addition to the third chart in each test. According to Ronald E. Decker, two instructors from the Army School were sent to Backster's school in 1961 where they were trained in Zone Comparison, and they in turn trained other CID examiners (Decker, 1991). Backster gives the dates of the use of that Zone Comparison variation as August 14 to November 12, 1961. There seems to be little evidence however that the use of a third relevant question in a Zone Comparison test increases the accuracy of the test (Capps & Ansley, 1992). Backster also utilized the first two charts or the two most productive charts only in the decision-making process. In the early years, Backster also limited his evaluation to the two most productive components. USAMPS scored each component on all charts to make a decision of truth or deception. Senese at John E. Reid & Associates found greater accuracy in the second chart than in the first but did not report whether differences existed between truthful and deceptive (Senese, 1976). The Reid test format varies from the Zone in that it has only two control questions and four relevant questions. The Backster Zone test does not require a stim test, but the Reid and Army (now DoDPI) tests had a stim chart after the first and before the second relevant charts. In comparing the effect of stimulation tests on polygraph results, Kirby (1981) saw no difference in the accuracy of calls on first and second charts. As with Senese, Kirby did not differentiate between truthful and deceptive subjects. Recent research has indicated that those charts which may be the most productive for truthful may not be the same as those most productive for deceptive (Capps & Ansley, That same research found no statistically significant increase in 1992). accuracy for three charts as opposed to two charts, but there was a trend towards higher accuracy with three charts.

Many practitioners have made another transition away from the original scoring developed for the Zone Comparison polygraph technique. That transition has been from the seven-position numerical scoring scale to a three-position scale (Weinstein & Morris, 1990). The three-position scale consists of applying a score of +1 to spots where the reaction to the control is greater than the reaction to the relevant. A score of -1 is applied when the reaction to the relevant is greater than the reaction to the control. Zero is the indicated score when the reaction to the control and relevant are equal or there is a lack of reaction to both relevant and control questions (VanHerk, 1990). The three-position scale gives equal weight to all scoring of reactions rather than the weighted system offered by the sevenposition scale. This research also investigated the results of the use of the three-position scale compared to the seven-position scale.

### Procedure

One hundred sets of confirmed Zone Comparison polygraph cases were drawn from the research files of a Department of Defense agency. Forty-eight of these cases were verified truthful and 52 verified deceptive. They were not examinations conducted by that agency, but criminal cases randomly selected from those used in a previous unrelated study. The charts were obtained from an APA accredited school that offers professional polygraph testing to industry and law enforcement. The original examiner score sheets were removed from those examination sets for review. Each of the examinations had been numerically scored using the seven-position scale. This scale provides for a score of -1, -2 or -3 if the reaction is stronger to the relevant and +1, +2 or +3 if the reaction is stronger to the control question. If the reactions are equal or if there is a lack of reaction to both questions being compared, a score of zero is assigned. The examinations were rescored using a three-position scale. This scale only allows for a designation of +/-1 and zero with no +/-2 or +/-3. This rescoring was accomplished by transferring all numerical scores except zero to a +/-1. All zero scores remained the same. The cutoff scores for the three-position method are the same as that of the seven-position method, +/-6. After the rescoring the average score for sets of charts with a seven-position scale were compared with that of those sets of charts scored with a three-position Numbers and percentages of correct decisions, errors, scale. and inconclusives were also reviewed.

### Results

The average score of truthful subjects with the three-position scale was +4.78, with a seven-position scale, +8.13. The average score of the deceptive subjects with a three-position scale was -9.64 and with a seven-position scale, -17.23. Using a three-position scale and a cutoff of +/-6, the truthful had 21 of 48 correct calls, one error, and 26 inconclusives. With a seven-position scale for the truthful there were 32 of 48 correct calls, one error, and 15 inconclusives (see Table 1). For the deceptive, using a three-position scale and a cutoff of +/-6, there were 40 of 52 correct calls with 12 inconclusives and no errors. Use of the seven-position scale resulted in 50 of the 52 decisions being correct, with two inconclusives and no errors (see Table 2). Overall use of the three position scale produced 61 correct calls, 38 inconclusives, and one error; whereas use of the seven-position scale produced 82 correct calls, 17 inconclusives, and one error.

Since the average score of all cases using a three-position scale was 52% of the score using a seven-position scale, the effectiveness of a cutoff score approximately 52% of +/-6 was used for a comparison with +/-6 on a seven-position scale (see Table 4). With the use of a +/-3 cutoff on a three-position scale, there were 84 correct decisions, 13 inconclusives, and three incorrect decisions. This compared favorably to the 82 correct decisions, 17 inconclusive, and one incorrect decisions using the +/-6 cutoff on a seven-position scale.

# Comparison of Two Scoring Scales

TABLE 1 Truthful (n. 48)

	<u>Correct</u>	INC	<u>Incorrect</u>	
3-position	21 (44%)	26 (54%)	1 (2%)	
7-position	32 (67%)	15 (31%)	1 (2%)	

TABLE 2Deceptive (n. 52)

	<u>Correct</u>	INC	<u>Incorrect</u>	
3-position	40 (77%)	12 (23%)	0 (0%)	
7-position	50 (96%)	2 (4%)	0 (0%)	

TABLE 3 All Charts (n. 100)

	<u>Correct</u>	Inc	Incorrect	
3-position	61 (61%)	38 (38%)	1 (1%)	
7-position	82 (82%)	17 (17%)	1 (1%)	

# TABLE 4

All Charts (n. 100)

	<u>Correct</u>	<u> 1NC</u>	<u>Incorrect</u>
3-position (+/-3 cutoff)	84	13	3
7-position (+/-6 cutoff)	82	17	1

		TABLE 5	
Spot Ar	alysis	Seven-Position	Scale

(tt)	(t)	(t?)	(?)	(d?)	(d)	(dd)
+3	+2	+1	0	-1	-2	-3

### Discussion

Although the three-position scale produced far too many inconclusives with a +/-6 cutoff, reduction of that cutoff to +/-3 produced findings that are not significantly different from those using the seven-position scale with a +/-6 cutoff. This data suggests that the use of a three-position scale may be nearly as useful as the seven-position scale if the numerical cutoff is decreased to accommodate the decrease in score totals.

The data set is limited however to 100 cases and caution should be used in drawing a conclusion based on a small sample. Furthermore, the authors do not endorse the use of the three-position scale nor seven-position scale as described in this report.

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### POLYGRAPH TECHNIQUES FOR SEX OFFENDERS ON PROBATION

### Dennis R. Fox

Polygraphing sex offenders on parole or probation is not a new concept, but over the past few years, testing these individuals is the rule in Oregon and Washington, not the exception.(Abrams 1991) This paper will discuss the types of examinations successfully utilized by this examiner during the administering of over 1000 sex related examinations. These include disclosure or sexual history as well as behavior monitoring and specific issue examinanations.

#### The Disclosure Examination

The purpose of this examination is to provide treatment providers with insight into the sexual history of the patient, identify areas where information is being withheld, which treatment providers feel is crucial to structure treatment programs, and to monitor behavior while on parole or probation. It generally is administered after the patient has been in treatment for several months. This is necessary to allow him to realize that there are others who have committed the same kinds of acts and are able to talk about them. This also affords him the opportunity to make disclosures on his own.

An example of a typical disclosure examination test format will be provided, followed by the rationale behind the test structure.

Bear in mind that this is a test structure based on information and observations gleaned during the all important pretest interview, and review of case material. A brief explanation of the pre-test interview is necessary to explain the make-up of the test structure.

In polygraphing sex offenders a networking approach involving the polygrapher, probation officer, and treatment provider is utilized. All three, as well as police agencies, Children's Services Division, and the District Attorney's Office openly share information concerning the individual. The probation officer and therapist, as well as other treatment group members, stress from the beginning the importance of being completely truthful concerning sexual history. By the time the subject enters the examination room he has had several months of constant reinforcement of the need for complete truthfulness. It is then the responsibility of the polygraphist to explain the need to be completely truthful in order to pass the polygraph examination. The subject is reminded that a failure will lead to negative

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sanctions. All failed polygraph examinations must have negative consequences. Results of lying to relevant questions must have swift and sure consequences. The fact that the subject has lied to the control questions also results in negative feedback in order to ensure that control questions continue to be meaningful during the course of treatment, which may last several years. Without consequences as a result of lying to the control questions they will lose their importance, and there will be no way to protect the person that is answering the relevant questions truthfully. Sanctions may include such things as writing a letter of apology to fellow group members for lying, or writing a paper on the importance of being truthful.

A considerably amount of time is spent in pre-test concerning the concept of being completely truthful, and why the subject must be totally honest in order to pass the polygraph exam. After the examiner's explanations, the pre-test interview then moves to the issue for which the subject is being examined -- sexual history. The pre-test interview begins with the examiner attempting to get the subject to tell the examiner, in open and honest detail, what took place with the victim(s) which resulted in his Police reports, pre-sentence investigations, victim(s) statements, arrest. information from the victim(s) therapist(s) have been reviewed prior to the examination. After this discussion the question is then asked, "(victim's name was obviously a relative.) Have you ever had any physical sexual contact with any other relative at anytime in your life?" After the discussion of family members, the following question is asked, "(victim's name) was under 18 at the time this occurred. Since you have turned 18, have you had any physical sexual contact with anyone else what was under 18?" During this conversation the subject of males may be brought up, or group masturbation or other paraphilias. This information is used to logically progress into the next area of questioning. For example, "Besides what you told me about masturbating your brother and nephews, have you ever had any physical sexual contact with any other males throughout your life?" Or the question might be asked, "You talked about group masturbation. Have you ever been involved in other types of swinging, swapping, threesomes or group sex?" A checklist is not gone through in a set order. Through conversation the subject introduces the subject areas to be discussed. This makes more of a conversational interview in a logical sequence. A check list of paraphilias is used however to ensure that all areas are covered. After going through the subject's sexual outlets the subject is then told, "I could continue doing this for hours, because there are as many sexual outlets as there are people. So what I am going to do is to put the ball in your court by asking you this question. 'Right now, as you are sitting here, is there anything concerning your sexual history that you are on purpose knowingly and deliberately holding back from me?' If that sounds strangely like a polygraph question, that's because it is." This type of conversational questioning is not insulting for the subject, nor is it accusatory. He has been told in the pre-test interview that over 98% of the individuals who come in for a disclosure examination have not yet been completely truthful with their treatment provider. The person is told that that is not meant to say 98% of people fail their examinations, but 98% of people tested have not yet been completely truthful. The disclosure exam also encompasses present behavior as this will provide a reference point for future examinations.

### Polygraph Techniques for Sex Offenders on Probation

The examiner must remain flexible in the exam that he is going to conduct. It may be anticipated that the subject is going to be administered a disclosure exam, but in the pre-test he might relapse into denial, saying that he pled guilty only because he followed his attorney's instructions. The subject may give a completely different account of what happened with his victim(s) than what police reports or victim(s) statements may say. If this occurs a specific issue examination will be administered.

The following is an example of a typical disclosure examination involving sexual contact with a family member, or extended family member under age eighteen.

#### Disclosure Exam Test Structure

- I 1 Did you tell me that you are (full name as given)?
- DC-1 Did you come here today intending to try to lie to me about anything?
- I-2 Do you now live in the United States?
- R-1 Have you ever had any physical sexual contact with a relative that you are on purpose not telling me about?
- I-3 Are you more than 21 years old?
- R-2 On purpose are you holding back from me any person under 18 you have had physical sexual contact with since you turned 18?
- C-1 Is there anything concerning your sexual history that you are not being 100% truthful about?
- R-3 Have you ever had any physical sexual contact with another male?
- C-2 Right now is there anything that you are not being 100% truthful with your treatment provider about?
- R-4 Since being on probation have you been alone with anyone under 18?
- C-3 Have you violated your probation in anyway you haven't disclosed?
- R-5 Since being on probation have you tried to have any physical sexual contact with a person under 18?
- C-4 Since being on probation have you had any sexual thoughts about someone under 18?
- R-6 Since being on probation have you had any physical sexual contact with a person under 18?
- C-5 Is there anything that you have lied to your probation officer about?

DC-2 Have you now answered all of my test questions truthfully?

# Discussion of the Disclosure Test Protocol:

- I-1 As in a General Series type test this is an irrelevant question. The question is specifically worded in this way to prevent the disaster of having somebody using an alias, and later admitting that they have lied about their name.
- DC-1 This is patterned after the military "disguised control" used in drug testing exams. It is however more of a sacrifice relevant than a control, because it is not used for evaluative purposes.
- I-2 Irrelevant asked for the purpose of returning the subject to his norm, and to prepare for the first relevant question.
- R-1 Relevant question designed to question honesty not memory.
- I-3 Irrelevant for the purpose of returning the subject to his norm, and to prepare for the second relevant question.
- R-2 Relevant question designed to question honesty not memory.
- C-1 Control Question. This is actually a weak relevant. Weaker from the standpoint that it is broader in depth and scope.
- R-3 Relevant Question. This slot is reserved for a question that covers an area addressed in the pre-test that the examiner feels the examinee may be withholding information.
- C-2 Control Question. Again this is actually a weak relevant from the standpoint of being broader in depth and scope. The question is a transition from past experiences to question directly involving present treatment.
- R-4 Relevant Question. This is a probation issue. It leads into contact with children.
- C-3 Control Question. It introduces probation, and law breaking into the exam.
- R-5 Relevant Question. It addresses attempts to re-offend.
- C-4 Control Question. It is designed to compare desires with attempts to re-offend.
- R-6 Relevant Question. It concerns re-offending.
- C-5 Control Question. It deals with the present time and concerns probation and honesty.
- DC-2 Second "disguised control." Again it is not for comparison but actually a lead in for interrogation.

### Post Test Interviews

All subjects are given a post test interview; the "deceptive" subject is questioned to gain information concerning the relevant issues, and the "truthful" subject to gain admissions to control questions. It is crucial that control questions are treated as important to ensure safequards for the "truthful" subject during ongoing examinations. If lying to the control questions is not brought to the subject's attention they will soon lose their effectiveness, because the "truthful" individual will not have any questions to "focus" on during the examination. At the end of the in-test portion of the test, disguised control 2 (DC-2) can be introduced in the following manner. The subject is told, "During the exam I don't look at the polygraph charts because I'm busy. I mark when I start a question, I mark when I end it, and I mark when you answer it. I put down if you answer yes or if you answer no. I put down what my sensitivity settings are, and note if I make any adjustments. I put down everything that is going on here. I wait until the end of the test to look at the polygraph charts. There is one exception. That is the last time I ask the questions I look at the final question. That is the question, 'Have you now answered all of my test questions truthfully?' I can see right now that you haven't answered that question truthfully. What that tells me is that when I score these polygraph charts, I will see one or more questions that you have not answered truthfully. What I wanted to do is to run this test, look at the polygraph charts and write a report to your treatment provider that says you were 100% truthful with me here today. But I can tell by looking at that last question that I can't do that. What I don't want to do is to write a report that says you didn't answer all of  $\pi y$  questions truthfully, and you refuse to be truthful. That is the worse case scenario. What I want to do is to write a report that says you came in, we talked, this is what you told me, these are the questions I asked, and this was the additional information that was needed for you to pass this test. The only way I can write a report like that is if you now freely and voluntarily tell me what question, or questions you didn't believe your answers to." After obtaining the post-test information the polygraph charts are scored and the findings are discussed with the subject. In the written report the subject can be called deceptive to one or more of the questions, but because of the number of issues being covered he will not be called truthful to any of the questions. This refers back to Cleve Backster's anti-climax dampening concept. Keep in mind this test is designed to isolate areas that need to be addressed further. Throughout treatment, additional disclosure exams will be conducted, as well as specific issue exams addressing the identified problem areas.

### Control Questions

The definition of a control question as expressed by John E. Reid (1977) is, "A control question is a question concerning an act of wrongdoing similar in nature of the matter under investigation, but broader in depth and scope, and to which the subject will be lying, or his answer being of dubicus validity." It is important to accept this concept if successful polygraph examinations are going to be conducted on a periodic basis over extended periods of time. Towards the end of the subject's treatment an examination concerning control question material obtained during the polygraph examinations can be administered to ensure that control question

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material of a significant importance has not been withheld. In hundreds of examinations, this writer has not yet discovered acts of wrongdoing more serious than relevant questions formulated as a result of the pre-test interview, background information reviewing, and case review, including mental health evaluations, police reports and other documents relating to the subject.

Preliminary studies done by Abrams (1986) indicate a minimum of 90% accuracy for deceptive subjects, and a maximum of 95% accuracy for truthful subjects for disclosure testing of this type.

### Maintenance Examinations

The maintenance examination is in a Reid format (1977) concerning four areas in which the treatment provider and probation officer are most interested. The following is an example of a typical maintenance examination.

- I 1. Did you tell me that you are (full name as given)?
- I 2. Do you now live in the United States?
- R 3. Since being on probation (or since your last polygraph exam, or since [a given date]) have you had, in violation of your probation any undisclosed contacts with a person under 18?
- I 4. Are you more than 21 years old?
- R = 5. Since being on probation have you tried to have any physical sexual contact with a person under 18?
- C 6. Since being on probation have you wanted to do anything sexual with a person under 18?
  - 7. (generally omitted) Right now are you in Oregon?
- R 8. Since your last polygraph exam have you had any physical sexual contact with a person under 18?
- C 9. Since being on probation have you been to an adult book store?
- R 11. Since being on probation have you lied to your treatment provider about anything you haven't straightened up?

The same rationale applies to questions on a maintenance exam as a disclosure exam.

# Specific Issue Testing

Specific issue tests can be given as a subject's first examination if he is in denial of the crime for which he was charged. It can also deal with denial of certain acts alleged by the victims. It can also be used if a specific allegation is being made against the subject concerning an act

that occurred while on probation. Reid, MGQT or Zone Comparison test techniques are utilized for this type of testing.

#### Conclusion

Polygraph testing has proven to be an invaluable aid in treatment sex offenders. The success of this type of testing depends upon several factors including the knowledge of the examiner in understanding sex offenders, an indepth properly conducted pre-test interview, extensive case review, the skill of the examiner in conducting the examination, and the working together of the polygraph examiner, treatment provider and probation officer.

**Note:** For ease of reading reference is made to the male gender. It is known that there is an increasing number of female sex offenders being identified.

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#### FULL DISCLOSURE: AN ETHICAL QUESTION

#### James R. Wygant

The polygraph profession may be heading into another controversy, while still recovering from the beating taken over employment testing. Ironically, there is little difference between the pre-employment tests that were so offensive to law makers and a new procedure that could become equally controversial. It is usually identified as a "full disclosure" test. It is used with persons convicted of sex offenses.

I suggest that it may become controversial because it suffers from many of the same faults that caused problems for employment testing. Those include:

1) examiners allowing non-examiners to decide the issues that will be included in a test;

2) examiners asking personal questions about areas that have no proven relationship to the alleged purpose of the test;

3) examiners giving tests to persons who have no effective opportunity to decline;

4) examiners using procedures that they develop on the fly, with no credible research to establish validity; and

5) examiners responding to an immediate market demand with little regard for long-term implications.

There are two critical differences between pre-employment tests and full disclosure tests. First, a refused or unfavorable full disclosure test carries a much greater potential penalty. It jeopardizes a probation sentence and can result in at least the threat of jail. Second, while employment tests were used mostly with adults, the sex tests are being used extensively on juveniles.

"Treatment" of sex offenders is becoming a growth industry in the United States. This has happened so rapidly that government regulation has not yet caught up with it. The number of self-proclaimed experts for treatment of sexual deviancy has increased dramatically in the past few years. There has been a proliferation of people who call themselves therapists or treatment specialists, and who have varying backgrounds, experience, and education.

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One reason for this development is obvious. There is money available to buy these services. A court's sentencing order can represent a guaranteed fee. The convicted sex offender has the option to either pay or face probation revocation and the possibility of jail. Overworked sentencing and probation authorities have abdicated judgment in the messy area of sex to those who merely say they are experts. Those private practitioners have, in turn, warmly embraced the polygraph and the penile plethysmograph.

Full disclosure "mills" crank out tests in a manner that recalls one of the most frequently heard complaints about pre-employment testing, the attempt to cram as many tests as possible into a single working day. One residential treatment program for juveniles innocently declared about their examiner, "We request him to come to the Boys Ranch and do a <u>minimum</u> of four polygraphs in one day" [emphasis added], (Anderson 1990).

### Admissions

Defenders of the full disclosure polygraph test usually offer the same justification once used for the pre-employment test. It produces admissions. While great numbers of "undiscovered offenses" are reported by full disclosure testers, little attention has been given to their authenticity. We know that claims of thousands of new admissions from any one individual usually resolve themselves as random contacts in crowded places, where the "victims" were unaware of any offense.

How significant are admissions in treatment? There is no definitive answer. Since sex offender treatment is almost always done in groups rather than individually, that context imposes its own limitations on the regard given to any one person's admissions. There are, however, other non-therapeutic purposes to which admissions are put. One of the most conspicuous of those is entirely self-serving, the validation of treatment. Presumably a large number of admissions impresses the source of new business: the courts, who make treatment clients out of convicted offenders, and the probation officers, who have their own work load reduced by private sector supervision.

Many of the same psychologists who a few years ago condemned the use of polygraph for any purpose, now routinely use it with the vast number of convicted sex offenders who are sentenced to treatment. What accounts for this change of mind about polygraph? The answer may be that polygraph furnishes the treatment provider with a tangible result, a quantifiable number of admissions. Unfortunately, that may be used to mask something much less tangible, the success rate of the treatment itself in the prevention of re-offense.

Non-examiners are not likely to recognize what should be evident to polygraph examiners -- the incentives to make admissions in a full disclosure test are the reverse of what they were in the old pre-employment test. In the pre-employment context, a person was motivated to withhold information that might imperil an application. The opposite is true in a full disclosure test, where the subject who refuses to admit something is at greater risk than one who does reveal something.

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A full disclosure subject is told that he is likely to be concealing past offenses. Failure to admit something can result in disqualification from treatment, reports of uncooperative attitude, and potential revocation of probation. Not only is there no penalty for disclosure, there is the reward of being accepted for treatment and thus avoiding the possibility of jail. It is likely that at least some subjects feel an incentive to exaggerate rather than minimize. Current test procedures have not addressed that possibility. Of course, polygraph examiners and treatment providers also have a vested interest in large numbers of admission, so ultimately there is little inducement for anyone to explore the extent of exaggerations.

The author is acquainted with a parole officer for a state youth facility where juvenile sex offenders are routinely exhorted to admit previously undisclosed offenses. Several of the juveniles have claimed after leaving the treatment program that they fabricated admissions in response to unrelenting pressure and to avoid being denounced as resistive or unccooperative. While retractions are usually suspicious, in these cases there was no compelling reason to retract. The juveniles knew that their admissions were not going to be prosecuted.

### Threat and Control

Examiners should be aware that there is a cynical regard among treatment providers for the authenticity of admissions and the accuracy of polygraph test results. Some therapists freely admit that they don't care what comes out of the test. They like being able to use polygraph as a "threat", a term favored by at least one treatment provider known to the author. They also praise the "control" that polygraph permits them to exert over a client. (Abrams, 1990b) There can be little doubt that those terms accurately reflect the circumstance in which the client finds himself. However, to proclaim "threat" and "control" as the purpose of a polygraph examination may be contrary to the concept of a "search for truth" that most examiners advocate.

I had the unfortunate experience of being asked by an attorney to conduct a full disclosure test for purposes that I considered inappropriate. He represented a woman in a divorce case, and he had convinced her husband to submit to a full disclosure test. The husband was not represented by an attorney and did not know what issues were raised in a full disclosure test. I asked the attorney if there were any accusations of sexual abuse of the children. He acknowledged that there were not. He candidly said that if I could get the husband to make admissions about his sexual interests and desires, those could be used to obtain a more favorable divorce settlement for the wife. When I declined to do the test, he said that he would find another examiner.

There are areas of personal inquiry in these tests which have little or no relationship to treatment, in the sense that treatment is likely to remain the same regardless of the nature of the admissions. When somebody decided to call these tests "full" disclosure, it was no exaggeration. Beyond asking about the charged incident and prior sexual victims, these examinations demand disclosure of all sexual experiences of any kind, including earliest sexual encounters, any homosexual activity or desire, extent of masturbation, and descriptions of all sexual fantasies (Abrams 1990a).

It must be difficult to know what weight to give to answers to those questions, since the private nature of sex means that treatment providers have no baseline for comparison. For instance, if a man who fondled his teenage step-daughter's breast admits that he first masturbated when he was 12 and has done it weekly ever since, how does that compare to masturbation in the general population? Is this person "better" or "worse" than average, and do those concepts even have any meaning in this context? If he said that he had a homosexual experience when he was 16, how does that compare to the "normal" population, whose sexual conduct and fantasies remain largely unknown.

In the end, the lack of a baseline may not be a problem for the treatment provider, since admissions are often sought more for the client control they promote than for the information they provide.

Treatment providers can afford to ignore the accuracy of these test procedures because they hope to achieve something with polygraph that has little to do with the examiner's conclusions. Examiners can not indulge that same cynicism. It is well established by abundant research that the validity and reliability of polygraph testing varies with the procedures employed. The old complaint about lack of research on pre-employment methods applies equally to the full disclosure procedure.

### Test Procedure

There has been no credible research, in which ground truth was known, that established the validity of reliability of full disclosure testing. That is partly because the procedure itself is relatively new, and partly because there is no standard method to evaluate.

Like pre-employment tests, full disclosure tests typically devote a single question to each of several areas of inquiry. Of course, asking about sex is not the same as asking about theft.

The use of standard sex controls is generally precluded. Areas normally preserved for control purposes have been appropriated as relevant issues in a full disclosure test. There are no prior times to ask about, no fantasies or desires. Everything sexual becomes a relevant issue.

Examiners who use these tests typically attempt to relate accuracy to admissions. As already demonstrated, there are extraordinary inducements on a test subject to produce something before his test that conforms to a therapist's concept of an admission. But admissions alone do not in any way validate the accuracy of a subsequent test conclusion.

While a polygraph examiner should not attempt to judge the validity of sex offender treatment, he should be aware that polygraph testing can become an indistinguishable part of that treatment. In many cases, treatment of sex offenders tends to be punitive and confrontational, rather than

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following more traditional therapeutic methods, and it often employs techniques that unavoidably humiliate the client. Whether this is appropriate and effective is not an issue here. The close association of polygraph with such practices is.

### Plethysmograph

One treatment provider acknowledged and defended the punitive aspect of the plethysmograph by asking rhetorically, "Is being sexually abused more emotionally intrusive than having to experience a PPAA [plethysmograph]?"(Rennick 1990) This same eye-for-an-eye rationale is often given for the full disclosure polygraph test, an indication that it also is regarded as punitive.

Polygraph and the penile plethysmograph (derisively referred to as the "peter meter" by many of those who encourage its use) are becoming inseparable tools for treatment providers. The penile plethysmograph is a device fastened to the penis to measure the extent of an erection. The test subject is shown pornographic pictures. For diagnostic purposes, the pictures depict a variety of heterosexual and homosexual activity involving adults of both sexes, children of both sexes, and adults engaged with children.

This device has begun to be used with juvenile males who have been designated as sex offenders. How well it works as a diagnostic tool is uncertain. One treatment provider reported his experience with a male juvennile who produced sexual arousals to virtually every type of deviant behavior depicted: heterosexual contact, pedophilia, sadism, exhibitionism, voyeurism, transvestism, and animal contact. The therapist admitted that "Many clinicians have commented that 'adolescents respond with sexual arousal to everything.' This data [six] supports this notion."(Rennick 1990)

Even if plethysmograph testing were demonstrably accurate, showing pornographic pictures to juveniles with sexual problems is obviously a potential source of controversy. If that develops, polygraph could well be seen as an associated practice. There is already evidence of this polygraph-plethysmograph link in my own state of Oregon. The state Children's Services Division (CSD) began in 1991 to develop a "Juvenile Sex Offender Treatment Policy" that included restrictions on use of both polygraph and plethysmograph. Informed consent would be required from the juvenile, his parent or guardian, and the CSD branch manager or assistant administration (not just the caseworker). Limitations would also be imposed on the kinds of sexually explicit materials that could be used with the plethysmograph. The policy would only apply to children under the supervision of CSD.

# Crime or Mental Illness

The methods of dealing with persons convicted of sex offenses are undergoing rapid change in the United States. Presently the courts tend to regard sex offenses as criminal activity for purposes of adjudication, but as a kind of mental illness for purposes of sentencing. This dichotomy does not exist with regard to other crimes. In fact, a man with no criminal record who pleads guilty to manslaughter will typically not be subjected to

penalties as severe as a first-time sexual offender. In most jurisdictions, both men are likely to receive a term of probation. The sex offender will probably have to purchase therapy, polygraph tests, and penile plethysmograph tests, and will be ordered to disclose his complete sexual history. The killer is usually not put into therapy, not subjected to tests, not required to disclose past acts of violence, and not compelled to reveal every violent thought he ever had.

What has been unsaid here is the predicament of the innocent person convicted of a sex offense. There has been increasing evidence of a higher than expected incidence of false or misinterpreted claims from children identified as sexual victims. The most compelling study was conducted on a group of girls, ages 5 and 7 years, by a psychologist who is a strong advocate for children. In carefully controlled medical examinations, false reports of genital contact reached eight per cent (3 out of 36, including one girl who falsely claimed that the doctor had shoved a stick up her rectum) (Goodman & Clarke-Stewart 1991).

In another study, in which a man who pretended to be a janitor handled a doll in a sexually suggestive manner, children were later asked to describe what they had seen. "Even after the first gentle suggestion, onequarter of the children answered the interviewer's questions about what the janitor had done inaccurately, following the interrogator's suggestion. By the end of the interrogator's strong suggestions, ... two-thirds had switched from what they had seen to what the interrogator had said."(Goodman & Clarke-Stewart 1991).

Zealous advocacy by some of those who endorse current forms of sex offender treatment has at times assumed the character of a secular religion. A kind of insider pejorative jargon has emerged, in which a problem client is presumed to be "in denial" or "in cycle", characterizations which wrongly imply absolute knowledge of both the problem and its solution. Few doubters exist outside these programs, and they are often regarded by insiders as heretics and are accused of "enabling" the sex offender. That climate, sometimes as self-righteous as the anti-Communist fervor of the McCarthy era, is not apt to endure. When it begins to lose favor to a more reasoned approach, how will polygraph be regarded?

I raise these issues because I believe they are certain to be voiced by others outside of the polygraph profession as the use of full disclosure tests increases. The testing of juveniles is a particularly sensitive area. The polygraph profession should encourage credible research to establish the validity and reliability of these procedures. And, as always, individual polygraph examiners should assertively exercise final judgment in declining questionable tests, rather than let others use polygraph for purposes that ultimately may be contrary to the best interests of the profession.

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### A REVIEW OF POLYGRAPH CASE LAW IN 1991

#### Norman Ansley

The review and abstracts here represent only that portion of the appeal and decision that relates to the polygraph. In most cases there were other matters presented in the appeal. Also, as these are abstracts of the cases, they should not be relied upon as anything more than a quide, and the original West citation should be consulted. The West reporters for Federal, Federal Supplement, and the geographical areas were reviewed for the periods up to the issues of December 9th to 14th, 1991. The military reporter was not consulted because of the change in the <u>Manual for <u>Courts Martial</u> this</u> year which put an absolute prohibition on polygraph test results being admitted as evidence, after a brief period in which results were admitted based on a decision of the Court of Military Appeals. The change in military law was accomplished through an administrative process. Statutory changes have not been included in this review, but they will be noted in the 1992 issue of the Quick Reference Guide to Polygraph Admissibility. Licensing Laws, and Limiting Laws, 16th edition. Also, with one exception, this review is limited to those cases involving polygraph matters in which an appeal was filed.

#### REVIEW

In federal appellate cases, the Sixth Circuit reaffirmed earlier decisions that polygraph results may not be admitted as evidence unless there is a stipulation between the parties. The Seventh Circuit considered a petition for habeas corpus from an Illinois prisoner claiming an Illinois judge wrongfully admitted polygraph evidence against him. The writ was denied as state rules of evidence may not be questioned in federal habeas corpus proceedings unless they render a trial so unfair as to constitute denial of Constitutional rights.

In Arkansas, the Supreme Court reversed and remanded for a new trial because mention of a polygraph test by a key witness was prejudicial. The Court said that mere mention is not always prejudicial but this case involved an obvious attempt by a police officer to bolster a witness' credibility.

In Florida, an appellate court said the district court did not err in excluding polygraph results because the requisite stipulation was lacking.

In Georgia, an appellate court concurred in a decision denying admissibility of a post-trial polygraph test, as it was not newly discovered evidence when it could have been obtained by a pre-trial test. Also, it lacked stipulation. In another Georgia appellate decision the Court concurred in a denial of admissibility of a polygraph test results even though given by a state expert. There was no stipulation and no implied stipulation as claimed.

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In Indiana an appellate court required removal from probation requirements an order that all polygraph test results taken in the probation control would be admissible at court. The appellate court was in favor of the use of the polygraph as a condition of probation, but said the trial court could not make the results admissible. In another Indiana decision, an appellate court said there was no abuse in the trial court's granting a motion in limine which prevented the defense from mentioning the results of polygraph tests of the defendant and two key witnesses.

In a 4 to 3 decision, the Kentucky Supreme Court decided that the inadvertent mention of the word polygraph by a witness would have made a jury conclude a polygraph test was given and failed, and that required reversal. The court did allow that the confession was valid, but polygraph must not be mentioned in any way in connection with it.

A Minnesota appellate court supported summary judgment for the defendant lawyer in a malpractice case. Plaintiff said the attorney erred in opening a wrongful death case by explaining why plaintiff refused a polygraph. The appellate court said it was a reasonable exercise of professional judgment and not malpractice.

The Montana Supreme Court said that polygraph results may not be mentioned or used as evidence or for any other purpose in Montana courts. This, in amplification of a long series of anti-polygraph decisions, and a statutory prohibition against the use of polygraph test results in trials.

In North Carolina the Supreme Court said the mere mention of a polygraph test did not necessitate appellate relief, and the rule prohibiting polygraph results as evidence did not affect the use of the polygraph for investigative purposes.

In a North Dakota case, an appellate court said the trial court did not err in refusing to allow the defense and two witnesses to explain that the defendant and two witnesses had offered to take polygraph tests to support their statements that the defendant was not the driver of the car when he was arrested for DWI.

In Ohio an appellate court agreed that the ineffectiveness of counsel was so serious that it deprived the defendant of a fair trial. Counsel had agreed to a stipulation in which the results could only be used by the prosecution, that the defense did not pursue the lack of polygraph charts in court as required by prior decisions, that there was a lack of required foundation testimony and no objection, and a failure to object to the court's failure to instruct the jury on the use of polygraph evidence, also required by prior decisions. The court left open the issue of stipulation to a witness' test, but said that if it was to be allowed, it would have to meet the same requirements as now required for admissibility of a stipulated test of the defendant. In a different case, the Ohio Supreme Court said that mention of polygraph tests during trial was not prejudicial. Results were not mentioned in response to prosecution questions, and when it was it was in response to a defense question. In a Pennsylvania Supreme Court decision, they reaffirmed that evidence of a refusal or willingness to take a polygraph test is inadmissible as evidence.

The Texas Court of Criminal Appeals found that it was error to allow the unresponsive answer of a witness reveal the existence and results of a polygraph test of a previous suspect, and deny the motion for a mistrial, despite the instruction given to the jury. However, the Court said that since the error did not contribute to the verdict, the verdict of guilty was affirmed. In another case the Texas court said a trial court did not err in not allowing defense coursel to ask an accomplice-witness if he had passed a polygraph test before he agreed to the plea bargain.

#### ABSTRACTS

#### FEDERAL

United States v. Blakeney, 942 F.2d 1001 (C.A.6, Ky. 1991)

Defendants were convicted in the United States District Court for the Eastern District of Kentucky of conspiracy to manufacture, distribute, and possess with intent to distribute methamphetamine; and related offenses.

Prior to trial one of the defendants was administered a polygraph examination by Polygraph Associates, Inc. regarding his involvement in the operation of the methamphetamine laboratory. The government held a hearing and granted a motion in limine. Defendant claimed error because the questions from the polygraph examination related to the allegations made in his indictment.

The United States Court of Appeals, Sixth Circuit, noted that in <u>United</u> <u>States v. Fife</u>, 573 F.2d 369 (6th Cir. 1976), cert. denied, 430 U.S. 933, 97 S.Ct. 1555, 51 L.Ed. 777 (1977), they rejected a defendant's contention that the district court abused its discretion in excluding evidence that he submitted to a polygraph test because the results of a polygraph test are not competent evidence. In <u>Wolfel v. Holbrook</u>, 823 F.2d 970 (6th Cir. 1987), cert. denied 484 U.S. 1069, 108 S.Ct. 1035, 98 L.Ed. 999 (1988), they modified their per se rule by stating that in the absence of an agreement or stipulation between parties, the results of polygraph examinations are inadmissible. Also under <u>Wolfel</u>, the results must be relevant to the proof established by probative evidence, and within the sound discretion of the district court. In this case the court did not determine that the facts presented an unusual case warranting introduction of the polygraph results. Conviction affirmed.

Escobar v. O'Leary, 943 F.2d 711 (C.A. 7, Ill. 1991)

An Illinois prisoner who had been convicted of murder, filed a petition for a write of habeas corpus. The writ was denied by the District Court, and he appealed.

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Defendant claimed he was entitled to a new trial because the judge wrongly admitted polygraph evidence against him. A witness, answering a question on why he remembered while he was in police custody that he loaned a gun to Escobar, mentioned in his response a lie detector test he had taken. Escobar argued that the witness' comment invited the jury to come to the conclusion that he had passed the test, and that Escobar must be guilty. In Illinois, polygraph results are inadmissible as evidence. People v. Baines, 430 N.E.2d 1070 (III. 1981).

The United States Court of Appeals, Seventh Circuit, held that violation of state evidentiary rules may not be questioned in federal habeas proceedings unless they render the trial so unfair as to constitute a denial of federal Constitutional rights. The Court observed that Escobar's trial was fundamentally fair. The strength of the other evidence admitted against Escobar rendered harmless any error. Most notably, the evidence included Escobar's confession.

#### ARKANSAS

Winfield v. State, 796 S.W.2d 574, 303 Ark 291 (1990)

Defendant was convicted of first degree murder and felony in possession of a firearm, and he appealed. The Supreme Court of Arkansas held that mention of the polygraph on two occasions was prejudicial, entitled the defendant to a mistrial. Reversed and remanded. J. Glaze and Haze dissented.

Winfield asserted that the trial court's failure to grant a mistrial on mention of a polygraph test of a key witness during testimony of a police officer was error. Failing to get a mistrial the defendant asked for the results of the witness' test as they heard he had flunked it, and the police would not give them the information. The trial court said that was not relevant.

The Supreme Court, in reversing and remanding for a new trial, said that Arkansas law prohibits admission of polygraph results except on stipulation. Ark. Code A. Sec. 12-12-704 (1987), <u>Hays v. State</u>, 298 Ark 356, 767 S.W.2d 525 (1989), citing <u>Foster v. State</u>, 285 Ark 363, 687 S.W.2d 829 (1985), cert. den. 482 U.S. 929, 107 S.Ct. 3213, 96 L.Ed.2d 700 (1987). Reference to tests also constitutes error, <u>Roleson v. State</u>, 272 Ark 346, 614 S.W.2d 656 (1981), citing <u>Van Cleve v. State</u>, 268 Ark 514, 498 S.W.2d 65 (1980). In <u>Winfield</u> the Court said there was no agreement as to mention of the test. Although mere mention is not necessarily prejudicial in every case here, it was an obvious attempt by the officer to bolster the witness' testimony, and that was error. The dissent was about what happened at the trial.

#### FLORIDA

<u>Cohen v. State</u>, 581 So.2d 926 (Fla.App. 3 Dist. 1991)

# A Review of Polygraph Case Law in 1991

Defendant was convicted of first-degree murder, conspiracy to commit murder, and possession of a firearm during commission of a felony, and she appealed.

Defendant claimed the trial court erred by refusing to admit the results of polygraph examinations. The Court of Appeals of Florida, 3rd District, found no merit in the claim because the results of polygraph examination in Florida are generally inadmissible unless by stipulation by both parties. <u>Davis v. State</u>, 520 So.2d 572 (Fla. 1988), <u>Delap v. State</u>, 440 So.2d 1242 (Fla. 1983), cert. denied 467 U.S. 1264, 104 S.Ct. 3559, 82 L.Ed.2d 860 (1984). There was no stipulation in this case. Conviction affirmed.

#### GEORGIA

Harris v. State, 198 Ga.App. 503, 402 S.E.2d 62 (1991)

Defendant was convicted of child molestation and aggravated sodomy, and he appealed.

In affirming conviction, the Court of Appeals of Georgia noted that the appellate offered no explanation for not submitting to a polygraph test before the trial. Claiming the results of his post-trial polygraph examination was newly discovered evidence to support a new trial, the defendant could not show why the exercise of ordinary diligence would not have produced this evidence before the trial. More important, said the court, was the State's failure to stipulate to admissibility of the examination results. Absent that agreement, the evidence was inadmissible. <u>Timberlake v. State</u>, 246 Ga. 488, 271 S.E.2d 792 (1980) and <u>Rucker v. State</u>, 177 Ga.App. 779, 341 S.E.2d 288 (1986). No error.

McGraw v. State, 199 Ga.App. 389, 405 S.E.2d 53 (1991)

Defendant was convicted of trafficking in cocaine, burglary, and felony theft, and he appealed.

Defendant claimed he was entitled to a new trial because the court erred in not allowing into evidence the favorable results of a polygraph examination administered by a state expert. Defendant claimed he was "enticed" by the state to undergo a polygraph examination and that ought to equate to an implied stipulation, particularly as a matter of fundamental fairness.

The Georgia Court of Appeals said no, only the express stipulation of parties makes results of polygraph tests admissible. <u>Sustakovitch v. State</u>, 249 Ga. 273, 290 S.E.2d 77 (1982). The Court added that the state's stipulation to another polygraph test in the case did not affect admissibility of this test. Affirmed.

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### INDIANA

<u>Green v. State</u>, 575 N.E.2d 296 (Ind.App. 3 Dist. 1991)

Defendant was convicted of conspiracy to commit murder, and she appealed.

Defendant claimed error in the trial court's granting of a motion in limine proffered by the state as to any evidence of polygraph examinations taken by the defendant, her daughter, and her daughter's boyfriend. It was the boyfriend's shotgun, loaned to her for that purpose, that defendant used to kill her husband.

The Court of Appeals of Indiana, Third District, said the granting of a motion in limine preserves no issue for appeal, and the failure to offer the excluded evidence at trial constitutes a waiver of that issue. At trial, a state's witness mentioned the polygraph examinations twice. At a bench conference defendant's counsel did not seek to introduce the polygraph test results, as he believed an instruction to the jury would resolve the issue. No error. Affirmed.

Patton v. State, 580 N.E.2d 693 (Ind. App. 2 Dist. 1991)

Defendant was convicted of burglary and theft, and he appealed.

Defendant claimed the trial court erred in ordering as terms of probation that any polygraph test taken of defendant will be admissible as evidence in court. Patton said this was an inappropriate condition because it compels him to be a witness against himself, and further, the condition forces him to consent to the admissibility of evidence that otherwise is inadmissible.

The Court of Appeals of Indiana, Second District, said the trial court had broad discretion to impose conditions of probation which will produce a law abiding citizen and protect the public, and at times, may impinge upon probationer's constitutionally protected rights. The Court held that as to Constitutional issues, the requirement did not on its face impinge on probationer's rights under the Fifth Amendment. However, the Court shared Patton's concern about unrestricted admissibility of polygraph examination results. The Court said, "We acknowledge a probation condition requiring polygraph examinations upon request as appropriate when the condition bears a reasonable relationship to the rehabilitative aspect of probation, e.g., as a deterrence from violating other terms of probation by instilling fear of detection or where the examination provides probation officials with an indication of probationer's progress in rehabilitation. Nevertheless, absent stipulation or waiver, the results of a polygraph examination are inadmissible in a criminal prosecution." Tope v. State, 266 Ind. 239, 362 N.E.2d 137 (1977). Here, the decision was not made by Patton, but by the court, and it was inappropriate to coerce the defendant to agree to admissibility of evidence that was otherwise inadmissible because it has not been found scientifically reliable. Thus, said the Court, the

rehabilitative benefits of the polygraph condition must be obtained without the examination results being admissible in any subsequent court proceeding. The Court added that they were not imposing an impediment upon the use of polygraph examinations as a rehabilitative tool much like the probation conditions that a probationer be truthful in responding to questions asked by his or her probation supervisor.

The case was remanded to the trial court to strike the probation condition that the results of any polygraph examination provision are admissible in a subsequent proceeding. Except for that, the conviction was affirmed.

### KENTUCKY

Morgan v. Commonwealth, 809 S.W.2d 704 (Ky. 1991)

Defendant was convicted of murder and he appealed.

Defendant claimed that when the counsel for the parties and the trial court constructed a charade whereby Sergeant Howard, the polygraph examiner, would be presented as an officer who possessed "special interrogation skills"," it created the error that followed. The arrangement was necessary to cover the time taken to give a polygraph examination without revealing that such a test was given, but would allow Howard to disclose the defendant's incriminating statement. Sergeant Howard knew of the agreement. However, the trial court required Howard to describe the room in response to a question, and in doing so he mentioned there was a polygraph instrument on the top of the desk. A motion for a mistrial was overruled, despite the fact that at a bench conference just prior to the order to answer the question the judge said that if a polygraph was mentioned everybody was going home. Howard didn't know that.

The Supreme Court of Kentucky noted that disclosure of the taking of a test without disclosing the results was error. <u>Ice v. Commonwealth</u>, 667 S.W.2d 671 (Ky. 1984). The Court believed that in this context Sergeant Howard's telling the jury that the interrogation took place in a room with a polygraph instrument amounted to a "virtual banner headline that appellant had been given a polygraph examination." The case was reversed on the issue of the polygraph examination, affirmed on the admissibility of appellant's statements, and remanded to the circuit court for further proceedings.

Three of the seven justices dissented, saying that the reversal was not required when based on the use of the word "polygraph" once in a four-day trial in which there was no mention of the results of the test, or whether or not a test was given.

#### MINNESOTA

Wartnick & Moss & Barnett, et.al., 476 N.W.2d 166 (Minn.App. 1991)

#### Norman Ansley

After a jury returned a verdict against the client in a wrongful death action, the client instituted legal malpractice action against his attorney. The District Court granted the attorney's motion for summary judgement, and the client appealed.

The client said his attorney committed malpractice when he said in his opening argument that the police lieutenant asked Wartnick to take a polygraph test, and he agreed, but later Wartnick said he had talked to his attorney and said that he was told not to take a lie detector test, and the matter was dropped. Counsel added that Wartnick would testify that he was advised that lie detector tests are not always accurate; they're not always responsible, and things go haywire.

Wartnick argued on appeal that the trial court erred in concluding counsel's comments on the polygraph test fell within the "error in judgment" rule. The Court of Appeals of Minnesota disagreed, and held that under the circumstances counsel's comments did not constitute malpractice as a matter of law. First, in Minnesota, polygraph test results are inadmissible in both criminal and civil actions. State v. Anderson, 379 N.W.2d 70 (Minn. 1985), cert. denied 476 U.S. 1141, 106 S.Ct. 2248, 90 L.Ed.2d 694 (1986). Further, in criminal trials references to a polygraph test to a jury is grounds for an immediate mistrial. State v. Perry, 274 Minn. 1, 142 N.W.2d 573 (1966). However, in a civil trial, <u>C.M.C. v. A.P.F.</u>, 275 N.W.2d 282 (Minn. 1977), admission of a polygraph test results to a jury was not prejudicial error. Given the facts, mention of a polygraph test in a civil case is not necessarily grounds for a mistrial. Counsel argued he told the jury about the refused test to avoid prejudice to his client if a witness inadvertently mentioned it. His decision, subject to second-quessing, was a clear example of a reasonable exercise of professional judgment.

The Summary Judgment against each of the malpractice claims was affirmed.

#### MONTANA

<u>State v. Staat</u>, 811 P.2d 1261 (Mont. 1991)

Defendant appealed a bond revocation based on results of a courtordered polygraph examination, and defendant filed a petition for a writ of supervisory control with the State Supreme Court, which was granted.

The Supreme Court of Montana said this Court "Has long abhorred the use of lie detector evidence." <u>State v. McPherson</u>, 236 Mont. 484, 771 P.2d 120 (1989) and have consistently held such evidence inadmissible at trials. <u>State v. Hollywood</u>, 138 Mont. 561, 358 P.2d 437 (1960) and <u>State v. Bashor</u>, 188 Mont. 397, 614 P.2d 470 (1980). The Court has held such evidence inadmissible on probation revocation proceedings because it does not believe the results are trustworthy. <u>State v. Fogarty</u>, 187 Mont. 393, 610 P.2d 140 (1980) and <u>State v. Burke</u>, 235 Mont. 165, 766 P.2d 254 (1988). In 32 cases since 1960 in which the Supreme Court has mentioned or discussed polygraph examinations, the results thereof have never been specifically approved for introduction over objection into evidence.

Also noted, is that the Montana legislature has prohibited polygraph evidence from being introduced as evidence, in Sections 37-62-302, MCA, enacted in 1983. It provides: "Results of a polygraph examination or other test given by an examiner may not be introduced or admitted as evidence in a court of law." That, said the Court, rules out admissibility by stipulation of the parties. The Court said that in this case and in he future, "Polygraph evidence shall not be allowed in any proceeding in a court of law in Montana. The only acceptable lie detection methods in Montana court proceedings reside with the court in bench trials, the jury in jury trials, and the skill of coursel in cross-examination in all trials."

Reversed and remanded for action appropriate with the decision.

### NORTH CAROLINA

State v. Mitchell, 328 N.C. 705, 403 S.E.2d 287 (1991).

Defendant was convicted of first-degree murder and conspiracy, and he appealed. There were two issues involving polygraph tests, one on testimony about tests and the other about using the tests during investigation.

Mention of polygraph tests was in the recorded evidence taken when a witness, wired for sound, talked to the defendant. The recording of two interviews were played in court, and no objection was raised and no motion to strike was made. Therefore, said the Supreme Court of North Carolina, the plain error rule was not violated. The Court restated their objection to the results of the polygraph test results being admitted as evidence, even with stipulation. <u>State v. Grier</u>, 307 N.C. 628, 300 S.E.2d 351 (1983), but the mere mention of polygraph testing does not necessitate appellate relief. <u>State v. Harris</u>, 323 N.C. 112, 371 S.E.2d 689 (1988). Citing <u>Grier</u>, supra, the Court said the rule does not affect the use of polygraph tests for investigatory purposes, and the limited testimony concerning the investigatory polygraph test of the deceased's wife, even if erroneously admitted, did not affect the jury verdict. No error.

### NORTH DAKOTA

City of Bismark v. Berger, 465 N.W.2d 480 (N.D.App. 1991)

Defendant was convicted of driving under the influence of alcohol, and he appealed. Berger and two witnesses said Berger was not driving.

Defendant claimed error in that the trial court refused to admit evidence that Berger and the two witnesses offered to take polygraph tests. No tests were given.

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The Court of Appeals of North Dakota said, "it has generally been held improper to admit evidence that an accused has been willing or unwilling to take a lie detector test." 95 A.L.R.2d 819 (1964). In North Dakota, the Supreme Court held that the results of a polygraph test are inadmissible on his behalf in a criminal proceeding. <u>State v. Pusch</u>, 77 N.D. 860, 46 N.W.2d 508 (1950). The appellate court noted a case on the point of <u>Berger</u>, <u>State v. Swanson</u>, 225 N.W.2d 283 (N.D. 1974), in which no test was given, and no scientific evidence of its reliability or the acceptance of the operator was offered.

The Supreme Court of North Dakota has noted that a trial court must consider polygraph test results in ruling on a motion for a new trial when the prosecution and the defense have stipulated to their admissibility. <u>Healy v. Healy</u>, 397 N.W.2d 71 (N.D. 1986). In <u>State v. Newman</u>, 409 N.W.2d 79 (N.D. 1987), the Supreme Court held that the trial court did not abuse its discretion in excluding the results of polygraph tests where the defendant did not offer any evidence of reliability of polygraph tests. The Court of Appeals said, "Thus, our supreme court has consistently indicated that unless the parties stipulate to their admissibility, polygraph test results are inadmissible in criminal trial in this state, at least without evidence of the scientific reliability and acceptance of the results of polygraph examinations." Affirmed.

For a discussion of polygraph tests on the issue in <u>Berger</u>, see "Law Notes: Was He Driving?" <u>Polygraph</u> (1990) <u>19</u>(2), 147-149.

#### ощо

State v. Spirko, 59 Ohio St.3d 1, 570 N.E.2d 229 (1991)

Defendant was convicted of kidnapping and aggravated murder, and sentenced to death. Court of Appeals affirmed, and defendant appealed.

Defendant claimed evidence of polygraph examinations was improperly introduced and the lack of a curative instruction by the court violated his rights under the Fifth, Eighth, and Fourteenth Amendments to the U.S. Constitution and Articles I and II of the Ohio Constitution. In particular, the state failed to follow the procedure for admission of polygraph results required in <u>State v. Souel</u>, 53 Ohio St.2d 123, 7 0.0.3d 207, 372 N.E.2d 1318 (1978).

In one instance a Postal Inspector under cross-examination by defense stated that during his investigation he asked the defendant if he would be willing to submit to a polygraph examination. The defense counsel did not comment, and there was no evidence that the state attempted to enter the evidence or comment on it. The second instance was when a state's witness, during direct testimony, said that the defendant told him that he failed a polygraph examination because he lied to the postal inspectors regarding the murder. Defense did not object. On redirect the witness was asked about a polygraph test he had taken, then on recross-examination the defense brought out the results of that test, which indicated that he passed the test. The

third instance occurred when a Postal Inspector said that a suspect, John Willier, had agreed to take a polygraph examination to prove he had not committed the murder. The defense maintained Willier was the murderer, and this comment improperly strengthened his credibility.

The Supreme Court of Ohio said the prosecution did not bring out the results of any of the polygraph tests, that the effect of the statements for the prosecution were not prejudicial, and the defense could not invite error and later complain about its prejudicial effect. The Standards of <u>Souel</u> did not apply because polygraph results were not admitted. The complaints were without merit. Affirmed.

### <u>State v. Iascola</u>, 61 Ohio App.3d 228, 572 N.E.2d 717 (1991)

Defendant was convicted of rape and attempted rape, and he appealed. The Court of Appeals of Ohio, Franklin County, heard testimony on ineffective trial counsel. One of three complaints was that trial counsel was ineffective in stipulating to admission of complaining witness' polygraph test results, that he failed to object to introduction of the polygraph evidence when the state failed to establish a proper foundation for its admission, and failed to request cautionary instructions concerning the use of polygraph evidence by the jury as required by the Ohio Supreme Court.

Defendant was accused of two rapes and one attempted rape of his stepdaughter, when she was 13 years old. The step-daughter, who believed the defendant had murdered his mother, made these allegations of rape when she was 16-years-old. Prior to trial, defendant, defense counsel, and counsel for the state, entered into a stipulation permitting the step-daughter to undergo a polygraph test. The stipulation provided for the expert to testify as to the polygraph test results. The examiner testified that the stepdaughter was telling the truth regarding her allegations of rape. No charts were introduced, and the jury was not given instructions as to how they should consider the evidence.

To prove ineffectiveness of counsel, defense must show that counsel's performance was deficient, and that his errors were so serious that he was not functioning as the counsel guaranteed by the Sixth Amendment. Second, the defendant must show that the performance prejudiced his defense, that the errors were so serious as to deprive him of a fair trial whose result is reliable.

In regard to <u>State v. Souel</u>, 53 Ohio St.2d 123, 7 0.0.3d 207, 372 N.E.2d 1318 (1978), there are several standards that must be met to make polygraph tests admissible. <u>Souel</u> does not address the issue of a witness taking a test under stipulation, and neither the prosecution nor the defense cited cases on such a stipulation. Moreover, the appellate court could not find an Ohio decision on that issue, making it a case of first impression. In this case, the wording of the stipulation was odd, as it only permitted the state to use the results, and not the defendant. That such a stipulation was agreed to was unconscionable for both parties, said the Court. The Court left open the issue of whether or not stipulation could be entered into regarding a test of a witness. The Court held the defendant's counsel's

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action was deficient, and because the prosecution relied on the stepdaughter's testimony, despite other witnesses who contradicted her, the testimony was critical. The Court said there was a reasonable probability that without the results of the polygraph test and the expert's opinion, the outcome of the trial could have been different.

The Court added, assuming there may be circumstances where a stipulation as to a witness may be proper, at a minimum it must meet the requirements of <u>Souel</u>.

The Court noted further evidence of ineffectiveness in that when the examiner testified that he had not brought the charts to court, it was not pursued. <u>Souel</u> requires the admission of the charts and the examiner's opinion thereon on behalf of either defendant or the state. Not only was defense counsel negligent, but the trial court also disregarded the requirements set forth in <u>Souel</u>. The Court considered the lack of instructions to the jury by the trial court, which must say "That the examiner's testimony does not tend to prove or disprove any element of the crime with which the defendant is charged, and that it is for the jurors to determine what weight and effect such testimony should be given." The quotation is required by <u>Souel</u>, and defense counsel did not request it nor did it object to the lack of the instruction. Thus, the jury could rely solely on the polygraph results to determine the credibility of the complaining witness. The fail-ure of the trial court to give the charge constituted plain error.

For these and other reasons the defendant's assignments of error were sustained, the judgment of the trial court reversed, and the cause remanded for further proceedings.

### PENNSYLVANIA

Commonwealth v. Chester, 587 A.2d 1367 (Pa. 1991)

Defendants were convicted of first-degree murder, kidnapping, aggravated assault, unlawful restraint, false imprisonment, conspiracy, and possession of instruments of crime, and they were sentenced to death. Defendants appealed.

Defendant Laird claimed trial court error in its refusal to admit co-defendant Chester's refusal, upon submitting to a polygraph examination to answer the question, "Did you kill Anthony Milano?" Laird said Chester's refusal was relevant and probative of the identification of Milano's killer and should have been admitted for that purpose.

The Supreme Court of Pennsylvania said the argument must fail because the results of a polygraph examination are inadmissible for any purpose. <u>Commonwealth v. Gee</u>, 467 Pa. 123, 354 A.2d 875 (1976), <u>Commonwealth v.</u> <u>Brooks</u>, 454 Pa. 75, 309 A.2d 732 (1973). See, e.g., <u>Office of Disciplinary</u> <u>Counsel v. Wittmack</u>, 513 Pa. 609, 522 A.2d 522 (1987). <u>Upper Dublin Police Benevolent Association, et al., v. Upper Dublin Civil</u> <u>Service Commission, et al.</u> Court of Common Pleas of Montgomery County, Pennsylvania, No. 91-17526. December 11, 1991

A suit was filed by the plaintiffs to bar the use of a polygraph examination as one of the requirements for promotion to Sergeant.

The Court noted that the rules and regulations of the Upper Dublin Civil Service Commission contain a clause allowing for the use of the polygraph component in the promotional examination for the position of Patrol Sergeant, and that the only questions that may be asked during the polygraph examination must be derived from the Personnel Data Questionnaire, During pendency of the promotional examination the Court granted an injunction and barred the promotional examination. The Court, in a Finding and Order pursuant to the injunction found that the questions being asked during the polygraph examination went beyond the scope of the Personal Data Question-The Finding and Order found that questions based on the Personal naire. Data Questionnaire were proper. The promotional process was resumed. From 38 applicants, 20 were selected for additional processing involving an oral examination which would be added to the supervisor's ratings and the results of the written test. That was to be followed by the physical, psychological and polygraph examinations, which are pass/fail.

Plaintiffs alleged that the polygraph examination was unconstitutional, violating the First and Fifth Amendments, and the statutes of Pennsylvania. Plaintiffs also alleged that the polygraph examination was unfair, unpractical and illegal. The Court heard testimony from officers, a psychology professor, a polygraph examiner, and two commissioners.

The Court cited <u>Anderson v. City of Philadelphia</u>, 845 F.2d 1216 (3rd Cir. 1988) in which the Third Circuit Court reversed the District Court and stated: "We conclude that in the absence of a scientific consensus, reasonable law enforcement administrators may choose to include a polygraph requirement in their hiring process without offending the equal protection clause." The Montgomery County Court also found no violation of either due process or equal protection. The Court also found no merit in the Fifth Amendment claim since the results of polygraph examinations would not be used to bring criminal prosecution or discipline. The Court did not find the test illegal and did find that truthfulness is a measure of fitness for the rank of Patrol Sergeant. The Order of the Court denied the objections of the plaintiffs.

TEXAS

Tennard v. State, 802 S.W.2d 678 (Tex.Cr.App. 1990, en banc), rehearing denied.

Defendant was convicted of capital murder, and he appealed.

Defendant claimed that an unresponsive answer by a police officer revealed the existence and results of a polygraph examination administered

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to a previous suspect. The trial court sustained a challenged and instructed the jury to disregard the officer's answer, but denied the request for a mistrial. The existence and results of a polygraph examination are inadmissible in Texas for all purposes. <u>Netherly v. State</u>, 692 S.W.2d 686 (Tex.Cr.App. 1985), <u>Patterson v. State</u>, 247 S.W.2d 110 (Tex.Cr.App. 1951). Whether a mistrial in cases such as <u>Tennard</u> is required usually focuses on whether the results were revealed to the jury. However, despite the court's error, the Court of Criminal Appeals of Texas found that the error made no contribution to the verdict. Affirmed.

Russell v. State, 798 S.W.2d 632 (Tex.App. Fort Worth 1990)

Defendant was convicted of capital murder and he appealed.

Defendant said the trial court erred in not allowing his coursel to ask an accomplice-witness if he knew the defendant had passed a polygraph test before the witness agreed to plea bargain, and to ask the witness of his knowledge of defendant's cooperation with the state in taking a polygraph examination prior to the plea agreement.

The appellate court said that any reference to polygraph tests is improper even when test results are not disclosed. <u>Reed v. State</u>, 522 S.W.2d 466 (Tex.Crim.App. 1975). The court said the reference to the tests was impermissible and the refusal by the trial judge was correct.

Conviction affirmed.

\* \* \* \* \* \*
# FACTS ABOUT STATE POLICE POLYGRAPH EXAMS OF CRIMINAL DEFENDANTS

By

#### James A. Johnson, Jr., Esq.

As a lawyer, who specializes in conducting polygraph examinations on clients of lawyers under the umbrella of the attorney-client privilege, I am frequently asked about he use of polygraph by New England state police agencies.

All six New England state police agencies have polygraph examiners, who conduct polygraph examinations in connection with criminal investigation. For example, Vermont has three full time examiners. Connecticut has five full time examiners.

In 1989, the six New England states conducted a total of about 1,474 polygraph examinations of criminal defendants under rights advisement and 1,660 polygraph examinations of police applicants.

	Criminal Defendants	Police Applicants
Connecticut	354	1091
Maine	136	74
Massachusetts*	350	0
New Hampshire	150	205
Rhode Island*	200	0
Vermont**	284	290
	1474	1660

\*Note: The laws of Massachusetts and Rhode Island prohibit pre-employment polygraph examinations of police. \*\* Note: The Vermont State Police conduct polygraph exams on defendants represented by the Public Defenders Office. This is the only state which I am aware of that has this arrangement.

James A. Johnson, Jr., Esq. is a retired Lt.Col. USAF. He is a member of the APA and a practicing attorney. This article is reprinted with the permission of the author and the Maine Bar Journal, a publication of the Maine State Bar Association. <u>Maine Bar Journal</u>, Volume <u>6</u>, Number 5, September 1991. For reprints, write to the author at Nine Oakridge Drive, Londonderry, New Hampshire 03053.

James A. Johnson, Jr., Esq.

The percentage of criminal defendants, who passed a state police polygraph exam varies slightly from state to state. However, it is estimated that roughly 50 percent of defendants passed their exam. Thus, in 1989, about 737 criminal defendants passed polygraph examinations conducted by state police agencies in New England.

Regarding how prosecutors used the results of favorable polygraph exams, the chiefs of state polygraph offices reported that generally charges were not initiated or charges were dismissed.

Regarding criminal defendants, who fail an exam, additional interviews were conducted to obtain an explanation. If the defendant made an admission or confession, this information was admissible at trial. If an admission or confession was not obtained, naturally, the results of the polygraph were not admissible in a trial in accordance with the rules of evidence.

Although our judicial system is adversarial, the many years of state prosecutors considering their results of state polygraph exams along with other information to prosecute or not prosecute, allows defense lawyers an opportunity to utilize a state resource for the benefit of defendants who adamantly and truthfully claim no involvement in alleged crimes. As many criminal defendants lie to their lawyers, which would result in their failing a state exam, lawyers naturally must consider carefully whether or not to have a client polygraphed by the state.

# \* \* \* \* \* \*

# ABSTRACT

Theft and Gender

Ward, Davis A. and Beck, Wendy L. (1989) Gender and dishonesty. Journal of Social Psychology, <u>130</u>(3), 333-339.

Students were given an opportunity to cheat while grading their own examination. Actually, the examinations had already been graded, and the researchers compared the results of the original score and the score given by students. Of the 128 students who took the examination, 36 (28%) cheated. They also had a questionnaire about attitudes on cheating. The findings supported the view that female students needed excuses more than men in engaging in dishonest activity.

Requests for reprints should be sent to David A. Ward, Department of Sociology, Washington State University, Pullman, WA 99164-4020.

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#### AMERICANS WITH DISABILITIES ACT

### The Bill, Debate, Passage, and the Future

### A Bibliography

#### Compiled by

# Janet Kay Pumphrey

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### BOOK REVIEW

#### Detecting Deception: Winning the Polygraph Game

# Charles Clifton

# Paladin Press Boulder, Colorado

The author is not a polygraph examiner. However, he has done his homework by reading Lykken's book and quite a lot of other material, including the OTA report. The book has many trivial errors, but for a deceptive subject it is an easy to read guidebook on how to beat a control question test (CQT), a relevant-irrelevant test (RI) and a Guilty Knowledge Test (GKT). He makes it clear throughout the book that the polygraph test doesn't work, stating, "The polygraph exam itself is an inherently bad system based on a variety of bad techniques." He is critical of polygraph examiners, their training, and the techniques in use.

The countermeasure instruction is thorough. He explains CQT, RI and GKT test formats, control question theory , and has fill-in exercises to train the reader to recognize the control, relevant, and irrelevant questions. To beat a control question he explains how the subject must create large reactions to control questions by pushing toes against the floor or a tack, by biting the tongue, or shifting in the chair. He notes the use of movement detecting devices in chairs and says they don't detect toe pressing. For RI tests he suggests creating reactions to an area of little concern to avoid discussion of an area that is troublesome. He suggests elevating responses randomly for RI and GKT formats. However, for the innocent he suggests they do nothing during the GKT test. The author also suggests cognitive ploys such as dissociating during relevant questions, rationalizing the meaning of relevant questions, and suggests that biofeedback is promising but the cost of equipment and training is expensive. He wasn't sure about the utility of hypnotic amnesia. He explains why the subject should be skeptical as prominent psychologists say belief in the machine is necessary for it to work. Against the RI he stresses that belief it doesn't work is necessary. Clifton also suggests use of antiperspirant on the fingertips to prevent good electrode contact, but recommends against glue as it is too easy to detect.

After a disclaimer about recommending drugs, the author suggests that the use of any one of several prescription drugs will suppress reactions. He gives the generic and trade names, time of onset, length of influence, and side effects of tranquilizers such as Valium and Librium, and beta-blockers such as Inderal. Clifton notes that drugs will flatten responses but comments that they are not altogether promising and that one authority on countermeasures asserts that it is not wise to take drugs at a time when you need your wits about you.

To beat the examiner he explains the halo effect, and tells subjects to dress neatly, be on time, bring conservative reading material such as the <u>Wall Street Journal</u> to read in the waiting room, to be friendly, and use a

### Book Review

little flattery, but not too much. He tells the subject that it doesn't pay to argue, rather express confidence that they will pass the test, and to use their knowledge of countermeasures.

If the subject fails the test, the author suggests they take other tests. Clifton states, "If you've been judged deceptive three times, keep looking and you'll almost certainly be able to find three examiners who will vouch for your truthfulness." The subject who fails is warned to never confess, as it is the confession that trips people up. He also suggests that the subject ask for a copy of the report, and perhaps, ask the examiner for the name of his attorney.

In a chapter on "other abuses" he denigrates paper and pencil tests, kinesiology, graphology, PSE, brain wave analysis, and the Quick Phone Test. To examiners familiar with countermeasures, the book offers nothing new.

The book is 145 pages, softcover, and may be ordered from Paladin Enterprises, Inc., P.O. Box 1307, Boulder, Colorado 80306. The price is unstated.

\* \* \* \* \* \*

# PUBLICATIONS AVAILABLE:

The Lie Detector Test by William Moulton Marston, 1989 reprint of the 1938 edition. Reprinted by permission, this volumes consists of twelve chapters of the history of the polygraph including "The High Cost of Lying," "The 6000-Year Search for a Truth Test," "Practical Suggestions on Lie Detector Technique," and "Tomorrow and the Day After." APA Members: \$13.95 and Non-Members: \$17.95 postpaid.

The Accuracy and Utility of Polygraph Testing, a reprint, 1984. Prepared for the Department of Defense, Washington, D.C., 1984. This is an analysis of the scientific literature on the accuracy of the polygraph with supporting information on use and utility. APA Members: \$7.00 and Non-Members \$8.00.

The Employee Polygraph Protection Act: A Manual for Polygraph Examiners and Employers by F. Lee Bailey, Roger E. Zuckerman, and Kenneth R. Pierce. The book gives step-by-step instructions on how to conduct polygraph examinations in compliance with the law. This book covers issues that will confront an examiner who conducts specific issue tests for companies, or tests applicants and employees for businesses which have exemptions. APA Members: \$10.00 and Non-Members: \$25.00.

Order APA Publications from P.O. Box 1061, Severna Park, MD 21146. Make checks payable to "American Polygraph Association" and all costs are U.S. currency.

\* \* \* \* \* \*

# A. R. LURIA: MOTOR REACTIONS AND LIE DETECTION IN THE 1920s

By

### Norm Ansley

Some time after 1923, when A.R. Luria was 24-years-old, he arrived in Moscow to work at the Moscow Institute of Psychology. His work involved projects that built on his experience with motor reactions. There was a theory held by the Institute's Director, S. Kornalov, that there was a finite amount of energy available for a task, and that mental effort and physical effort competed for the use of energy. Thus, increased mental effort would interrupt or distort motor activity. This appeared to be true in Luria's laboratory work. Using Jung's work on word-association, subjects were directed to engage in a motor project response simultaneously with each verbal associative response. (Jung, 1905, 1910) This project began an intensive period of research that lasted many years.

Working with Alexei N. Leontiev, their experimental procedure was as follows: A research assistant told a story to several subjects about a thief who broke into a church by climbing through a window and who then stole a golden candle stick, an icon, and a crucifix. Those subjects and others who did not know the story were given tests in which they were asked to respond to a list of about seventy words. Ten of the words were critical to the story. While giving associative words in response the subjects also squeezed a bulb with their right hand. The object was to determine which subjects knew the story, from the combined record of motor and verbal responses to the critical words. Luria said the laboratory model was quite successful, and later applications were in the criminal justice system.

Luria subsequently studied actual or suspected criminals. He believed that if he knew the details of the crime, the details could be used as the critical stimuli in the combined motor test, and from the test results determine who was guilty. During several years of study they collected data on more than fifty subjects, most suspected of murder.

They found that "strong emotions prevent a subject from forming stable automatic motor and speech responses ... It appeared as if subjects influenced by strong emotions adapted to each situation in a unique way and did not settle into a stable reaction pattern." Luria said the work was of "practical value to criminologists, providing them with an early model of the lie detector." (Luria 1979)

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### DEFENSE FUNDING FOR SECURITY RESEARCH STILL AVAILABLE IN 1992

The Defense Personnel Security Research Center continues to fund (through the Office of Naval Research) research addressing issues pertinent to the National Industrial Security Program (NISP) and personnel security. The areas covered by this funding program include polygraph, financial and credit candidate screening and crime detection procedures, prescreening, background investigation, adjudication, continuing assessment, employee assistance program, security awareness, security education, and NISP research.

Participation is sought from graduate students and from scientists, faculty, and practitioners at U.S. financial, research, business, governmental, and educational institutions. The maximum award for masters degree thesis awards is \$3,000.00, for dissertation grants is \$10,000.00, and for institutional awards is \$20,000.00 per project.

For additional information contact Roger Denk, Director, Defense Personnel Security Research Center, 99 Pacific Street, Bldg. 455-E, Monterey, CA 93940-2481. Please enclose a self-addressed label and request a copy of the program description pamphlet.

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