

Polygraph

VOLUME 26

1997

NUMBER 4

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Published Quarterly

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P.O. Box 794, Severna Park, Maryland 21146-8794

THE VALIDITY AND RELIABILITY OF POLYGRAPH TESTING

Abstract

This is a compendium of research studies on the validity and reliability of polygraph testing. The 80 research projects listed here, published since 1980, involved 6,380 polygraph examinations or sets of charts from examinations. Researchers conducted 12 studies of the validity of field examinations, following 2,174 field examinations, providing an average accuracy of 98%. Researchers conducted 11 studies involving the reliability of independent analyses of 1,609 sets of charts from field examinations confirmed by independent evidence, providing an average accuracy of 92%. Researchers conducted 41 studies involving the accuracy of 1,787 laboratory simulations of polygraph examinations, producing an average accuracy of 80%. Researchers conducted 16 studies involving the reliability of independent analyses of 810 sets of charts from laboratory simulations producing an average accuracy of 81%. Tables list the authors and years of the research projects, which are identified fully in the References Cited. Surveys and novel methods of testing are mentioned.

Introduction

The American Polygraph Association believes that scientific evidence supports the high validity of polygraph examinations. Thus, such examinations have great probative value and utility for various uses in the criminal justice system. However, a valid examination requires a combination of a properly trained examiner, a polygraph instrument that records as a minimum cardiovascular, respiratory, and electrodermal activity, and the proper administration of an accepted testing procedure and scoring system.

This paper was prepared for the American Polygraph Association by Forensic Research, Inc. of Severna Park, Maryland. ©- American Polygraph Association, 1997.

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The Validity and Reliability of Polygraph Testing

Since the early 1970s, the APA has operated a school accreditation program for basic training, with standards for instructors, specialists (physiologists, psychologists, attorneys, etc.), course content by hours, instruments in use, library materials, and teaching facilities. Today, the federal courses of Canada and the United States, and most commercial and university programs are participating in this program. Advanced and specialized training is provided by the APA, the Federal School, and university seminars of one week in length; shorter seminars are provided by the APA and its affiliated international, regional, and state associations. Federal polygraph programs require minimum training standards for basic and advanced polygraph certification, and many states have licensing requirements of the same type. Those who employ examiners or use polygraph services should be certain their examiner is a graduate of an APA accredited basic course and that the examiner has regularly participated in continuing education programs. The APA has established minimum standards for instruments and such instruments should be used in field examinations. When conducting examinations for the criminal justice system, examiners should also use only accepted test formats with their associated pretest, test question sequence, and scoring methodology.

Polygraph examination results are widely accepted in the investigation of crime and the selection of law enforcement personnel. There has been and continues to be much debate about the admissibility of polygraph test results in criminal and civil trials. Recent court decisions are, however, favorable. Polygraph test results also are becoming widely used in the supervision of parolees and in the treatment of sex offenders.

Beginning in 1935, examiners testified in some courts about the truthfulness or deception of defendants; and then as now validity is one of the issues raised in the controversy about admissibility. But, the rules for admissibility vary considerably among jurisdictions, with the most common method involving a stipulation by all parties to the admissibility of the polygraph results at trial. Admissibility in courts in the United States has been restricted by the 1923 *Frye* rule on scientific evidence. However, all federal jurisdictions and the 24 states that employ the Federal Rules of Evidence are reevaluating admissibility of polygraph results in light of the 1993 Supreme Court decision of *Daubert v. Merrell Dow Pharmaceuticals*. The trend appears to be one of greater admissibility. It also appears that courts are setting standards for admissibility, standards that are often taken from APA publications.

This paper addresses the scientific evidence regarding one of the principal components of the ongoing debate about polygraph examinations, their validity.

VALIDITY - AN OVERVIEW

It has been over one hundred years since Cesare Lombroso (1895) published his studies on the criminal man, which included the use of a hydrosphygmograph (blood volume/pressure and heart rate) to determine truth or deception in real cases. Since Lombroso's pioneering work three channels of ongoing physiological processes have emerged as the most useful measures for detecting deception: cardiovascular (blood volume/pressure, heart rate), electrodermal (resistance or conductance), and respiration (abdominal and thoracic). During the last one hundred years the instruments have improved, a number of standard test formats have been developed and evaluated, and basic and specialized training courses have been established. There is an international accreditation program for basic courses; there are certification programs attesting to continuing education; a body of scientific literature exists; organizations of polygraph examiners and licensing boards encourage good practice; and guard against malpractice; and there are established research programs in the United States and abroad. Polygraph testing or psychophysiological detection of deception (PDD), is used widely in the United States, Canada, Korea, Japan, Israel, and Turkey, and to some extent in more than a dozen other nations. Extensive studies of the polygraph technique have been carried on for many years in the United States, Canada, Israel, and Japan. Results have been published in over fifty journals, with one journal, *Polygraph*, devoted entirely to the topic. In addition to published research, there are a large number of unpublished studies circulated among researchers. Many of the published and unpublished papers are available through the American Polygraph Association's Research Center at Michigan State University, the APA National Office, and the U.S. Department of Defense Polygraph Institute.

Solving crime has been the principal use for polygraph testing. These examinations are usually conducted with suspects, but sometimes with witnesses and victims when their stories are doubtful. Polygraph testing is also widely used in the United States for screening applicants for law enforcement positions (Meesig & Horvath 1995), for persons applying for access to classified information (Department of Defense Polygraph Program Report 1994), and for a limited number of civilian occupations. There is a growing body of practice involving testing persons on parole and probation (Riegel 1974) and diversionary programs (Williams, Morrison & Terrell 1993). Polygraph testing is now used in sex offender therapy (Abrams, Hoyt & Jewell 1991, Matzke 1987) and sex offender probation (Abrams & Ogard 1986).

Validity

How valid are these tests? How accurate are examiners at detecting deception and supporting truthful statements? The only practical way to determine accuracy has been to follow up on real cases where the examination was one in which the examinee's deception was confirmed by confession or the examinee's truthfulness was confirmed by someone else's confession. The average accuracy for such studies, conducted since 1980, has been 98%. See Table 1. Post-1980 studies were used because earlier studies more often involved instruments without amplifiers, non-standard examination formats, and examiners with little training. That is also true of a few studies after 1980. Also, the inconclusive decisions were deleted, as that decision does not affect validity, only utility. An examination format that has a high inconclusive rate, or is not applicable in most cases, has little utility, regardless of its validity.

The Validity and Reliability of Polygraph Testing

Another method to establish validity in field examinations was attempted twice (Barland 1975, Bersh 1969). Researchers took the files of criminal cases, removed the polygraph examination reports, and gave the files to panels of attorneys. When the panel agreed on guilt or innocence on the evidence in the file, the polygraph examination was compared with the panel decisions. All disagreements were considered polygraph errors. In the Barland study the panel and examiner agreed in 85% of the cases, and in the Bersh study they agreed in 92% of the cases. The panel method could be improved by establishing the validity of the panels' judgment by including some confession confirmed cases of guilt and innocence among the cases, with the confessions removed. Then the panel validity could be considered in computing the polygraph accuracy. When this was tried, panel results were not accurate enough to use (Dohm & Iacono).

Table 1

Field Validity Studies, Since 1980
12 Studies, 2,174 Cases
(From Table A1)

Examiner Decisions	No Deception Indicated	Deception Indicated	Totals
Average Results	96%	98%	98%
Highest Study Results	100%	100%	100%
Lowest Study Results	50%*	95%	95%

*This report involved only two confirmed truthful persons, one decision in error. The next lowest result was 86%, for NDI cases.

Reliability

Reliability is the consistency of results obtained from a series of tests. No data on repeated tests is available from field assessments. However, there are data about internal consistency of field tests, how frequently each pair of relevant and control questions are correct (Capps & Ansley 1992 a, b) and how accurate each chart is in a set of field charts (Capps & Ansley 1992 c). But that does not tell what complete reliability is. Repeated testing of the same persons has been done only in simulated examinations, and only three studies have been reported (Balloun & Holmes 1979, Grimsley & Yankee 1985, Yankee & Grimsley 1986).

A partial measure of reliability from field tests has been obtained by having polygraph examiners analyze charts from confirmed cases of truth or deception, and depriving them of all other information on the case, even the wording of the questions. They know only the test format. Presumably, the examiners are trained and experienced in that format and apply an appropriate analytic system. Since 1980, eleven studies of that type have been reported. The average reliability is 92%. See Table 2. For more details on these studies, see Appendix A.

Table 2

Independent Analyses of Charts, Since 1980
11 Studies, 1,609 Sets of Charts, Inconclusives Deleted
(From Table A2)

	Reviewer Decisions		Totals
	No Deception Indicated	Deception Indicated	
Average Results	90%	95%	92%
Highest Study Results	100%	100%	100%
Lowest Study Results	55%	77%	77%

Notes: One study of 255 sets of charts had only totals, no breakdown of NDI and DI. The study with 55% for NDI had 98% for DI, average 86%. The study with 77% for DI also had 77% for NDI.

Laboratory Simulations

The advantage of laboratory simulations is that truthful roles and deceptive roles can be established with certainty and other aspects of the tests can be manipulated. The disadvantage is that examinees know it is only a simulated examination and there is little psychological arousal, as lying has no adverse consequences. Artificial means of obtaining physiological arousal have been only marginally successful. There is one exceptional study in which the examinees believed the situation was real, and so did the examiners who conducted the tests (Ginton, Daie, Elaad & Ben Shakhar, 1982). There have been two others where the examinees believed the situation was real, but the examiners knew it was not (Balloun & Holmes, 1979, Heckel, Brokaw, Salzberg & Wiggins, 1962). Nonetheless, laboratory simulations are useful because we can try variations in testing and scoring, and novel equipment, without putting real tests at risk. There are 41 studies since 1980 in which the laboratory studies simulated field examinations. They involved 1,787 examinations. The average accuracy is 80%. See Table 3. For more information on these studies, see Appendix B.

There are enough studies that we can obtain some data on accuracy by test types. The control question tests used for specific issue testing; the peak of tension and guilty knowledge tests used to determine if the examinee recognizes some name, number or fact known only to the guilty; and the screening tests used in applicant examinations in which there are often many issues. The accuracy of control question tests, simulated in a laboratory is 82%, the simulated peak of tension and guilty knowledge tests 75%, and the simulated screening tests, 78%. See Table 4. For more information see Appendix B.

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Table 3

Laboratory Simulations, Since 1980
41 Studies, 1,787 Simulated Examinations
(From Table B3)

Examiner Decisions	No Deception Indicated	Deception Indicated	Totals
Average Results	83%	75%	80%
Highest Study Results	100%	100%	100%
Lowest Study Results	45%	57%	64%

Notes: One study of 94 simulated tests did not break down results into NDI and DI. Three studies of peak of tension (POT) or guilty knowledge test (GKT) did not program NDI subjects. In POT/GKT tests chance is 20% or lower, and the worst study results above were from these tests, indicating total results above chance.

Table 4

Laboratory Simulations, Results By Test Type, Since 1980
41 Studies, 1,787 Simulated Examinations
(From Tables B3, B4, B5)

Test Format	No Deception Indicated	Deception Indicated	Totals
Control Question Tests	83%	82%	82%
Peak of Tension/GKT	95%	72%	75%
Screening Tests	81%	75%	78%

Notes: Screening tests included Relevant-Irrelevant and control question formats. In a screening test if an error is made to one of the several issues, the whole test is considered in error. In POT/GKT test formats chance is usually 20%, or lower.

Reliability of Laboratory Simulations

Since 1980, only two studies have investigated the effect of repeated tests of the same subjects, one involving specific issue testing (Yankee & Grimsley, 1986) and one simulating screening (Grimsley & Yankee, 1985). See Appendix B. Using independent analyses of sets of charts from laboratory simulations, researchers have produced 16 studies since 1980. The studies included 810 sets of charts. The average accuracy is 81%. (See Table 5). For more information, see Appendix B.

Table 5

Independent Analyses of Simulation Charts, Since 1980
16 Studies, 810 Sets of Charts
(From Table B6)

Reviewer Decisions	No Deception Indicated	Deception Indicated	Totals
Average Results	81%	83%	81%
Highest Results	100%	95%	94%
Lowest Results	47%	45%	66%

Note: The lowest result figures came from separate studies.

Surveys

Although there are numerous surveys of scientists, examiners, examinees and others relating to polygraph testing, only two are important to the field. The Department of Defense and some other organizations refer to their polygraph examiners as "forensic psychophysiologicals," and some say that the field's scientific home is in psychophysiology. There is an organization of such scientists, the Society for Psychophysiological Research (SPR). Few examiners belong to the Society, but much of the laboratory research on lie detection is performed by a few of its members.

In 1984, the Gallup Organization surveyed members of the SPR and asked them to rate their opinion of polygraph usefulness on a six-point scale from sole determinant to not useful. The results were: sole determinant, 0.6% (n. 1); useful diagnostic tool, 60.6% (n. 94), between that and the third choice, 1.9% (n. 3); of questionable usefulness, 32.3% (n. 50); not useful, 2.6% (n. 4); and no opinion, 1.9% (n. 3). In 1993, Amato and Honts asked SPR members similar questions in a survey, and got similar results. Over half the scientists thought polygraph testing was a useful tool; attitudes had not changed in the intervening years.

Novel Methods

A number of novel methods of detection of deception have been the subject of research, and some have reached field practice. One measure, microtremors in the voice, has been the topic of extensive research. Despite very poor results in well controlled laboratory and field studies, several instruments have been marketed over the years purporting to detect deception with voice tremors. Because there may be elements of voice that will reveal deception, research continues to be performed. (Cestaro 1996, Cestaro & Dollins, 1996). It is quite beyond the scope of this paper to describe the research and results.

The eye has also been investigated as a means of detecting deception, sometimes with considerable laboratory success. Researchers have studied pupillometry, lateral eye movement, and

eyeblick, with pupillometry being the most promising. Practical methods of recording and analyzing pupil responses has inhibited field application.

The central nervous system has always seemed to be the logical place to search for indicators of deception. However, the signals from the brain are faint, and recording them is difficult. The many improvements in recording led to serious attempts to use evoked potentials in detecting deception. The method was pursued in laboratories in the United States and Japan, with some laboratory success with the guilty knowledge format. However, when the Japanese perfected the methodology to the point of using it with criminal cases, in addition to standard polygraph tests, they found the method very good at supporting truth, but unreliable in detecting deception, with a large percentage of false negatives. There may be some way to correct this flaw, but there appears to be a cessation of research on this approach.

One variation on traditional polygraph testing needs to be mentioned. The development and marketing of computerized instruments have allowed scientists to develop algorithms to analyze digitized polygraph charts and produce results giving a probability of truth or deception. Several algorithms have been produced, and the only one now frequently used in the field is produced and sold by the Johns Hopkins University Applied Physics Laboratory. Based on log regression analysis, and designed with a large number of confirmed criminal cases, initial reports indicate high accuracy. Additional algorithms have been under development at San Jose State University and the Claremont Graduate Schools. The research now in progress involves devising algorithms to accommodate the variety of test formats available.

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APPENDIX A

TABLE A1

Validity Of Field Examinations Since 1980

Authors, Year	Technique	NDI			DI			Total		
		no.	correct	%	no.	correct	%	no.	correct	%
Arellano 1990	Zone	18	18	100	22	22	100	40	40	100
Capps, Knill & Evans, 1993	Zone	2	1	50	36	36	100	38	37	97
Edwards 1981	Zone (most)	363	356	98	598	587	98	959	943	98
Elaad & Schahar 1985	Reid & Zone	100	95	95	74	73	99	174	168	97
Mason 1991	Zone	1	1	100	86	86	100	87	87	100
Matte & Reuss 1989	Zone	53	53	100	62	62	100	115	115	100
Murray (1989)	Arthur	21	18	86	150	150	100	171	168	98
Patrick & Iacono (1987)	Zone	30	27	90	51	51	100	81	78	98
Putnam (1994)	Zone & MGQT	65	62	95	220	219	99	285	281	99

Table A1 (cont.):

Raskin <i>et al.</i> (1985)	CQT	28	27	96	57	54	95	85	81	95
Widacki* (1982)	Zone	-	-	-	-	-	-	38	35	89
Yamamura & Miyake	POT	65	61	94	30	24	80	95	85	89
		—	—		—	—		—	—	
		746	719	96%	1384	1364	98%	2174	2122	98%

* No data on NDI and DI

APPENDIX A

TABLE A2

Independent Analyses of Field Charts Since 1980

Authors, Year	Technique	NDI			DI			Total		
		no.	correct	%	no.	correct	%	no.	correct	%
Arellano (1990)	Zone	18	18	100	22	22	100	40	40	100
Buckley & Senese (1991)	Reid	143	121	85	163	150	92	306	271	89
Capps & Ansley (1992)	Zone	143	135	95	229	226	99	372	361	97
Elaad (1985)	CQT numerical	30	23	77	30	23	77	60	46	77
Elaad (1985)	CQT global	30	27	90	30	23	77	60	50	83
Elaad & Kleiner (1985)	CQT	33	30	91	33	27	82	66	57	86
Franz (1989)	Reid	34	33	97	47	47	100	81	80	99
Matte & Reuss (1989)	Zone	106	106	100	124	124	100	230	230	100
Patrick & Iacono (1987)	Zone	20	11	55	49	48	98	69	59	86

		Table 2a (cont.):								
Raskin <i>et al.</i> (1985)	CQT	22	19	86	48	45	94	70	64	91
Ryan* (1989)	Reid	-	-	-	-	-	-	255	218	85
		—	—		—	—		—	—	
		579	523	90%	775	735	95%	1609	1476	92%

* No Data on NDI and DI

Table 2a (cont.):

Raskin <i>et al.</i> (1985)	CQT	22	19	86	48	45	94	70	64	91
Ryan* (1989)	Reid	-	-	-	-	-	-	255	218	85
		—	—		—	—		—	—	
		579	523	90%	775	735	95%	1609	1476	92%

* No Data on NDI and DI

APPENDIX B

TABLE B3

Simulated Control Question Test Studies Since 1980

Authors, year	Technique	NDI			DI			Total		
		no.	correct	%	no.	correct	%	no.	correct	%
Barland & Honts (1990)	Zone	18	14	78	19	14	74	37	28	76
Bradley & Ainsworth (1984)	Zone	7	6	86	28	22	79	35	28	80
Bradley, Cullen & Carle (Police) (1996)	Zone	15	15	100	11	9	82	26	24	92
Bradley, Cullen & Carle (Psychophysiologists) (1996)	Zone	21	17	81	19	17	89	40	34	85
Crowe, Chimarys & Schwartz	CQT	7	7	100	7	6	86	14	13	93
Dawson (1980)	Zone	12	9	75	12	12	100	24	21	87
Driscoll, Honts & Jones (1987)	PCQT	13	13	100	9	7	78	22	20	91
Forman & McCauley (1986)	Zone	15	7	47	17	14	82	32	21	66

Table B3 (cont.):

Forman & McCauley (1986)	PCQT	13	10	77	19	13	68	32	23	72
Gatchel, Smith & Kaplan (1983)	CQT	5	4	80	3	3	100	8	7	87
Ginton <i>et al.</i> (1982)	Zone	13	11	85	2	2	100	15	13	87
Honts (1982)	CQT	10	4	40	6	5	83	16	9	56
Honts (1986)	CQT	17	15	88	18	14	78	35	29	83
Honts (1991)	CSP	57	51	89	50	29	58	107	80	75
Honts & Barland (1990)	MGQT	29	18	62	42	38	90	71	56	79
Honts, Barland & Barger* (1989)	CQT	-	-	-	-	-	-	94	78	93
Jones & Salter (1989)	MGQT	5	5	100	3	3	100	8	8	100
Palmatier* (1991)	MGQT Excl.	-	-	-	-	-	-	49	37	76
Palmatier* (1991)	MGQT Incl.	-	-	-	-	-	-	434	33	77

Table B3 (cont.):

Patrick & Iacono (1989)	CQT	12	7	58	12	11	92	24	18	75
Podlesny & Truslow (1993)	MGQT	22	16	73	66	61	92	88	77	87
Yankee & Grimsley (1986) 1st day	Zone	30	30	100	30	26	87	60	56	93
Yankee & Grimsley (1986) 2nd day	Zone	27	26	96	22	16	73	49	42	86
		—	—		—	—		—	—	
		366	303	83%	413	340	82%	965	791	82%

* No data on NDI and DI.

APPENDIX B

TABLE B4

Simulated Peak of Tension and Guilty Knowledge Test Studies Since 1980

Authors, year	Technique	NDI			DI			Total		
		no.	correct	%	no.	correct	%	no.	correct	%
Barland (1984)	POT	—	—	—	20	15	75	20	15	75
Barland (1984)	GKT	—	—	—	20	19	95	20	19	95
Bradley & Ainsworth (1984)	GKT	8	8	100	32	30	94	40	38	95
Forman & McCauley (1986)	GKT	16	16	100	20	9	45	36	25	69
Diaz (1985)	GKT	-	-	-	120	77	64	120	77	64
Jones & Salter (1989)	POT	5	5	100	3	3	100	8	8	100
Konieczny <i>et al.</i> (1984)	POT	15	12	80	15	12	80	30	24	80
		—	—		—	—		—	—	
		44	41	95%	230	165	72%	274	206	75%
Add Table B3		<u>366</u>	<u>303</u>		<u>413</u>	<u>340</u>		<u>965</u>	<u>791</u>	
		410	344	84%	643	505	79%	1239	997	80%

APPENDIX B

TABLE B5

Authors, year	Technique	Simulated Screening Techniques								
		no.	NDI correct	%	no.	DI correct	%	no.	Total correct	%
Barland (numerical) (1981)	Zone	21	16	76	26	21	81	47	37	79
Barland (greatest) (1981)	Zone	24	20	83	22	15	68	46	35	76
Barland (global) (1981)	Zone	25	19	76	28	25	86	53	44	83
Correa & Adams (1981)	RI	20	20	100	20	20	100	40	40	100
Grimsley & Yankee (1985)	RI	10	5	50	19	16	84	29	21	72
Grimsley & Yankee (1985) (mode of answer)	RI	11	5	45	19	19	100	30	24	80
Grimsley & Yankee (1986) 1st Test	RI	43	35	81	25	18	72	68	53	78
Grimsley & Yankee (1986) 2nd Test	RI	40	32	80	24	15	63	64	47	73
Grimsley & Yankee (1986) 3rd Test	RI	42	35	83	22	14	64	64	49	77

		Table B5 (cont.):								
Honts	CSP	57	51	89	50	29	58	107	80	75
		—	—		—	—		—	—	
		293	238	81	255	192	75	548	430	78
Add Tables B3 and B4		<u>410</u>	<u>344</u>		<u>643</u>	<u>505</u>		<u>1239</u>	<u>997</u>	
		703	582	83%	898	697	78%	1787	1427	80%

APPENDIX B

TABLE B6

Independent Analyses of Simulated Test Charts Since 1980

Authors, year	Technique	NDI			DI			Total		
		no.	correct	%	no.	correct	%	No	correct	%
Barland (numerical) (1981)	Zone	21	16	76	26	21	81	47	37	79
Barland (greatest control) (1981)	Zone	24	20	83	22	15	68	46	35	76
Barland (global) (1981)	Zone	25	19	76	28	25	86	53	44	83
Forman & McCauley (1986)	Zone	15	7	47	17	14	82	32	21	66
Forman & McCauley (1986)	PCQT	16	15	94	20	9	45	36	24	56
Honts (1982)	CQT	4	4	100	8	6	75	12	10	83
Honts (1986)	CQT	18	15	83	13	11	85	31	26	84
Honts & Carlton (1990)	Zone	23	20	87	23	19	83	46	39	85
Honts & Driscoll (numerical) (1987)	Zone	23	20	87	22	19	86	45	39	87

Table B6 (cont.):

Honts & Driscoll (rank order) (1987)	Zone	21	18	86	20	19	95	41	37	90
Horvath (inclusive control) (1988)	Reid	20	17	85	19	17	89	39	34	87
Horvath (exclusive control) (1988)	Reid	20	13	65	19	15	79	39	28	72
Kircher & Raskin (1988)	Zone	46	43	93	47	44	94	93	87	94
Palmatier (inclusive)* (1991)	MGQT	-	-	-	-	-	-	55	46	84
Palmatier (exclusive)* (1991)	MGQT	-	-	-	-	-	-	44	27	61
Patrick & Iacono	CQT	10	5	50	11	10	91	21	15	71
		—	—		—	—		—	—	
		398	323	81%	313	260	83%	810	656	81%

* No data on NDI and DI.

DEPARTMENT OF DEFENSE POLYGRAPH PROGRAM

Annual Report to Congress for Fiscal Year 1996

Abstract

The Department of Defense (DoD) uses the polygraph in criminal investigations, counterintelligence cases, foreign intelligence and counterintelligence operations, and exculpation requests. This report contains numerous examples of polygraph utility in resolving counterintelligence and security issues as well as criminal investigations. The polygraph is clearly one of our most effective investigative tools.

About 63 percent of our polygraph examinations are conducted as a condition for access to certain positions or information under the DoD Counterintelligence-Scope Polygraph (CSP) program. The purpose of the CSP Program is to deter and detect activity involving espionage, sabotage, and terrorism. In Fiscal Year 1996, the Department proposed changes to the CSP Program which will reduce the intrusiveness of polygraph screening examinations while providing maximum standardization and ensuring reciprocity within the Intelligence Community. The Department also implemented some new initiatives increasing the continuing education requirement for polygraph examiners, providing a quality control assurance program, expanding our information databases and increasing our use of computer-based and off-site training to reduce travel costs.

The Department conducts CSP examinations on military personnel, DoD civilian employees, and DoD contractor personnel. Of the 7,945 individuals examined under the CSP Program in Fiscal Year 1996, 7,770 showed no significant physiological response to the relevant questions (non-deceptive) and provided no substantive information. The remaining 175 individuals yielded significant physiological responses, or were evaluated as inconclusive and/or provided substantive information. Of these 175 individuals, 161 received a favorable adjudication, four are still pending adjudication, nine are pending investigation, and one individual received adverse action denying or withholding access.

The Department of Defense Polygraph Institute trains all federal polygraph examiners. The basic polygraph courses are taught at the Masters Degree level. The Institute also offers specialized courses in forensic psychophysiology through their continuing education program. In addition, the Institute conducts on-going evaluations of the validity of polygraph techniques used by the Department as well as research on new polygraph techniques, instrumentation, analytic methods, and polygraph countermeasures. The DoD research program is authorized by Public Law 100-180.

DOD USE OF POLYGRAPH EXAMINATIONS

The Department of Defense has used the polygraph for almost half a century. It is used in criminal investigations, counterintelligence cases, foreign intelligence and counterintelligence operations, exculpation requests, and as a condition for access to certain positions or information. The polygraph is a tool that enhances the interview and interrogation process. Often it is the only investigative technique capable of providing essential information to resolve national security issues and criminal investigations. The use of the polygraph as a condition for access is limited by a statutory quota for Counterintelligence-Scope Polygraph (CSP) examinations.

The following table reflects Department of Defense Polygraph program statistics for fiscal year 1996.

Criminal	2,696	21.5%
Exculpatory	579	4.6%
CI Scope	7,945	63.3%
All Others*	1,328	10.6%
Total**	12,548	100%

* Includes examinations conducted in support of personnel security investigations, counterintelligence and intelligence operations, and polygraph assistance to non-DoD federal agencies.

** Does not include polygraph examinations conducted by the National Security Agency (NSA). A breakout of polygraph examinations conducted by NSA is contained in a classified table submitted with this report. Nor does it include polygraph examinations conducted by the National Reconnaissance Office, which are conducted under the authority of the Director of Central Intelligence (DCI).

FISCAL YEAR 1996 COUNTERINTELLIGENCE-SCOPE POLYGRAPH EXAMINATIONS

Section 1121 of the National Defense Authorization Act for Fiscal Years 1988 and 1989 (Public Law 100-180, December 4, 1987; 101 Stat. At 1147) authorizes the Department of Defense to conduct Counterintelligence-Scope Polygraph (CSP) examinations as a condition for access to certain information.

The purpose of the CSP Program is to deter and detect espionage, sabotage, and terrorism. The following topics are covered during the CSP examination: (1) Involvement with a foreign intelligence/security service, involvement in espionage; (2) Involvement in terrorism; (3) Unauthorized foreign contacts; (4) Deliberate failure to protect classified information; and (5) Damaging/sabotaging government information systems, clandestine collection, or defense systems. These CSP topics meet the needs of both DoD and the Intelligence Community facilitating the transfer of security clearances.

Department of Defense Polygraph Program Annual Report Fiscal Year 1996

In Fiscal Year 1996, the Department continued its policy review of the CSP Program. As a result of our review, procedures have been modified to reduce the intrusiveness of CSP examinations, increase their standardization, and maximize reciprocity within the Intelligence Community. Also, there increased emphasis on aperiodic, rather than periodic, examinations, which provide a greater deterrent while requiring fewer examinations. In addition, the Department has implemented new initiatives increasing the continuing education requirements for polygraph examiners, providing a quality control assurance program, expanding our information database, and increasing our use of computer-based and off-site training to reduce travel costs.

Public Law 100-180 authorizes the Department of Defense to administer CSP examinations to persons whose duties involve access to information that has been classified at the level of top secret or designated as being within a special access program under section 4.2(a) of Executive Order 12356 (superseded by Executive Order 12958). This includes military and civilian personnel of the Department and personnel of defense contractors. The number of CSP examinations has been limited to 5,000 per fiscal year since Fiscal Year 1991. During Fiscal Years 1988 through 1990 the ceiling was 10,000. The quota reduction took place two years after new exemptions for cryptographic and reconnaissance programs were adopted. Public Law 100-180 exempts certain intelligence agencies and functions from the 5,000 quota: (1) individuals assigned, detailed or under contract with the Central Intelligence Agency, (2) persons employed, assigned, detailed, under contract or applying for a position in the National Security Agency, (3) persons assigned to a space where sensitive cryptographic information is produced, processed, or stored, and (4) persons employed by, assigned or detailed to, an office within the Department of Defense for the collection of specialized national foreign intelligence through reconnaissance programs or a contractor of such an office.

The following table reflects CSP examinations conducted by the Department of Defense in accordance with Public Law 100-180.

(1) Special Access Programs	1,451
(2) DIA Critical Intelligence Positions	1,213
(3) TOP SECRET	0
(4) Examinations for Interim Access to Sensitive Compartmented Information	10
Total Examinations Conducted Under the Congressional Ceiling	2,674
Exempted Examinations*	5,271
DoD Counterintelligence-Scope Polygraph Program Total**	7,945

* Note: Includes detailees to CIA and NSA; assignees to cryptographic information processing spaces; non-NRO reconnaissance programs.

** Note: Does not include polygraph examinations conducted by the National Security Agency (NSA). A table of polygraph examinations conducted by NSA is contained in a classified annex to this report. Nor does it include examinations conducted by the National Reconnaissance Office (NRO), which are conducted under the authority of the DCI.

CSP REFUSALS

In Fiscal Year 1996, nobody declined CSP testing required as a condition of access to certain information. Department of Defense policy states those persons who decline to take the examination are denied access to the classified material in question, but are retained in their position or transferred to other positions in the organization of equal pay and responsibility, commensurate with the clearance level held before the declination.

SPECIFIC CSP EXAMINATIONS RESULTS

The polygraph examination results for the 7,945 individuals tested under the Department of Defense Counterintelligence-Scope Polygraph Program are as follows:

Four hundred fifty-seven individuals required more than two series (a series is defined as the collection of at least two polygraph charts on an examinee). A total of 131 examinations required more than one day to complete.

There were 7,770 individuals whose polygraph examination results were evaluated as no significant physiological response (non-deceptive).

An additional 154 individuals made admissions relevant to the issues being tested, and through further testing, the examiner was able to resolve all relevant issues favorably to the subject.

After reviewing the psychological data, the polygraph examiner was unable to render an opinion for 12 individuals. One of these individuals made admissions relevant to the issues being tested.

There were five individuals whose polygraph examination results were evaluated as significant physiological response (deceptive) and who made no admissions to the relevant issues.

Four individuals made admissions relevant to the issues being tested but continued to be evaluated as significant psychological responses (deceptive) during further testing.

Of the 175 individuals whose examination results were evaluated as yielding significant physiological responses, or evaluated as inconclusive and/or provided substantive information, 161 received a favorable adjudication, four are still pending adjudication, nine are pending investigation, and one individual received adverse action denying or withholding access.

SIGNIFICANT INFORMATION DEVELOPED

The following cases indicate the most significant information developed during DoD counterintelligence-scope polygraph examinations covered by this report. It should be noted that all these individuals had been interviewed previously by security professionals and investigated by other

means without any discovery of the information obtained by the polygraph examination procedure. In most cases the information was elicited from the subject in discussion with the examiner.

During CSP testing, a military officer admitted having two CONFIDENTIAL documents possibly relating to operations and surface warfare, as well as other unspecified classified material at his residence. An investigation is pending. Some of the classified material has been recovered. The officer claims to have destroyed the other classified material at his residence.

During CSP testing, an individual admitted that he bragged to his friends about his communications intercept training and identified target countries which the U.S. intercepted and monitored. The information was classified SECRET/SCI. This matter was referred for investigation.

During CSP testing, an individual admitted that he told his father that the National Security Agency was using a specific type of equipment to track transmitters and targets for a specific target country. This information was classified SECRET/SCI. This matter was referred for investigation.

During CSP testing, a military officer admitted that while in travel status during a military mission, he kept a classified journal regarding operational activities. He said the journal was presently stored at his residence. He also admitted to inadvertently providing classified information to a newspaper reporter. This matter was referred for investigation.

During CSP testing, a military officer admitted telling his spouse about the nuclear weapons capabilities of a U.S. navy aircraft. Although the individual denied withholding any information regarding additional wrongdoing, he continued to exhibit significant psychological responses during additional testing. This matter was referred for adjudication.

During CSP testing, an individual admitted that in 1993 his military unit was deactivated and his job was to destroy the classified documents which were no longer needed. During the destruction of these documents, he observed six photographs depicting Soviet, Chinese and former East Block ships and weapon systems marked CONFIDENTIAL. He stole these photographs and took them home. He advised that he still has these photographs at home but denied showing them to anyone. This matter was referred for investigation.

During CSP testing, an individual admitted that he had numerous classified documents, including some classified TOP SECRET, at his residence. He said he had acquired these classified documents while on active duty from 1982 to 1994. The classified documents were retrieved and this matter was referred for investigation.

During CSP testing, an individual admitted that she told her father that she collected information on countries using radio equipment and told her husband the countries she was targeting against while working at NSA. The identification of the target countries is classified SECRET/SCI. This matter was referred for adjudication.

During CSP testing, an individual admitted that in 1995, while stationed in Korea, he went on vacation to the Philippines where he met three Dutch Nationals. He denied discussing anything classified with the Dutch Nationals during that vacation. The individual returned to the Philippines in March 1996 and met with one of the Dutch Nationals. During this second trip, he discussed his job repairing recorders and receivers as well as the field station's mission and named the target country which was classified SECRET. This matter was referred for adjudication.

During CSP testing, an individual reported that while stationed in Korea he and his wife observed their supervisor removing TOP SECRET/SCI material from the work place and taking it home on several occasions. He stated that his wife confronted the supervisor on this matter but the supervisor continued the practice. The individual said that he had never reported this to anyone. This matter was referred for investigation.

During CSP testing, an individual admitted to routinely removing SCI material from a Special Compartmented Information Facility (SCIF) without following proper procedures for safeguarding the classified material. The individual also admitted to removing the front and back covers of a SECRET document and storing it in a duffel bag at his parent's home. CSP testing is continuing.

UTILITY OF THE INVESTIGATIVE POLYGRAPH

During Fiscal Year 1996, DoD investigations obtained unique and significant information from interviews conducted with the aid of the polygraph. In all illustrated instances, the polygraph examination process produced significant security or criminal information which would not otherwise have been secured for the specific investigation. The polygraph examination process was also valuable in helping to establish the innocence of persons charged with serious infractions.

An investigation was initiated when an unknown individual obtained blank checks on another person's bank account. The person subsequently negotiated checks in excess of \$6,000.00. Investigative efforts determined the checks were mailed to the residence of a soldier. The soldier's wife was interviewed and admitted to endorsing and cashing one of the checks. She stated that she received the check from another person, whom she declined to fully identify. She denied any involvement in the theft of the checks and consented to undergo a polygraph examination. Prior to administering the polygraph examination, the wife admitted to the polygraph examiner that she had called the bank and requested the checks and subsequently negotiated the checks, with a value in excess of \$6,000.00. Final disposition of this matter is pending.

The Air Force Academy received information that a U.S. Naval Academy Midshipman had been talking to classmates regarding her boyfriend (an Air Force Academy Cadet) and her involvement in a possible homicide which took place in Texas in 1995. Preliminary investigation disclosed the Navy Midshipman and the Air Force Cadet in question to be primary suspects in the shooting death of a 16-year-old female from Grand Prairie, Texas, in December 1995. The victim's body was found in a field with gunshot wounds to the head and head trauma from an unknown object. A joint investigation was initiated. The Air Force Academy Cadet agreed to undergo a polygraph examination. The results of the polygraph examination indicated deception. The Air Force Academy Cadet confessed that he and his girlfriend, the Naval Academy Midshipman, murdered the 16-year-old in 1995. This information was provided to the civil authorities who subsequently recovered the weapons used in the murder. This matter is awaiting trial.

During a background investigation for a DoD civilian contractor employee, information from another government agency revealed that the employee had ties to Middle-East terrorist organizations. The employee was born in Egypt and is a retired Egyptian Army officer with specialized training in counter-terrorism. The employee denied spending time in any Middle-East country terrorist training camp and agreed to undergo a polygraph examination in support of his statements. The polygraph examination results were evaluated as deceptive and the employee admitted teaching terrorism and sabotage tactics in classes attended by both Egyptian Army personnel and soldiers from the Palestine Liberation Organization. He further admitted receiving training for and participating in acts of terrorism and sabotage against a former enemy of Egypt. This information has been referred to another federal agency.

A sailor was accused of sexually assaulting a female sailor with whom he worked. The sailor was interviewed and denied committing the assault and requested a polygraph examination to substantiate his denial. The results of the polygraph examination indicated deception. The sailor admitted to sexually assaulting the female sailor. The sailor received non-judicial punishment and was awarded 45 days restriction, 45 days extra duty and reduced in grade from E-4 to E-2.

A Russian-born applicant for civilian employment with a government agency was administered a polygraph examination and reported that he had been contacted by the KGB in 1970 when they tried unsuccessfully to recruit him. The applicant stated that, after being drafted into the Soviet Army, he was beaten and tortured for suspected anti-Soviet activity. He said within one year after being discharged from the Army, the KGB tried again to recruit him. Since immigrating to the United States, the applicant reported periodic uninvited contact with representatives of the Russian Intelligence Service. The last contact being about one month prior to his polygraph examination.

During a background investigation of a sailor, information was received from a military investigative agency that an inquiry had been conducted relating to head

injuries sustained by the sailor's infant daughter. The sailor claimed that he accidentally dropped the child, thereby causing her skull fractures. Medical personnel did not find his explanation consistent with the injuries. The inquiry was terminated without further action. The sailor agreed to undergo a polygraph examination as part of the background investigation to resolve this issue. The polygraph examination results were evaluated as deceptive. The sailor confessed that he caused his daughter's injuries when he threw her across the bedroom and her head hit the floor. He said he did this because he was angry for her crying. This matter was referred to a military investigative agency for criminal investigation. The sailor is awaiting court-martial action.

An Air Force Non-Commissioned Officer (NCO) in charge of the Pollution Prevention Recycling Center at an Air Force Base was suspected of deliberately disposing of hazardous material in a dumpster. The NCO agreed to undergo a polygraph examination and subsequently confessed to disposing of the hazardous material in a dumpster in preparation for an upcoming inspection. He stated that he could not legally dispose of the material due to lack of required paperwork.

A quality assurance representative at a DoD weapons station was suspected of taking bribes from Janitorial contractors at the facility. When interviewed the employee denied accepting anything of value from any of the contractors and agreed to undergo a polygraph examination. During the polygraph examination, he admitted that he had solicited and accepted \$8,000.00 in bribes from a contractor responsible for cleaning buildings at the facility. In exchange for the bribes, the government employee overlooked poor work by the contractor and assisted the contractor in obtaining future government contracts. The government employee was sentenced in U.S. District Court, to restitution, and a \$50.00 special assessment fee.

During a six month period in 1995, approximately 200,000 gallons of gasoline was stolen from the Defense Fuel Supply Point which supplies petroleum products to all the military bases. An investigation was initiated and the Deputy Superintendent of the Defense Fuel Supply Point was interviewed and agreed to undergo a polygraph examination and subsequently admitted assisting employees of the DoD contracted trucking firm with the thefts. He also admitted knowing that the Superintendent was carrying a "ghost" employee on the DoD contract. The Superintendent was interviewed and agreed to undergo a polygraph examination and subsequently admitted knowing about the thefts of fuel and to altering the government paperwork to cover up the thefts. He also admitted to receiving a bribe from the owners of the trucking company and employing a "ghost" employee on the DoD contract. Subsequent investigation by federal agents identified other individuals involved in the theft of fuel. One of these individuals pled guilty and is pending sentence in a U.S. District Court. Charges are pending against the other individuals involved in the theft.

A Marine was suspected of sexually assaulting his 13-year-old niece. The Marine was interviewed and denied the allegation and agreed to undergo a polygraph examination.

The results of the polygraph examination were evaluated as deceptive. The Marine subsequently admitted to sexually assaulting his niece. He was convicted in a general court-martial and sentenced to 15 years confinement and a dishonorable discharge.

The infant son of an Airman was treated for bleeding gums. A physical examination disclosed a small laceration in the child's mouth, bruising on both arms, a small bruise above the left eye and bruising of the ear lobes. Full body x-rays identified a possible two-month-old fracture of the tenth rib on the right side. The Airman admitted to causing the bruising to the victim's arms and the bleeding from the victim's mouth; however, he denied physically striking the child or doing anything to cause the rib fracture and agreed to undergo a polygraph examination. During the polygraph examination, the Airman confessed to causing the fractured rib and a history of battering the child. The Airman and his wife are receiving counseling in anger management.

A Korean National female was found dead in her residence. A soldier was identified as a suspect to the murder based on him entering a military dispensary for treatment of a leg injury. When receiving treatment, the doctor noted that the soldier had blood on his hands for no apparent reason. The soldier was interviewed and denied any involvement in the murder and agreed to undergo a polygraph examination. The polygraph examination results were evaluated as deceptive. Subsequently the soldier admitted that he killed the woman. Final disposition is pending.

The dependent wife of an Air Force member, who was the treasurer for the Thrift Store operated by the Officers' Wives Club, was suspected in the embezzlement of over \$12,000.00 from the Thrift Store. The dependent wife denied any involvement in the embezzlement of the money and agreed to undergo a polygraph examination. The polygraph examination results were evaluated as deceptive. The dependent wife subsequently confessed to stealing the money. The \$12,000.00 was recovered and no further action was taken.

During a background investigation of a National Guard member, information was developed that the individual had been arrested for possession of illegal drugs. During interviews, he denied any involvement with illegal drugs. He claimed that the cocaine found on his person during the arrest belonged to a friend. The member agreed to undergo a polygraph examination to verify his statements. During the polygraph examination, he confessed that for the past ten years he had been involved in using and selling cocaine. This matter was referred to local law enforcement authorities. Adjudication of the member's clearance is pending.

An investigation was initiated when a soldier reported numerous items of jewelry stolen from his secure wall locker. The value of the stolen property was reported to be \$10,699.00. A crime scene examination determined that there were no signs of forced entry into the wall locker or the room. The soldier agreed to undergo a polygraph examination. The results of the polygraph examination were evaluated as

deceptive. Subsequently, the soldier admitted that he lied about the theft. Final disposition is pending.

**TRAINING AND QUALIFICATION STANDARDS FOR
DEPARTMENT OF DEFENSE FORENSIC
PSYCHOPHYSIOLOGIST (POLYGRAPH EXAMINER)**

The Department of Defense maintains very stringent standards for polygraph examiners. The Department of Defense Polygraph Institute's basic polygraph program is the only program known to base its curriculum on forensic psychophysiology, and conceptual, abstract, and applied knowledge that meet the requirements of a master's degree-level of study. Candidates selected for the Department of Defense polygraph positions must meet the following minimum requirements:

1. Be a United States citizen.
2. Be at least 25 years of age.
3. Be a graduate of an accredited four-year college or have equivalent experience that demonstrates the ability to master graduate-level academic courses.
4. Have two years of experience as an investigator with a Federal or other law enforcement agency. Two years of comparable experience may be substituted for the requirement of investigative experience with a Federal or other law enforcement agency.
5. Be of high moral character and sound emotional temperament, as confirmed by a background investigation.
6. Complete a Department of Defense-approved course of polygraph instruction.
7. Be adjudged suitable for the position after being administered a polygraph examination designed to ensure that the candidate realizes, and is sensitive to, the personal impact of such examinations.

All federal polygraph examiners receive their basic polygraph training at the Department of Defense Polygraph Institute. After completing the basic polygraph training, DoD personnel must serve an internship consisting of a minimum of six months on-the-job training and conduct at least 25 polygraph examinations under the supervision of a certified polygraph examiner before being certified as a Department of Defense polygraph examiner. In addition, DoD polygraph examiners are required to complete 80 hours of continuing education every two years. To help meet this requirement the Institute offers 16 different specialized courses in forensic psychophysiology. In Fiscal Year 1996, approximately 400 students attended the specialized courses.

**Department of Defense Forensic Psychophysiology
(Polygraph Examiners)**

Fiscal Year	Average Number of Examiners	Attrition Rate
1991	269	14.9%
1992	269	17.8%
1993	254	17.3%
1994*	192	19.3%
1995*	176	18.2%
1996	164	18.9%

* Does not include National Reconnaissance Office (NRO) polygraph examiners. NRO polygraph examiners are included in the totals for Fiscal Years 1991-1993.

POLYGRAPH (FORENSIC PSYCHOPHYSIOLOGY) RESEARCH

Mandated by Congress, the research program at the Department of Defense Polygraph Institute is focused on: (1) developing new psychophysiological detection of deception (PDD) techniques, instrumentation and analytic methods to improve PDD technology; (2) conducting research on PDD countermeasures; and (3) evaluating the validity of PDD techniques.

To facilitate the research, a small grant program was established in Fiscal Year 1992. In Fiscal Year 1996, the Institute receive nine proposals from academic and institutional researchers. Two of the proposals were funded through the grant program and two were funded by contract. One proposal is being held for future consideration. The others were rejected for various reasons.

Developmental Research to Improve Technology

Completed:

Fuzzy Logic: This project was completed, under a grant, by investigators working at San Jose Community College. The investigators developed computer programs, using fuzzy set characteristics, to analyze results of the Zone Comparison Test and Event Related Controls examinations. High accuracy rate were achieved using some feature sets, but not others.

In Progress:

Oculomotor and Pupil Analysis for PDD: A grant has been awarded to Eye Dynamics, Inc., of Torrance, California, to examine changes in pupil size and eye movement during a PDD examination. They will use a research plan designed by Institute personnel to determine if oculomotor changes are indicative of deception.

Improvement of the Johns Hopkins University Applied Physics Laboratory Automated PDD Examination Scoring System (POLYSCORE): The Institute has contracted with the Johns Hopkins University Applied Physics Laboratory to update and improve their POLYSCORE computer program. The effect of possible improvements will first be assessed. Those which improve POLYSCORE's accuracy will then be incorporated into the computer program. The Institute has initiated a major effort to gather confirmed PDD examination data to use in improving and testing the new algorithm.

Artificial Neural Network Signal Processing Techniques for PDD: Single Test Format: Investigators at Claremont Graduate School are continuing work on the development of a computer program, based on neural network technology, to evaluate PDD examinations.

The Detection of Deception with Event Related Potentials: A grant has been awarded to investigators at the University of Ottawa to replicate their earlier studies using event related potentials to measure deception. The investigators are using a unique two-stimulus paradigm which provided promising results during two preliminary studies. The earlier studies will be replicated using a larger number of subjects and more sophisticated analyses techniques to evaluate the obtained data.

Detecting Stress in the Voice: The Institute, in collaboration with the Chief, Department of Neuroendocrinology and Neurochemistry, Division of the Neuroscience's, Walter Reed Army Institute of Research, is measuring the human voice during stressful circumstances to determine if there are characteristic changes associated with stress. If stress induced changes are found further research will be completed to determine if voice stress can be used to predict deception.

Vagal Tone Monitor/ARIS: This project was designed to investigate the feasibility of using a Vagal Tone Monitor and Autonomic Response Indicator System (ARIS) software to monitor changes in cardiovascular activity during a PDD examination. The Vagal Tone Monitor and ARIS software are designed to measure the direct influence of the vagal nerve on heart rate. Further modifications have been made in the hardware and software to increase the suitability for PDD testing, and an experimental design has been completed and approved. Testing will proceed during FY97.

In Planning:

Pulse Wave Velocity Measurements for the PDD: This project is intended to resolve a major problem in PDD testing, the discomfort caused by the cardio cuff, which limits the number of questions that can be asked during a PDD examination. During this project, the velocity of peripheral blood flow will be measured to ascertain if the measure can be used to replace the standard cardio cuff.

Thermal Imaging During a PDD Examination: This project is intended to examine the efficacy of thermal imaging technology as a measure of deception. Infrared thermal imaging, a non-intrusive and non-invasive technology, will be used to determine if facial and peripheral changes in temperature occur during a PDD examination, and if such changes are indicative of deception.

Countermeasures Research

Completed:

Countermeasures-2 (CM-2): This study was designed to assess the effect of countermeasure training on numbers tests. Subjects trained in countermeasures tried to mislead the examiner as to which of ten numbers they had selected. The purpose of the study was to develop an algorithm for detecting the countermeasures. A classified report has been published.

In Progress:

Countermeasures-3 (CM-3): This study was designed to assess the effect of countermeasure training on the accuracy of personnel security screening PDD examinations. Subjects were guilty or innocent of committing mock espionage or sabotage. Some of the guilty subjects were trained to use countermeasures. The purpose of the study is to further develop an algorithm for detecting countermeasures. The data are being analyzed and a report will be published in FY97.

In Planning:

Additional countermeasure studies will be initiated upon completion of the CM-3 study.

PDD Techniques and Validity

Completed:

Effects of Misinformation on the Concealed Knowledge Test (CKT): This study was designed to examine the effect of misinformation on subjects undergoing a CKT PDD examination. The CKT is used when subjects deny knowing specific details about a crime, which only a guilty person would know, such as the type of weapon used. Subjects were given false information concerning a videotaped crime they observed a week earlier. Those who remembered the false information were less likely to be detected when deceptive during a PDD examination than those who did not remember the false information.

Guilty Knowledge Test (GKT) Feasibility: This project was designed to examine how frequently a GKT examination could be used during actual police investigations. It was decided to terminate the project after repeated attempts to complete this project were abandoned due to practical difficulties.

POLYSCORE: A Comparison of Accuracy: The accuracy of four versions of the PDD examination evaluation computer program, POLYSCORE, was assessed. Accuracy was found to vary among the four versions, usually improving somewhat with successive releases of the software.

In Progress:

Effectiveness of Detection of Deception Examinations Using the Computer Voice Stress Analyzer (CVSA): The accuracy of the CVSA instrument in detection of deception was assessed using a mock theft scenario. One hundred nine subjects were tested by four CVSA examiners. Results indicate that examiners correctly identified 49% of the subjects as deceptive or non-deceptive. A final report is expected during FY97.

A Comparison of the Accuracy Rates Between the Polygraph and the Computer Voice Stress Analyzer in a Mock Crime Scenario: This study was designed to compare the accuracy and reliability of deceptions rendered following polygraph and Computer Voice Stress Analyzer (CVSA) examinations. Subjects were innocent or guilty of committing a mock theft. Three polygraph examiners and three CVSA examiners will independently evaluate the examination results. The accuracy of the polygraph and the CVSA examination results will be evaluated and compared.

Test of a Mock Theft Scenario for Use in the Psychophysiological Detection of Deception: A major obstacle in PDD research is that of assessing methodological differences. Typically, programmed deceptive subjects will participate in a mock crime then submit to a PDD examination concerning that crime. Unfortunately, the subject programming procedures differ among laboratories and investigators, possibly causing differences in reported accuracy. The Institute has undertaken a series of exploratory studies to develop a mock crime procedure which will produce reliable consistent results.

PDD Response Simulation System: Three vendors currently manufacture polygraph instruments used by federal PDD examiners. While these instruments appear to correctly record human physiological responses, systematic testing has not been completed to insure instrument accuracy. An investigator at the Institute is designing a response simulation system which will be used to examine and document the reliability and validity of recordings from the instruments currently in use.

POLYSCORE and PDD Human Examiner Accuracy Rates When Scoring Examinations From Actual Criminal Investigations: A previous report documented the PDD examination accuracy of the computer program POLYSCORE, relative to that of human examiners. The data used for the comparison were, however, collected during a laboratory study. This study, undertaken in conjunction with Institute efforts to build a database of PDD examinations with confirmed outcomes, is designed to examine POLYSCORE and human examiner accuracy rates using data collected during actual criminal investigations.

In Planning:

A Comparison of the Seven and Three-Point Scoring Systems: Two numerical scoring systems are currently used to evaluate PDD examination results, the seven and three-point scoring systems. This study, undertaken in conjunction with Institute efforts to build a database of PDD examinations with confirmed accuracy, is intended to determine which scoring system will provide the most accurate results and the greatest interrater agreement.

The PDD Screening Examination: A Replication? The Tests for Espionage and Sabotage (TES) is a PDD screening examination procedure developed at the Institute. It differs from previous procedures in that directed lie control questions are used. The Institute plans to replicate the previous TES studies using the current CI-scope topics.

Other Research

International Use of PDD: The Institute maintains contacts with PDD examiners in other countries to keep abreast of polygraph development around the world. The Institute issues periodic reports summarizing international polygraph activity.

Espionage Database, Annotated Bibliography, and Library Acquisitions: The Institute is developing a database and bibliography in support of research and education. Over 238 books relating to espionage have been obtained to date.

Information Consolidation: The National Security Agency and the Central Intelligence Agency have begun sending their research files to DODPI for inclusion into the Institute's Learning Resource Center.

* * * * *

FEAR OF CONSEQUENCES AND MOTIVATION AS INFLUENCING FACTORS IN THE PSYCHOPHYSIOLOGICAL DETECTION OF DECEPTION

By

Tuvya T. Amsel

Abstract

The extent of the psychophysiological reactions, as displayed on real life polygraph records of 100 subjects who were sent to take the test by an interested third party who could inflict a sanction on the subject, upon failure, such as courts, employers, etc. (The IPI Group), were compared to 100 subjects, who took the test out of their own initiative, knowing that they will represent the results, only upon being found truthful (SSI Group).

The extent of the psychophysiological reactions, of the IPI Group, was significantly stronger than the SSI Group. The mean scoring, of the IP group was 4.04, while the mean scoring of the SSI group was 2.13. The same results emerged when comparing the IPI Truthful Group vs. The SSI Truthful Group (3.88 vs. 2.88) and when comparing the IPI Deceptive Group vs. The SSI Deceptive Group (-4.27 vs. -2.58).

In addition, it was found that, 59% of the IPI Group, displayed conclusive psychophysiological reactions (between ± 4 to ± 8) vs. 19% of the SSI Group, while the 81% of the SSI Group, displayed inconclusive psychophysiological reaction (between 0 to ± 3) vs. 41% of the IPI Group.

An additional difference was found between the way the two groups focused their attention. While the IPI group displayed stronger deceptive psychophysiological reactions (average of -4.27), in comparison to truthful reactions (3.88), the SSI group displayed a stronger truthful psychophysiological reactions (average of 2.68) in comparison to deceptive reactions (-2.58).

It was concluded that the extent of psychological detection of deception reaction is a function of the extent of fear of consequences (FOC) in proportion to the extent of motivation (MOT), that exists within the subject while being tested. Fear of detection (FOD) is an additional factor existing within the IPI Deceptive Group subjects, that amplifies their psychophysiological reactions.

This study is based on the Ph.D. thesis conducted by the author. The author is a member of the American Polygraph Association and currently a partner in a commercial polygraph laboratory. The author would like to thank Dr. Eitan Elaad of the Israeli Police for reevaluating the polygraph charts, and to Dr. Jaime Amsel, of Irvine University for reevaluating the results. For reprints, write to Tuvya Amsel, 1 Ben Gurion Blvd., Tel-Aviv, 63454, Israel.

Introduction

Since early days of mankind, people believe that while lying, psychophysiological changes occur in our body. Based on this assumption, different interrogation techniques, ordeals and instruments were developed and applied, in the process of Psychophysiological Detection of Deception. Nowadays one of the most popular, as well as controversial instrument is the polygraph. Davis (1961) made the following observation:

Prima facie it seems improbable that there is a special kind of response peculiar to lying. In the early days Marston (1938) recognized that truth and falsity are not psychological categories.

So what causes the psychophysiological changes that occur in our body while lying? There is a certain degree of controversy and disagreement, as to the origin of the psychophysiological changes in the process of detection of deception. While in ancient times physiological reactions, were attributed to the "Guidance of the Divine Power" (Lea 1870), early modern research suggested Motivational-Emotional variables, as the major factor, effecting psychophysiological reactions, while later research stressed cognitive variables, as the major factor.

The Motivational-Emotional Approaches

Davis (1961) suggested three possible theories to the phenomena of psychophysiological reactions:

- (1) The Conditioned Response Theory. The critical question plays the role of a conditioned stimuli and evokes some emotional response with which they have been associated in the past.
- (2) The Conflict Theory. A specially large physiologic disturbance would occur when two incompatible reaction tendencies are aroused at the same time.
- (3) The Punishment Theory. The subject will display a large physiologic response during deception, because he anticipates serious consequences if he fails to deceive.
- (4) The Motivation Theory. Gustafson and Orne (1963; 1965) found a significant higher rate of psychophysiological detection of information reaction, displayed by motivated subjects to avoid detection, in comparison to non-motivated subjects.

The Cognitive Approaches

- (1) The Guilty Knowledge Theory. Introduced by Lykken (1959, 1960, 1974), commemoration of the Relevant Question (item) will result in psychophysiological reaction, due to the subject's guilty knowledge. Lykken's assumption is based on the orienting reactions (OR) theory of Berlyne (1960) and Sokolov (1963).

(2) The Attention Focusing Theory. Waid (Waid, *et al.* 1978; Waid and Orne 1981) found that the physiological response to a stimulus reflects the degree to which the stimulus was attended to.

(3) The Dichotomization Theory. Was developed gradually by the Jerusalem Group (*e.g.*, Ben-Shakhar, 1977; Liebllich, *et al.* 1970; Kugelmass, *et al.* 1967), the stimulus set is differentiated into two distinct categories: Relevant vs. Irrelevant. Subjects possessing guilty knowledge, are paying attention to just one aspect of the stimulus presented to them--whether it is the relevant or irrelevant stimulus--and they ignore the other aspect of the stimulus.

More recent studies suggest that more than one variable may be at play. Elaad and Ben Shakhar (1989) who examine their concept, based on Gustafson and Orne (1963), motivation to avoid detection and Gustafson and Orne (1965) and Horneman and O'Gorman (1985) the type of verbal response used by the subject during the polygraph test. It appears that since the psychophysiological detection of deception became a major research field in psychophysiology, there is an agreement that psychophysiological reactions occur while humans lie.

Why it occurs it is still in debate. Maybe the controversy can be simply attributed to the hopeless attempt to unify all humans? Is it possible to explain the same way the origins of the psychophysiological reactions, of a hard core criminal vs. A clergyman or a highly educated vs. A primitive? Maybe all of the theories are valid, but they are applicable, only with a certain type of personalities? Maybe all of them are wrong? Maybe a combination of theories can explain the phenomena? In view of these wonders, this study will make an attempt to explain the psychophysiological reactions in the process of psychophysiological detection of information by combining the following three variables:

- (1) Motivation (MOT) exists within the subjects to be found truthful in the polygraph test.
- (2) Fear of consequences (FOC), exists within the subjects when being sanctioned by an interested third party who initiated the test, if they will be found deceptive in the test, and
- (3) Fear of detection (FOD) exists within the deceptive subjects, that the crime or wrongdoing they committed will be revealed.

Gustafson and Orne (1963; 1965) define motivation as a drive existing within the subject to avoid detection of deception. The higher the motivation is, the stronger the psychophysiological reaction will be. Elaad and Ben-Shakhar (1989) concluded that higher motivated subjects were detected better than less motivated subjects. Davis (1961) suggested that the psychophysiological reaction detected in the subject during the test, are due to his fear of consequence, once he will fail the test. In spite of the lack of fear of consequence in laboratory experiments, Gustafson and Orne (1964), Kugelmass, Liebllich and Bergman (1967) found a higher detection rate with subjects who feared consequences (of getting a slight electric shock) during the experiment. Fear of detection, per se, in conjunction with psychophysiological detection of deception was not examined, but it can be defined

as the drive which initiates the motivation to avoid detection. FOD can be defined as a short term fear, which later developed into FOC, which is a long term fear.

In order to examine the existence of these variables, a comparison of the psychophysiological reactions extent, of four different types of subjects were made:

- (1) Subjects which were sent to take the test by an interested third party (IPI Group).
- (2) Subjects who took the test out of their own initiative (SSI Group).
- (3) IPI and SSI Truthful Group.
- (4) IPI and SSI Deceptive Group.

It was assumed that motivation to pass the test existed with all the four groups but fear of consequence existed only with the IPI Truthful and Deceptive Groups while fear of detection existed only with the IPI Deceptive Group. Thus, FOC and FOD will amplify the IPI Group psychophysiological reactions, which will result in stronger reactions while being tested. The hypothesis of this study is, that the extent of the psychophysiological detection of deception reaction, is a function of the subject's motivational factor in proportion with the strength of his fear of consequences and fear of detection.

Method

A sample of 200 real life polygraph tests records, that were conducted between the years 1991 to 1995, was randomly drawn from a commercial polygraph laboratory, subject to the following criteria: An equal number of records were selected. 100 records of subjects who took the test out of an interested third party initiative (such as courts, employers, insurance companies, etc.). Based on the test's results, a sanction (if found deceptive) or a reward (if found truthful) would be inflicted upon the subject, by the test initiator. [The Interested Party Initiator Group (IPI Group)]. An additional 100 records were of subjects who took the test out of their own initiative. These subjects were planning to submit the results to an interested third party, only if they were found truthful in the test. [The Subject's Self Initiative Group (SSI Group)]. The records of each of the groups were distributed equally between deceptive and truthful report results. To ensure independence of records, only one record was drawn randomly from each file, where multiple subjects existed in that case. This was done in order to avoid a situation, where the results of one subject could have influenced the results of the other. The original numerical scoring which was assigned by the examiner, to the strongest relevant question in the test (question number 5: "Did you steal/kill/etc."), was considered. The scoring was assigned to the following categories: IPI, SSI and Extent of Reaction. For uniformity reasons, only the first 3 presentations of the relevant question were considered, thus reaching a total possible scoring of ± 9 .

Polygraph Records Reliability

In order to eliminate the theoretical possibility that the polygraph charts scoring, were influenced by biased examiners, 100 charts (50 IPI and 50 SSI) were reevaluated by an independent examiner with 20 years of experience. To estimate the interscorer reliability, a Pearson correlation coefficient was computed for each physiological measure and for the total scores, across measures, assigned by the two scorers. The coefficients were .52 for respiration, .84 for GSR, .69 for the cardiovascular activity and .82 for the total score.

It should be noticed that in spite the scoring differences in the respiration and cardiovascular channels--which can be attributed to different analysis--there is a great degree of agreement in the total score reliability.

Subjects Data

79.5% of the 200 subjects were males (IPI 82%, SSI 77%). Their mean age was 39.2 (IPI 39.4, SSI 39.1) and their mean level of education was 11.4 years (IPI 10.9, SSI 11.8). The records represented various criminal and fiscal cases, such as: Theft (IPI Group 25%, SSI Group 18%), insurance fraud (IPI 8%, SSI Group 31%), monetary disputes (IPI 36%, SSI 7%), forgery (IPI 10%, SSI Group 12%), and even a murder case (IPI 0%, SSI 1%).

Apparatus

The records were of polygraph tests, which were conducted by two experienced examiners (male 15 years, female 9 years). The polygraph instruments used by the examiners were Lafayette Ambassador's 4 channel model. Each instrument recorded electronically, respiration by two pneumatic tubes positioned around the thoracic area and abdomen, skin resistance responses were recorded from two stainless steel electrodes attached to the volar side of the index and fourth finger of the hand and cardiovascular activity was recorded by a blood pressure cuff positioned around the upper arm and inflated to a pressure of between 40-60 mmHg. All the tests were conducted in small, quiet, sparsely furnished rooms. The test procedure consisted basically of a pretest interview--where the test issue is discussed with the subject and the test questions are phrased. Subjects were then asked to sign a statement of consent regarding the questions. The pretest was followed by a 3-5 times presentation of the questions. The question technique applied by the examiners was a variation of the Modified General Question Technique. The first representation was followed by a Day Stimulation Test. Each test was of a single issue specific test and consisted of 2 irrelevant questions, 1 sacrifice relevant question, and 2-3 relevant questions, 3-4 control questions. Following the test, the polygraph records were analyzed by the examiner in accordance with the numerical scoring technique of 3 point scale procedure, which is based on Backster (1963) Numerical Scoring Evaluation. According to this procedure, the examiner compares the subject's psychophysiological reactions as displayed on the chart, in each relevant question with its adjacent control questions. The comparison is made on each and every polygraph channel separately. If the reaction to the relevant question is stronger than the reaction to its adjacent control question, a -1 score will be designated, if vice versa a +1 score will be designated, if no differences in reactions were detected a 0 score will

be designated. Thus a maximum score of +3 or -3, can be designated to each question ($\pm 1 \times 3$ channels). If a relevant question was presented 3 times, the total score can be any figure between +9 and -9.

Results

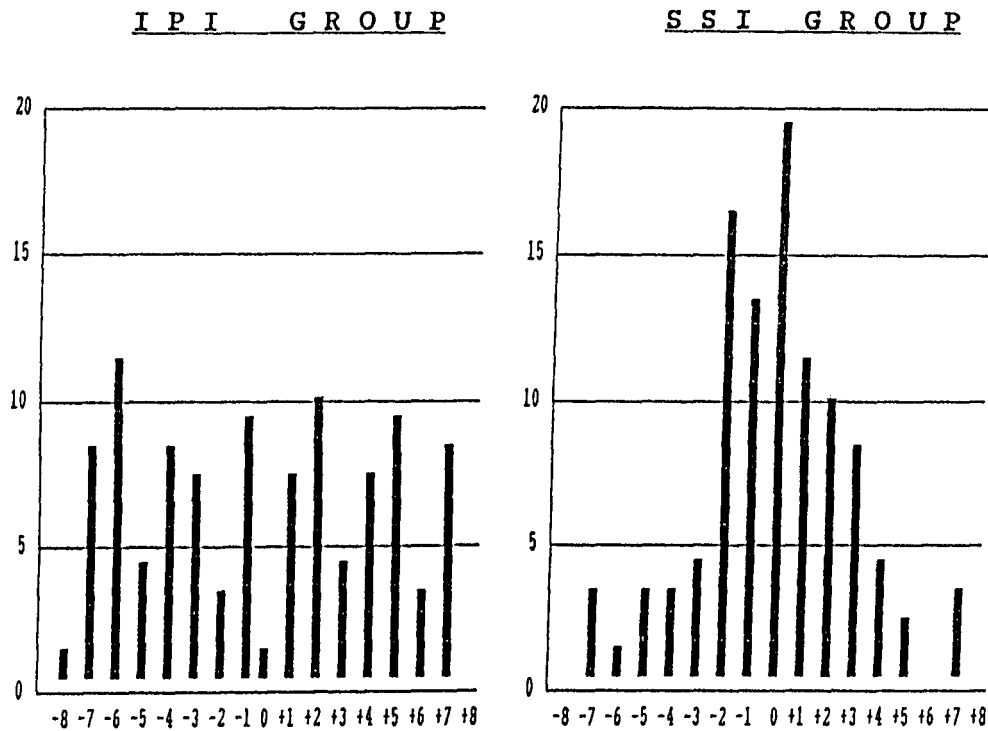
To test the hypothesis a cross-tabulation of scores by group (IPI vs. SSI) was performed. As can be seen in Table 1, while scores in the IPI Group distribute across the whole scale including the wings of the scale, scores of the SSI Group distributed heavily around the center of the scale (± 3). A chi-square test resulted in a significant difference on distribution between the two groups (Chi-square = 53.43, $df = 15$, $p < .001$) meaning that the IPI Group scores do not distribute equally to the scores of the SSI Group.

Table 1

Score Distribution

Reaction Extent Total Scoring	Number of Times	
	IPI	SSI
+7	8	3
+6	3	0
+5	9	2
+4	7	4
+3	4	8
+2	10	10
+1	7	11
0	1	19
-1	9	13
-2	3	16
-3	7	4
-4	8	3
-5	4	3
-6	11	1
-7	8	3
-8	1	0
Total	100	100

Figure 1



Further data showing the difference between the two groups distribution can be seen in Table 2. While the IPI Group has a slightly positive skewed distribution and definitely a flat kurtosis value, the SSI Group scores distributed in a fashion close to normal. Finally, a Levene test for comparing the two groups distributions rendered a significant result ($F(2/198) = 44.818, p < .001$) meaning that the two groups do not distribute equally.

Table 2

Skewness and Kurtoses Group Comparison

	IPI	SSI
Skewness	.031	-.001
Kurtosis	-1.312	.502

The distribution of the results between the groups has also an effect on the conclusivity of the final test results. In the three point scale numerical scoring the common cutoff point is ± 3 . As seen in Table 3 the IPI Group final scores, are almost three times more conclusive than the SSI Group (59% vs. 19%). While the SSI Group's final scores are almost two times more inconclusive than the IPI Group (41% vs. 81%).

Table 3

Conclusivity Rate

	3 Charts Total	N of Cases		T
		IPI	SSI	
Conclusive	± 4 to ± 8	59	19	78
Inconclusive	0 to ± 3	41	81	122
	Total	100	100	200

Table 4

Mean Score

	N	Mean	S.D
IPI Group	100	4.04	3.43
SSI	100	2.13	1.85
Total	200	3.08	2.64

To test the hypothesis that there is an interaction between the test results (truthful vs. deceptive) and the test initiator (IPI vs. SSI) a 2 x 2 factorial Anova was performed. Table 3 shows the results of the test. As shown in the table there is a significant interaction effect between the participant's group assignment and the test results: Main effect $F(2/179) = 275.61$, $p < .001$; Interaction effect $F(1/179) = 24.12$, $p < .001$. As the means in Table 5 shows, this interaction effect increases the scores, to a more conclusive, truthful or deceptive, result.

Table 5

Mean Score By Result

	Mean Score	
	IPI	SSI
Truthful	3.88	2.68
N	(48)	(38)
Deceptive	-4.27	-2.58
N	(51)	(43)

Results' Conclusion

This research's results conclusions are:

1. Psychophysiological reactions of the IPI Group are significantly higher than the SSI Group (mean reaction of 4.04 vs. 2.13).
2. Psychophysiological reactions of the IPI Truthful Group are significantly higher than the SSI Truthful Group (mean reaction of 3.87 vs. 2.68), and it is similar with the Deceptive Groups, where IPI mean score is -4.28 vs. -2.58 of the SSI.
3. Most of the IPI Group psychophysiological reactions (59%) are within the conclusive area ($\pm 4 - \pm 8$), while most of the SSI Group psychophysiological reactions (81%) are within the inconclusive area ($0 - \pm 3$).
4. Psychophysiological reactions of the deceptive IPI Group, are significantly stronger than the truthful IPI Group (mean reaction of -4.28 vs. 3.87). These results are contrary to the SSI Group in where the truthful psychophysiological reactions are significantly stronger than the deceptive SSI Group (2.68 vs. -2.58).

Discussion

As mentioned, lying per se, does not create the psychological detection of deception reactions, so what does? What are the input variables responsible for the psychophysiological reactions output? If it is explained by Gustafson and Orne (1963; 1965) motivation to avoid detection or to be found truthful, then this theory can explain why any psychophysiological reactions were detected. But it still disagrees with the results that found differences in the psychophysiological reactions extent

between the IPI and SSI Groups because (1) there should be no differences in the extent of the reactions between the groups because both groups are probably motivated equally; (2) there should be no differences in the extent of the reactions between the truthful and deceptive subject groups, because probably both groups share the same motivational level.

Davis (1961) conditioned response, or Lykken (1959; 1960; 1974) guilty knowledge or Ben-Shakhar (1977) dichotomization theories are accountable for the differences in psychophysiological reactions that were found between the IPI Truthful and Deceptive Groups, assumingly because lying creates a stronger reaction than the truthfulness. But these theories contradict the reversed results with the SSI Group, where truthful subjects reaction stronger than deceptive ones. If only Davis' (1961) conflict theory accounted for the results, then it contradicts the differences in psychophysiological reactions that were found between the IPI and the SSI Groups, because one would assume that probably both groups share the same conflict. Davis' (1961) fear of consequences theory can explain the differences in the psychophysiological reactions between the IPI and SSI Groups, because obviously the SSI Group does not have any fear of sanctions inflicted on them, if failing to pass the test successfully. If FOC is the only reason for the psychophysiological reactions, there should not have been any differences between the reactions of the IPI Truthful Group vs. The IPI Deceptive Group, because both groups share the same FOC, but then there are differences and significant ones? A probable reason for a stronger psychophysiological reactions detected within the IPI Deceptive Group is the fear of being detected (FOD).

The following table represents the different variables that exist between the research groups:

Table 6

		Variable		
GROUP		MOT	FOC	FOD
IPI	Truthful	+	+	-
	Deceptive	+	+	+
SSI	Truthful	+	-	-
	Deceptive	+	-	-

+ Variable exist

- Variable does not exist

Based on the amount of the variables, results of group classification follows:

- (1) IPI Deceptive Group (3 variables)
- (2) IPI Truthful Group (2 variables)
- (3) SSI Truthful Group (1 variable)
- (4) SSI Deceptive Group (1 variable)

This classification coexists with the extent of the mean psychophysiological reaction received in each of the groups, as shown in the following:

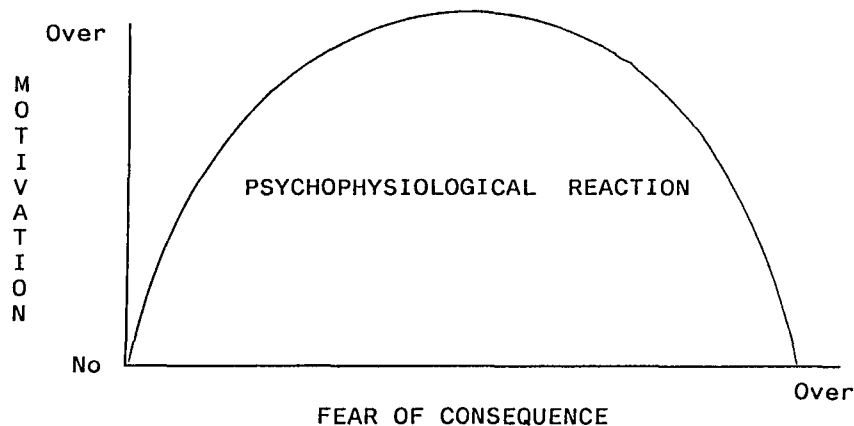
- | | |
|-------------------------|-------|
| (1) IPI Deceptive Group | -4.27 |
| (2) IPI Truthful Group | 3.88 |
| (3) SSI Truthful Group | 2.68 |
| (4) SSI Deceptive Group | -2.58 |

A possible explanation to the difference in-between the SSI Truthful and Deceptive Groups, can be attributed to the fact that the SSI Deceptive subjects lack the FOD, which amplifies the reactions.

The conclusion of this research is that the extent of psychophysiological detection of deception reaction is a function of the extent of fear of consequences (FOC) in proportion to the extent of motivation (MO), that exist within the subject while being tested. Fear of detection (FOD) is an additional factor existing within the IPI Deceptive Group subjects, that amplifies their psychophysiological reactions.

In addition, another conclusion is that the IPI group are focusing more attention to the sanctions following the results of the test, while the SSI group are focusing more attention on the reward following the results of the test. These results coincide with Waid's Focusing Attention Theory, and it may be integrated into this model as well, but it is still to be explored.

The conclusion of this research can be integrated into the following U shape curve Optimal States Theories.



As can be seen in the chart, the subject's psychophysiological detection of information deception reaches its highest peak level when his motivation and fear of consequences are at some moderate intensity. Lower and higher values are less effective. With IPI Deceptive subjects, the peak level will be elevated.

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NOTE ON STATEMENT ANALYSIS ARTICLE

In Volume 25, Number 4, 1996 issue of the *Polygraph* article entitled, "Statement Analysis: What do Suspects' Words Really Reveal?:" by Susan Adams, the following author's note was inadvertently omitted:

The author gratefully acknowledges Avinoam Sapir, Laboratory for Scientific Interrogation, whose extensive development and work in the field of statement analysis made this article possible. The author also gratefully acknowledges Don Rabon and his statement analysis book for law enforcement officers, *Investigative Discourse Analysis*.

* * * * *

CIRCLEVILLE MUNICIPAL COURT
POLYGRAPH POLICY AND PROCEDURES

By

Rob Reeser

Purpose

To establish guidelines and policy for the use of polygraph in support of the investigative efforts of the Circleville Municipal Court Probation Department, Pickaway County Day Reporting Center, Circleville Police Department, Pickaway County Sheriff's Department, and other jurisdictions as approved by Judge John R. Adkins.

Policy

The polygraph examination is a valuable investigative tool when used in conjunction with, but not as a substitute for, a thorough investigation. The polygraph may be employed, consistent with this policy to: Determine maintenance of probation compliance, corroborate or refute statements, assist in investigative leads, narrow or focus criminal investigations, serve to screen candidates for positions with this or other criminal justice agencies, and assist in the conduct of internal police and sheriff investigations.

Definitions

Polygraph - The term literally means "many writings." It refers to the manner in which certain physiological activities are simultaneously recorded. The instrument will record respiratory activity, galvanic skin resistance or conductivity, and cardiovascular activity. These recordings will be recorded while a person undergoes questioning in an effort to obtain truth or deception.

Polygraph Examination - The examination will include a period referred to as a pre-test, collection of charts, test data analysis, and when appropriate interrogation.

Personnel Qualifications of Polygraph Examiners:

Personnel assigned as polygraph examiners shall:

Successfully complete a basic course of polygraph instruction at a school accredited by the American Polygraph Association.

The author is a member of the American Polygraph Association. For reprints, write to him at Circleville Municipal Court, 151 E. Franklin Street, Circleville, Ohio 43113.

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Maintain and demonstrate proficiency as an examiner and satisfy established quality assurance procedures in the conduct of these examinations.

Complete not less than sixteen (16) hours of advanced polygraph training presented by the Ohio Polygraph Association or the American Polygraph Association during the previous twelve (12) month period.

Conduct polygraph examinations in a manner which reflects the highest standards of ethical conduct as a polygraph examiner, probation officer, and peace officer.

Environment

Tests and interviews will be conducted in a clean, neat environment, free of audible and visual distractions.

Examiners will be neat and well-groomed. Weapons may be worn, but not openly displayed.

Certificates, diplomas, etc., may be in the examination room, but not displayed in a manner in which they are in the line of sight of the subject during the testing phase of the examination.

Procedures

Requesting Polygraph Examinations

Employees of the Circleville Municipal Court Probation Department, Pickaway County Day Reporting Center, Circleville Polygraph Department, and Pickaway County Sheriff's Department may request a polygraph examination from this agency's authorized polygraph examiner.

Situations in which authorization of a polygraph examination may be requested and approved include, but not limited to:

- orders for examination by Judge John R. Adkins.

- requests from the probation department to determine probation compliance.

- requests from the Pickaway County Day Reporting Center to determine probation compliance.

- requests from the Circleville Police Department to assist in investigative efforts.

- requests from the Pickaway County Sheriff's Department to assist in investigative efforts.

requests from the office of the prosecutor as part of an agreement with the defense attorney for investigative purposes.

an element of a background investigation of a candidate for employment with the Circleville Municipal Court, Circleville Police Department, Pickaway County Day Reporting Center, or Pickaway County Sheriff's Department.

requests from other authorized criminal justice agencies.

efforts to confirm or refute an allegation that cannot be verified or disproved by other evidence.

efforts to establish probable cause to seek a search warrant.

part of an administrative or criminal internal investigation of an officer of this agency or another criminal justice agency consistent with this policy.

Submission to a polygraph examination must be a voluntary action with the exception of probationer's required to take examinations as a condition of probation or employees of this agency formally directed to take an examination as part of an internal investigation. In all other cases, polygraph examinations shall not be administered without the subjects written approval and waiver of rights.

The polygraph should not be used to verify a victim's allegation without sufficient grounds for suspecting that the victim has given false or misleading statements.

Requests from another law enforcement agency must be in writing and be approved by this agency's judge and chief polygraph examiner.

Not less than three (3) hours will be scheduled for any examination and not more than two appointments per day will routinely be made. Only exceptional circumstances may dictate the consideration of a third examination in a given day.

Preparing for Polygraph Administration

The requesting officer is responsible for providing the examiner with all information concerning the case, copies of probation reports, case files, crime and investigative reports, criminal and driving records, statements made by the subject, and any other known pertinent information.

Should the subject be unable to speak English, arrangements for an interpreter will be made. Also, should the subject be hearing impaired, a sign language interpreter will be present during the examination.

A subject will not be given a polygraph examination immediately after an extensive, accusatory interrogation. Also, if the subject indicates they do not want to be examined their wish will be granted.

Persons under the age of 13 will not be given an examination. Persons under the age of 18 will not be scheduled for an examination until formal written, and informed consent has been obtained from the individual's parent or legal guardian.

Persons will not be scheduled for a polygraph examination at a time when the following exist: fatigued or in ill health, physically injured or in pain, under the influence of alcohol or drugs, and recent physical or emotional trauma.

Conducting Polygraph Examinations

Only American Polygraph Association polygraph examiners will administer polygraph examinations.

During pre-test activities for criminal and probation polygraph examinations, the examiner will make inquiries about the subject's: Name, date of birth, address, current employment status, previous employment, family background, education, previous polygraph experiences, military service, arrest information, medical information, medications, drug experiences, alcohol usage, present health, physical problems, psychiatric problems, heart problems, allergies, and probation experiences. This information is used to determine the ability of the examinee to take the polygraph examination and determines anything that might adversely affect the examination. The issue under investigation will also be discussed in detail with the examinee. Information concerning the examinee's knowledge of the issue will be elicited, as well as the claimed source of that knowledge. The interview will not be conducted in an accusatory manner. If major discrepancies are uncovered during the interview, the examiner may attempt to resolve those discrepancies before attempting the examination. Finally, the theory and components of the polygraph will be discussed in a manner understandable to the subject. Questions by the examinee about the examination will be answered by the examiner prior to the collection of charts.

The examiner will not conduct a polygraph examination if it is felt for any reason that an unbiased examination cannot be given.

Where appropriate, the examiner shall read *Miranda* rights to the subject and explain the voluntary nature of the test. The test will not be voluntary for probationers ordered to take the examination as a condition of probation. The examiner will obtain a signed consent prior to the examination and a signed waiver of rights.

The examiner will develop all questions used in the examination. The arresting officer or referring probation officer may suggest areas they are concerned about, but final wording of the questions are at the discretion of the polygraph examiner. Each test question will be reviewed with the person being tested prior to the examination. Only techniques that have been taught to the examiner will be

used during the examination. The basic structure of a particular technique will not be altered. Question function and sequence will be in keeping with the technique employed.

All charts will be marked with an identifying case or file number, the name of the examinee, the date of the examination, and the signature or initials of the examiner.

An opinion will be rendered by the polygraph examiner regarding the outcome of the examination. The following conclusions can be rendered: No deception indicated, deception indicated, and inconclusive. These opinions cannot be rendered without at least the collection of two charts. Opinions will be based upon a standardized system of numerical evaluation or other formalized procedure validated through research.

Post-Test Activity

The examiner will advise the examinee of the outcome of the examination. The results will be presented to the examinee in such a way they will be completely understood.

An interrogation shall follow should a deception indicated conclusion be rendered. This phase will not be included if a prior agreement not to include this phase was developed. The examinee will be given an opportunity to explain the recorded reactions indicating deception. No interrogation will occur should no deception indicated be the conclusion.

Probation Polygraph Testing

Each individual on probation through the Circleville Municipal Court or the Pickaway County Day Reporting Center is subject to random polygraph testing.

In the event the probationer fails to take a polygraph examination as stipulated, his/her failure shall be sufficient grounds for revocation of probation.

The polygraph stipulation form (Appendix A) will be presented to the probationer at anytime during the probationer's probation term, preferably at the signing of the probationer's probation agreement. The stipulation form will be signed by the probation officer and the probationer.

The waiver of the rights form (Appendix B) will be presented to the probationer at the time of the polygraph examination. The form will be signed by the polygraph examiner and the probationer.

To safeguard against habituation and familiarization between the examiner and the subject, the polygraph examiner should not conduct more than three (3) separate polygraph sessions per year on the same offender unless significant reason exists for more frequent testing.

Victim Polygraph Testing

At no time will a victim of a crime be tested before the accused perpetrator is tested. Should the suspect decline taking a polygraph examination, a victim could then elect to take an examination. Victims will not be scheduled for an examination if adequate physical evidence exists to support their allegations.

Victim polygraph examinations may be conducted, but only following an investigation in which fact and circumstances are called into question and testimony of the parties involved are conflicting.

Polygraph testing of victims may be appropriate when physical or testimonial evidence indicates the victim may not be telling the truth.

The victim is advised of their individual rights against self-incrimination.

Relevant questions should be asked in such a way that the victim may answer them yes. Research has shown this method provides more conclusive findings and less confusion exists.

If a suspect has not been identified and information from independent sources indicates the incident may not have occurred, it would be appropriate to request the victim to undergo a polygraph examination.

Control questions should still be used that elicit a "no" response. The controls should revolve around lying and should be separate from the incident.

The polygraph examiner will be provided with all documents, reports, or other data he deems necessary. The decision of the polygraph examiner as to the suitability of the case and individual for examination will be final.

The examiner should always remember the victim is still a victim, until the facts, circumstances, and charts prove otherwise.

Pre-Employment Examinations and Applicant Screening

The sole purpose of a pre-employment polygraph interview is to professionally verify information given to gain employment.

A pre-employment polygraph examination will only be conducted if the applicant has been offered a job with the Circleville Municipal Court, Pickaway County Day Reporting Center, Pickaway County Sheriff's Department, Circleville Police Department, or other approved criminal justice agency.

Questions by polygraph examiners should dwell on issues least likely to be resolved by background investigations. The following are minimum question areas for applicant polygraph screening: Illegal drug/substances (use and sales), employment theft (merchandise and money), criminal acts

(undetected crimes, deviant sex, target of investigations), truthfulness (omissions and falsifications), employment history (complete and accurate), bribes (accepting and soliciting), gambling (blackmail activities and gambling debts), subversion (sabotage and access to confidential information) and perjury/false statements (lie under oath and false reports).

The polygraph examiner will state his opinion as to the truthfulness of the applicant's responses regarding the above-mentioned question areas. The examiner will also report statements and admissions made by the applicant pertaining to the question areas.

The polygraph examiner shall review all applicant screening reports, personal history summaries and any prior polygraph examination reports prepared by this agency before conducting the examination.

Pre-employment polygraph examinations shall be scheduled by authorized members of this agency's personnel authority after an offer of employment has been made.

Records and Reports

The polygraph examiner will provide such summary activity or statistical reports as may be directed by Judge John R. Adkins.

The polygraph examiner will keep a running log of all examinations conducted during his course of employment. The examiner will maintain constant calculation of the number of deceptive, non-deceptive, and inconclusive findings. The examiner will also maintain records of confessions obtained for deceptive polygraph examinations.

The polygraph examiner shall maintain copies of each polygraph report, together with polygraph charts and all allied papers, for a period of five (5) years, and indefinitely in capital offenses.

Pre-employment examinations polygraph reports and charts will be maintained in a secure storage location, separate from criminal polygraph files. Duration of storage and stipulations for release of information shall be governed by state law or the human resources policy and procedure.

Equipment

Polygraph instruments used shall be of commercial manufacture and shall have no fewer than three (3) functioning recording channels.

Calibration charts and maintenance logs shall be maintained at the instrument's location or with case files. Calibration checks of instruments should be conducted at least two (2) times per month and when possible, if the instrument is moved to a different location.

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**Appendix A
Polygraph Stipulation**

**IN THE CIRCLEVILLE MUNICIPAL COURT
OF THE STATE OF OHIO
FOR PICKAWAY COUNTY**

STATE OF OHIO,)	
)	
Plaintiff,)	
)	
vs.)	STIPULATION
)	
_____)	
)	
Defendant,)	

Pursuant to the sentence passed on _____ by The Honorable _____, placing the defendant on probation or continuing defendant on probation, the Court having found that but for an effective method of insuring defendant's compliance with the terms of probation to insure the safety of the community and his/her own security and rehabilitation, it would be essential to impose a period of incarceration and the Court having suspended imposition or execution of sentence upon the condition that defendant stipulate to a polygraph examination at random to determine if he/she has violated the terms of probation, defendant hereby enters into the following stipulation with the State of Ohio.

1. The defendant will take a polygraph examination administered by a polygraph examiner that is a member of the American Polygraph Association.
2. The defendant's probation officer will fix the date of the first conference with the Examiner, and the defendant's probation officer will likewise determine additional exams as needed.
3. Prior to each interview and examination, the Examiner will advise defendant of his/her rights in accordance with *Miranda*. The polygraph examination will focus on whether the defendant has violated the terms and conditions of his/her probation including whether the defendant has committed any new crimes since the commencement of the probationary period. The results of such examination, including the pre-examination and post-examination interview, will be sent to the defendant's probation officer who will advise the Court periodically. The Examiner may require and schedule a re-examination if in his judgment some extraneous factor has impaired an examination. Urinalysis may be required by the defendant's probation officer.

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4. When a deceptive report is received, the Court will set the matter for a revocation hearing. At the hearing, the Court will consider the examination materials plus any other relevant material.
5. In the event the defendant fails to take a polygraph examination as stipulated, his/her failure shall be sufficient grounds for revocation of probation.
6. The results of these interviews and polygraph examination will be evidence in any proceeding in the above case and in determining defendant's probationary status.

I CERTIFY THAT THE DEFENDANT HAS READ OR HAS
HAD READ TO HIM/HER IN FULL THIS STIPULATION
BEFORE SIGNING IT AND THAT HIS/HER SIGNATURE
WAS EXECUTED IN MY PRESENCE.

Defendant

Polygraph Examiner

**Appendix B
Waiver of Rights**

**POLYGRAPH EXAMINATION AS
A CONDITION OF PROBATION**

ADVICE OF RIGHTS AND WAIVER

I, _____, State that _____ has advised
(Defendant) (Examiner)
me of the following rights:

1. That I have the right to remain silent and the right to refuse to submit to this polygraph examination. I do, however, understand that my refusal either to take the polygraph examination or to cooperate with the examiner may be sufficient grounds, in and of themselves, for revocation of my probation.
2. That although neither any statements made by me during this polygraph examination nor the results of this polygraph examination will be admissible in any criminal proceeding other than in a hearing to determine whether my current probation should be revoked. I do understand that any statements made by me during this polygraph examination may be reported by the examiner to appropriate police agencies. I, therefore, do understand that what I say during this polygraph examination may cause an investigation to be made of my conduct and I further understand that should that investigation disclose independent evidence of my involvement in a crime, I could be charged and prosecuted for that crime.
3. That I have the right to consult with an attorney prior to making any statement or to taking the polygraph examination.
4. That I have the right to discontinue the polygraph examination at any time, although I understand that such action on my part may, in and of itself, be grounds for revocation of my probation.
5. I understand that any statements made to the examiner, as well as the results of the polygraph examination, will be forwarded to the sentencing Judge and may be considered by him in making his decision as to whether to continue my probation or to revoke my probation.

I have read the above Advice of Rights and I have also read the stipulation that I have previously signed. I understand all of my rights and I understand the matters contained in the stipulation. I am willing to take the polygraph examination, which will be administered by _____ (Examiner).

Dated this _____ day of _____, 19__.

Circleville Municipal Court Polygraph Policy and Procedures

(Defendant's Signature)

Date _____

(Examiner's Signature)

Date _____

CHINESE TORTURE OF TIBETANS, WAS IT TRUE?

By

William B. Anderson

Abstract

An experienced polygraph examiner is sent to India by the *Philadelphia Inquirer* to test 24 Tibetan refugees: To determine if these witness/victim/sources were truthful in their statements of severe torture, and death by Chinese officials of Tibetan independence activists. Despite many unusual handicaps the charted artifacts prove quite similar to a thousand U.S. produced charts from the same examiner: 23 of 24 non-deceptive. Torture wounds verified also by U.S. physicians on scene. Significance to examiners is transportable reliability of U.S. evolved polygraph processes to a remote and culturally very different population.

Background

In the late summer of 1996, Jonathan Neumann, an editor of the *Philadelphia Inquirer* asked if I would be interested in multiple polygraph tests of Tibetan refugees tortured by the Chinese and now in India. While the location and circumstances for the process were unusual, the request was not. Over many years I have done dozens of polygraph tests for the *Inquirer*, but always in the United States and of persons with functional English. My initial thoughts were to accommodate a respected client plus something more, based on adventure and challenge, and so I told him "yes." He would call later as the issue developed and with greater details when he knew more. He later identified the location as Dharmasala in the state of Himachal Pradesh in extreme northern India whose northern boundary is high in the Himalayas.

The *Inquirer*, part of the very large Knight Ridder newspaper chain, had used my polygraph services in a responsible way. Their investigative reporters, an active crew, regularly unearthed news stories with profound issues. Most were government based but other were corporate or personal behavior outrages. My service was to test the principal victim/witnesses/sources to verify or refute the truth of their statements. The *Inquirer* did not want to publish unless they exercised due diligence with witness statements. Over a long experience with many reporters, I have heard the partisanship rather commonly expressed by defense attorneys, sometimes subtly and sometimes all too plainly but understandable for advocates. We had an honest relationship, the *Inquirer* witnesses were not always

The author is a member of the American Polygraph Association. For reprints write to him at 1150 Warwick Furnace Road, Glenmoore, PA 19334. Copyright retained by William B. Anderson.

truthful and no surprise about that. After all, criticism of print journalism objectivity is now every man's attitude: There is also the unpleasant side to the human animal that sees small fault in using them, if it can be carried off, to extract revenge or advantage on an enemy or opponent. I had met many like this in a long FBI career. Why would it be different in journalism? It was not. When the witness-source lied to the *Inquirer* and they knew it, they did not publish. Simple as that. On later reflection many roadblocks, challenges and technical issues unexplored in the past became identifiable, proved very substantial, and seemed as forbidding as the Himalayas themselves.

Problems

All witnesses were refugees from Tibet and spoke only Tibetan. That part of remote northern India was surrounded by areas of Pakistan, Afghanistan, China and Kashmir and all on the edge of active or simmering violent confrontation. India had fought bloody wars there 30 years ago with China and Pakistan and was still most sensitive to renewed border disputes with them. China imposed hegemony over Tibet about 1950, asserting Tibet was always a province of China. During the earlier Tibetan resistance thousands (no one is sure how many) were killed. Tibet was not now at war with China but subdued by their much superior military power. As a theocracy, Tibet was ill prepared to resist by force a major military power and from that the issue here had derived. There was and is both the Chinese and the Tibetan side to these arguments. Not something that could be resolved by the *Inquirer* or one American examiner. But if the witnesses were truthful, the Chinese Army and police had tortured many and murdered some Tibetans who spoke out even modestly for independence--over a long time and continuing to the present. Great meanings for international opinion, and perhaps action were bound up in this issue. Many questions, issues and challenges flowed from this issue to my task.

Was polygraph lawful in India? Could an American conduct polygraph tests there? Were there Indian examiners? Would it be wise for me to do these tests covertly? Could they be done covertly? What would happen if Indian authorities, alerted, found criminal violation in my activity? What sort of visa, tourist or business was the wise choice? Was electricity available? Would it accommodate a U.S. 110 volt Stoelting Polyscribe? How to travel to a remote Hill Station? Who would secure translators? How to be certain the translators were not owned by anyone? Could they be objective? Dharmasala, the Hill Station, that was now home to the Tibetan government-in-exile held, along with 5 or 10 thousand refugees the Dalai Lama and his government. Long FBI experience with intelligence issues told me the Chinese surely had penetrated Dharmasala with their own "refugees." How to guard against their inside non-objective presentation of our results? Translators inevitably would know the substance of my activity. What about a Chinese agent among the witnesses? How to identify me to the Tibetans? A hostile Chinese description could describe me in a way of destructive of objectivity, "FBI agent in the pay of U.S. intelligence." I had retired from the FBI 20 years ago and now worked the defense side of the street. And "Ex-Marine Office in the pay of the Nationalist Chiang Clique." That had been 50 years ago when the 1st Marine Division stabilized North China. If a polygraph examiner cannot convince to a high objective and credibility standard, consequences for argument do arise. And on a very personal level, how could one be sure of working at full powers and living in a country with every known disease, for two or three intense weeks? If the polygraph instrument malfunctioned or broke down, what to do? Stoelting is in Chicago about

9,000 miles away. What repair items would be wise to take? Worse yet, what repairs could I make to a complicated electronic instrument, especially repairs to rely on? America is not India and Tibet even more culturally remote. That was probably the largest question of all. Could this immense cultural gap be closed objectively and reliable if all the other challenges from above were subdued successfully? Try as one might this could not be answered anywhere but on site. Without the human interaction of a valid polygraph process no forecast was reliable.

We projected the polygraph test process would require two or three weeks in India, which proved correct. Given the public health and abysmal sanitation circumstances there a first question was prevention. The Reading, PA hospital has a unit specializing in preparation for foreign travel and was a first stop. Their summary opinion was--virtually every known contagion is endemic in India--take all the preventive steps we offer--follow our food consumption advice and you will most probably stay in good health. Their advice proved correct and illness never found me. As an added precaution, I determined a daily dosage of Kingfisher beer excellent, if taken just after the day's testing was completed, and prior to a safe and spartan dinner. All of that boiled or baked.

The U.S. made polygraph instrument had performed very well on standard U.S. electricity all across this country, but what about India? What was their standard, if indeed they had one? Word back from the reporter in India, Loretta Tafani, was, she thought, 220 volt alternating current. A very helpful series of calls with Vern Miller, Chairman at Stoelting, supported Loretta's belief. He had been a tourist there and that was his experience. I suggested renting an instrument comparable to my familiar one and learned they were long since obsolete: That a 220/110 transformer was the solution. No problem, but how to splice the Indian convenience outlet hardware to a U.S. transformer? Indian transformers were believed unobtainable for my purpose and suspect for reliability. At my suggestion, Loretta, from Dharmasala, sent Indian extension cords for adaptation. They are very different from U.S. counterparts and a splice of the male plug to a U.S. transformer fitting by a local electrician seemed the solution. A critical piece of information was, what was coming out of that transformer plug when the current entered from an Indian convenience outlet? The answer was purchase of a U.S. voltmeter with digital read out. A review of this electric supply plan with Jerry, tech supervisor at Stoelting, got approval. He also reminded me this polygraph would not blow a fuse. It had none, using the more up-to-date circuit breaker system. So far so good. To be further certain of instrument accuracy, reliability and performance it went back to the factory for check-out and tune-up. All that could be done in instrument preparation had been done. Now to carry it gingerly, as hand luggage, through a half dozen security check systems at as many airports from Philadelphia to New Delhi: If this novel instrument could be gotten through systems, ultra sensitized now by the destruction of TWA flight 800. That did prove possible, though tedious, in Philadelphia, New York, London, Kuwait City and New Delhi. The tedium was relieved by one amusing request, in Kuwait City. I recall, "Do you have time to test me with that?" Asked straight faced and in apparent sincerity--at first--then we both burst out laughing. A heartening precursor in bridging a cultural gap 1500 miles ahead. After a 350-mile game of chicken in a hired car, the polygraph instrument arrived in Dharmasala. The better Indian roads are at about the 1930 U.S. level and only a local driver could or would thread through all those hazards and traps with confidence.

My passport was up-to-date but what about the Indian visa, essential and required? India granted tourist visas mechanically since tourists are an important hard currency source to them. I was not a tourist and the other choice was business. Editor Jon and I reviewed. If business, which was the correct word, what business? At my suggestion the applicant read, Truth verification with the polygraph. A carefully chosen positive spin, but nonetheless, fully truthful. It was granted promptly and now was official Indian government approval for my tasks in their country.

Were there local polygraph examiners in India? The APA directed me to Gordon Barland at Defense Polygraph Institute, Fort McClellan as he is their contact with overseas activity. Gordon had little on file for India. A correspondence, rather brief, with the head of Indian National Police Polygraphers in New Delhi, was recent but not especially informative. A few police examiners were in New Delhi. As to private examiners and regulation there was no information. I asked Gordon to make no inquiries.

The language barrier was plain. I do not speak Tibetan. Mandarin Chinese at limited street level, quite different from Tibetan, has stayed with me from a 1945-46 tour of duty as a Marine officer in North China. That was not useful, even a handicap, since it could be misconstrued as sympathy for the then Nationalist Chinese government. I was not and am not so persuaded from that experience. Translators were the only solution and here Loretta's work in Dharmasala with refugees and witnesses from Tibet had laid excellent groundwork. She could not speak Tibetan either and would solve that problem. I had used Serbo-Croatian and Spanish translators in my FBI polygraph experience with success. But inevitably translators will know almost all of the substance involved, excluding perhaps the opinion of the examiner. Realistically they, if intelligent, will make reliable inferences there as well. Usually this is a minimal problem but these circumstances were the exception. Dharmasala is the seat of the Dalai Lama and his government-in-exile for Tibet. It is also home to thousands of Tibetan refugees, many monasteries and businesses. Given the great significance for the current Chinese governments' bloody battle to consume and digest Tibet their intelligence service could hardly avoid penetration of this target. My own modest experience with intelligence matters in the FBI was dispositive in that regard. I could not use a translator unless vetted reliably, perhaps including polygraph for them. *Inquirer* officials were initially reluctant but saw the point promptly during our discussions. Loretta had grown understandably fond of those who she had worked with and helped her but she is intelligent and objective as well.

The Issues

Polygraph tests in Dharmasala included 24 persons. Most were refugee nuns and monks from Buddhist monasteries in Tibet. A few were civilians, also refugees from Tibet. The one element common to all was their personal history of arrest, confinement and torture in Tibet usually by the Chinese Army and Police. At times abetted by Tibetans now serving in the Chinese controlled police and prison system. Arrest and imprisonment were invariably for what U.S. standards would consider no offense at all--speaking, carrying a sign or attending a rally for Tibetan independence. Minor infractions such as these commonly resulted in a summary three-year sentence. Confinement usually included hard labor of the most rigorous sort. Breaking stone, and shoveling human excrement on

vegetables, were typical. Harsh punishment for prison infractions was standard and the general conditions primitive at best.

Those tortured by the confining authorities were so treated from their refusal to recant personal belief in Tibetan independence. The tortures were extreme. Kickings, beatings by hand and clubs, rapes of the nuns by electric cattle prods (not genitalia of the torturers) in rectum, vagina and mouth were virtually uniform. For the monks about the same. One monk had a red hot metal shovel placed against his belly. The issue questions then for polygraph testing were:

- A. Was the reason for confinement Tibetan independence activity as opposed to ordinary criminal behavior?
- B. Were they tortured by confining authorities as they claimed?
- C. In two instances--Had they witnesses the extreme torture resulting in death of other prisoners?

I was introduced to these witnesses as an American legal expert, nothing more. That proved sufficient. We made no attempts to be secret or covert. They were not necessary.

As every examiner knows controls are at the heart of a valid polygraph test process, I had brooded at length, how it would be possible to devise proper controls to witnesses/victims in these remote circumstances. From general knowledge and research reading, I knew Tibetans to be (commonly) profoundly attached to the principles of the Buddhist religion. A peaceful contemplative religion requiring a high order of personal responsibility and certainly not justification for lies. The nuns and monks would be more intent in the same behaviors plus poverty and self abnegation. Given that our polygraph process works very well indeed with the general run of U.S. humanity; a population not so profoundly attached to vigorous moral beliefs or practices; one could theorize that Tibetans were as likely to be moved emotionally by valid controls; perhaps more so; only face-to-face would satisfy.

Now in Dharmasala came the awesome moment. Plug in the transformer, connect the splice, insert the voltmeter. The voltage was 112. Now connect the polygraph instrument and prayerfully ask for no explosion or wisps of blue smoke. It worked, smoothly and silently just as back 9,000 miles in the States--almost. The instrument panel told me we were not grounded. Earthed, as the locals called it. No matter, we would carefully avoid the touch of plumbing or other avenue for current leakage and no problem.

Testing

An extended pre-test interview is part of the regime standard to my process. It does two important things: Resolve whether the person is suitable for testing and equally important provides information critical to the formation of tailor-made control questions. This was done in Dharmasala. The derived controls turned on truthfulness to and behavior toward parents (pre-entry to the

monastery) and truthfulness to and behavior toward other religious equals and supervisors (after entry to the monastery). Many, especially the nuns, had entered these orders as young teenagers, were still rather young, and were quite sensitive to absent parents, their mothers in particular. These controls were notably effective and very useful.

The process was slow. Primarily from the translation need. It was also difficult to locate and transport these witness/sources to the Tibet Hotel in Dharmasala. Three tests a day was about average. These tests were conducted in my room at the hotel on the second floor which had satisfactory furniture, a desk and chairs. The windows faced East with a spectacular view of the Himalayas. Little sound penetrated the thick walls. The electricity source was usually functional, but stoppages did interrupt a few tests. We, translator, subject and examiner all faced away from the windows in organized quiet. The weather was warm and the windows slightly open for circulation. They should have been locked, during one test an illegal entry without stealth was attempted. A large, two foot tall, or more, male monkey prowling for food made a vigorous try, couldn't get through and in fury, or great hunger tried to pry the windows apart. We should have known, Dharmasala is picked over from dawn to dusk by many hungry monkey troops scavenging anything edible. They are described as surly, bad-tempered, and confrontational, if interrupted during food searches. This one was rather shy and bounced off.

Results

Twenty-three of the twenty-four examinees were plainly "No deception indicated." The exception, a civilian, indicated deception. In interview he admitted he was a former member of the Chinese Communist Party, and had been a supervisor for the Chinese propaganda office in Lhoka, Tibet. Was he the Chinese intelligence agent theorized or merely lying to the Tibetan government-in-exile to enhance his standing and increase his welfare benefits from them? To re-test him to resolve this was deemed too instructive to him and therefore his masters. No additional testing was done and his statement never used in the *Inquirer*.

These polygraph tests' results corroborated Loretta's witness statements. Additionally where appropriate, two U.S. physicians examined Tibetan witnesses who still exhibited indicia of torture. They concluded the injuries were consistent with the tortures recited. The *Inquirer* now considered their witnesses truthful and published a long series on page one.

Finally, the cultural gap I foresaw proved to be modest indeed. It closed much more easily than expected. In the pre-test interview each person was reminded they would be quoted in a big city U.S. newspaper. Consider that publicity naming them, and possible effect from the Chinese, on friends and relatives till in Tibet. I reminded them this was purely voluntary. Did they still wish to proceed? All but one promptly said something like, 'Yes, Tibet must be free. Let's do it.' Many of these were nuns about 4'10" tall and 95 lbs. The exception was a large strong male civilian, cantankerous, mule-like, a contrarian of the type not unusual in the USA. Much of what he said I had heard in English. When I implied a touch of "just weak" in him he stopped the performance and on we went. For all of them in the pre-test, I asked "Do you know the difference between right and wrong?" "Yes." "How did you learn that?" Almost invariably, "From my parents, and family and

my religion.” Tibetans gave a nearly uniformed impression of innocence, simplicity verging on a naivete not to be confused with limited intelligence. They were easy to like. More important, to polygraph examiners their recorded artifacts of emotional response were essentially the same as seen in a thousand examinations in the United States.

The series of articles appeared in early December 1996, was picked up and carried by 70 other newspapers, and has been nominated for a Pulitzer prize. ... And yes, they did include a fulsome description of polygraph documentation. The entire project, including travel, portal to portal required 18 days in November 1996.

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Manuscripts for *Polygraph*

Manuscripts submitted for publication in *Polygraph*
should be sent to:

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Anniston, AL 36204

Please send three copies, double spaced.

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