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**POLYGRAPHS IN THE WORKPLACE: THE USE OF
"LIE DETECTORS" IN HIRING AND FIRING**

HEARINGS

BEFORE THE

SUBCOMMITTEE ON EMPLOYMENT OPPORTUNITIES

U.S. Congress, House -

OF THE

**COMMITTEE ON EDUCATION AND LABOR
HOUSE OF REPRESENTATIVES**

NINETY-NINTH CONGRESS

FIRST SESSION

ON

H.R. 1524

POLYGRAPH PROTECTION ACT OF 1985

H.R. 1924

POLYGRAPH CONTROL AND PRIVACY PROTECTION ACT OF 1985

**HEARINGS HELD IN WASHINGTON, DC ON JULY 30, AND SEPTEMBER
18, 1985**

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POLYGRAPHS IN THE WORKPLACE: THE USE OF "LIE DETECTORS" IN HIRING AND FIRING

TUESDAY, JULY 30, 1985

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON EMPLOYMENT OPPORTUNITIES,
COMMITTEE ON EDUCATION AND LABOR,
Washington, DC.

The subcommittee met, pursuant to call, at 9:35 a.m., in room 210, Cannon House Office Building, Hon. Matthew G. Martinez (chairman of the subcommittee) presiding.

Members present: Representatives Martinez, Williams, Gundersen, Henry, and Jeffords.

Staff present: Eric P. Jensen, acting staff director; Paul Cano, legislative assistant; Genevieve Galbreath, chief clerk/staff assistant; and Patricia Kelly, staff assistant. Minority staff: Dr. Beth Buehlmann, Republican education staff director; Mary Gardner, Republican legislative associate; Daniel V. Yager, Republican associate labor counsel.

Mr. MARTINEZ. I call this meeting to order.

This is a hearing of the Subcommittee on Employment Opportunities. In light of the recent publicity surrounding the rash of national security violations, the use of polygraph devices, better known as lie detectors, has once again come to the forefront of our attention.

The polygraph device measures the changes of one's pulse, blood pressure, and perspiration in response to a series of questions. These psychological responses purportedly indicate whether an individual is lying or telling the truth.

The use of the polygraph is controversial to say the least. Proponents of their use feel polygraphs are essential in protecting their business interests, while opponents argue that the polygraph has no validity and employer reliance on this device unfairly denies employment to honest individuals.

Of course, in determining whether the use of the polygraph in the workplace should continue, we must weigh the interests of both parties, employers and the employees alike. The right to privacy and due process dictates that we must carefully scrutinize the validity and effectiveness of the polygraph, and we must scrupulously protect the employees' right to fair employment opportunities. On the other hand, we must consider the interests of the employer. Employers also have the right to protect their business interests.

In the final analysis, the balance of equities and competing interests must be carefully and judiciously considered.

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THE ACCURACY AND UTILITY
OF POLYGRAPH TESTING



DEPARTMENT OF DEFENSE
WASHINGTON, D.C.
1984

147

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1984

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FOREWORD

This analysis of the scientific literature on the accuracy of the polygraph, with supporting information on use and utility, was prepared at the direction of Deputy Under Secretary of Defense Richard G. Stilwell, General, USA (Ret.). General Stilwell, with the concurrence of the Director of the National Security Agency, appointed Norman Ansley to lead a working group of senior examiners from the military services to prepare a report, setting forth the basis upon which the polygraph is utilized in the Department of Defense. In addition, the report was to include information on the use and results of polygraph testing in the Department.

The working group, listed below, provided information from their resources on the use of the polygraph and case examples. They also served as an editorial board, reviewing the text. This report was prepared by Norman Ansley, Chief, Polygraph Division, Office of Security, National Security Agency, and Marcia Garwood, Ph.D., Research and Special Branch, Polygraph Division, Office of Security, National Security Agency. Gordon H. Barland, Ph.D., served as a scientific editor of the report. William Fedor, Deputy Director (Personnel Security) Counterintelligence and Investigative Programs, and William H. Bell, Security Specialist, Counterintelligence and Investigative Programs Directorate, ODUSD (P), represented DoD in the development of this report.

THE WORKING GROUP

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OVERVIEW

The federal government has over sixty-five years of experience with polygraph techniques in criminal and counterintelligence testing. Beginning in 1951, the Department of Defense established a polygraph school for the training of military examiners. It conducts basic and advanced courses and now trains almost all of the polygraph examiners in the federal service.

The use of the polygraph for the investigation of crimes is a well established practice. Known errors in the field use are exceedingly rare. Where examinees are found to be deceptive during testing, the confession rate is consistently high, despite the fact that all of these criminal suspects had already been interrogated by an experienced investigator. Moreover, there is nothing about the polygraph technique that likely to cause a false confession because of the requisite low key questioning. The use of the polygraph to confirm admissions and confessions with additional testing also reduces the possibility of false confessions. This study includes a number of representative cases of criminal investigations in which the polygraph has played a significant role.

The polygraph is extremely useful in intelligence and counterintelligence operations. There is positive evidence of the deterrent effect of screening examinations. Examples of espionage and attempted espionage cases detected by polygraph examinations are included in this study. Without the polygraph as an investigative tool, a number of espionage cases never would have been solved. Helmich, Kampiles, and Barnett probably would not have been successfully prosecuted without the skillful application of polygraph techniques. In addition, there is definite evidence that some extremely sensitive U.S. intelligence operations would have been penetrated by hostile intelligence services if the polygraph had not been employed in screening for clearance and access. Examiners conducting screening cases have obtained confessions from applicants of their intention to commit espionage. In other cases they developed such significant admissions that penetration attempts by hostile intelligence were detected and neutralized. Screening has also kept our intelligence agencies from hiring some extremely undesirable people. Examiners, in FY 82, obtained admissions from applicants of undetected crimes involving murder, attempted murder, arson, rape, and numerous other felonies.

The polygraph field is one of those rare situations where the practice has outpaced the research. While scientists are debating how the various testing formats work, and are trying to devise a satisfactory theoretical framework, others are conducting research on the development of improved techniques and advanced instrumentation. Much of the literature which discusses the issue of polygraph validity was written for other purposes. Some of the polygraph research is very limited in scope, some is dated, and some is flawed in design. Despite these limitations the research produces results significantly above chance. Those studies which approximate field conditions by using field instruments, trained and experienced examiners, standardized techniques, and a complete field pretest interview, produce higher rates of accuracy than those conducted with one physiological channel, make-shift or novel techniques, and untrained personnel.

The polygraph is not limited to our culture. It is significant that research results are similar throughout the world, regardless of varied cultures and languages.

It is important to realize that polygraph examinations are not conducted in isolation. Their use is always in the context of a larger program. They play a role in investigations but they are never a substitute for investigation. Polygraph examiners do not make recommendations or decisions in regard to further investigation or the adjudication of the results. In screening, the polygraph examination is not used alone for clearance and access. It is an adjunct to the national agency check and background investigation. Decisions and adverse actions are not made solely on the results of an analysis of polygraph charts. All other factors in a situation are considered before decisions are made.

Used with prudence, and a full knowledge of its limitations, the polygraph will continue to play a role in our criminal justice system and counterintelligence operations.

CHAPTER 1 - UTILIZATION OF THE POLYGRAPH

1.1 THE POLYGRAPH IN THE FEDERAL GOVERNMENT

1.1.1 FEDERAL AGENCIES

The polygraph is currently used by the Department of Defense, United States Secret Service, Federal Bureau of Investigation, Postal Inspection Service, Alcohol, Tobacco and Firearms Administration, Drug Enforcement Administration, Central Intelligence Agency, United States Marshals, United States Customs Service, and the Department of Labor (Anti-Racketeering). These agencies often provide polygraph service to those federal law enforcement agencies and intelligence agencies and activities which do not have polygraph examiners. The Department of Defense elements which currently have polygraph programs are the United States Army Criminal Investigation Command, the United States Army Intelligence and Security Command, the Naval Investigative Service, the Air Force Office of Special Investigations, the U.S. Marine Corps Criminal Investigation Division, and the National Security Agency.

These fifteen agencies are represented on the Federal Interagency Polygraph Committee which meets quarterly, or more often if necessary. Although informal, the committee has achieved the adoption of minimum standards for the selection and training of federal examiners. The Committee has also established and operated an advanced polygraph seminar. Each year, the FBI hosts a one-week seminar attended by seventy or more federal examiners at its training facility at Quantico, Virginia. The program of instruction is planned and coordinated by a different federal agency each year, although in some years two agencies combine to put on the instruction.

1.1.2 Polygraph Examiners in the Department of Defense

All polygraph examiners in the Department of Defense must meet the minimum requirements set forth in DoD regulation 5210.48 plus those established in each service or agency. DoD examiners are college graduates, experienced investigators, U. S. citizens, at least 25 years old, and specifically selected for their maturity and judgment. All have been subjected to a thorough screening examination with a polygraph, and have been the subject of an extensive background investigation. The basic polygraph training of military examiners is the twelve-week course conducted by the Army at the Military Police school, Fort McClellan, Alabama. All examiners then serve a closely supervised internship of six to twelve months.

1.1.3 Number of Examiners

As of September 1983, the Department of Defense had 153 certified examiners. That number does not include interns or those in basic training.

	DoD CERTIFIED EXAMINERS						Total
	Army CID	Army INSCOM	Navy	Air Force	Marine Corps	NSA	
1980	39	9	11	20	8	13	100
1981	42	9	12	20	6	30	119
1982	44	12	14	20	6	26	122
1983	50	15	15	40	6	27	153

1.1.4 Annual Polygraph Utilization

ANNUAL POLYGRAPH UTILIZATION (Number of Examinations)

	Army CID	Army INSCOM	Navy NIS	Air Force OSI	Marine Corps CID	NSA	Total
1980	4005	214	1317	1415	258	5676	12885
1981	3690	281	1185	1418	245	7418	14237
1982	3686	390	1337	2026	263	9672	17374

1.2 CRIMINAL INVESTIGATION

1.2.1 History

The Federal Bureau of Investigation and its predecessor, the Bureau of Investigation, made use of the polygraph technique occasionally from 1917 into the 1930's. In the mid-1930's Leonard Keeler, who was then at the Northwestern University Crime Laboratory, trained an FBI agent in polygraph technique. A few years later he trained an agent from the United States Secret Service. The Army began to have agents trained as examiners in World War II, and when Leonard Keeler established the first polygraph school in 1948 the federal government began to expand the use of the polygraph for criminal investigations. Today fifteen federal agencies or departments have polygraph programs.

1.2.2 Polygraph As An Aid To Investigation

In criminal cases, the polygraph is not used in the Federal Government as a substitute for investigation. Field investigation is usually conducted as far as circumstances permit before the polygraph plays a role. This requirement for prior investigation plus a prior and separate interview of all prospective polygraph subjects is mandatory in the Department of Defense, and may be waived by DoD officials only in the most unusual circumstances. Despite these restrictions, the polygraph is widely used in criminal investigations. Defense counsel in criminal cases frequently ask for exculpatory examinations.

The Army, which is the greatest user of the polygraph for law enforcement purposes in the Federal Government, has utilized the polygraph in 17% to 19% of its investigation of felony crimes during the last year and a half. Further, the Army has used the polygraph in 95% of its criminal investigations pertaining to crimes for which the maximum penalty is 15 years or greater. The effectiveness of this effort is illustrated by comparing the percentage of felony cases solved by the Army with the national rate. The Army solved 64.7% of their felonies while the national average for the same period was only 19.5%. The use of the polygraph was one of the significant reasons for this extraordinary achievement.

The following tables depict the extent of use of polygraph examinations in criminal investigations in DoD, the pretest and post test confession rates, and the administration of exculpatory polygraph examinations which are requested by the suspect or his attorney:

1.2.3 Tables on Use in Criminal Investigation

	Army CID	Navy NIS	Air Force OSI	US Marine Corps	Totals
1980	3990	1209	1336	255	6790
1981	3677	1049	1304	240	6270
1982	3665	1210	1745	261	6881

PRETEST ADMISSIONS OR CONFESSIONS

	Army CID	Army INSCOM	Navy NIS	Air Force OSI	Marine Corps CID
1980	12.5%	21.5%	11.5%	10.0%	1.9%
1981	10.3%	16.0%	8.9%	13.3%	3.7%
1982	10.7%	13.3%	11.0%	12.0%	3.4%

POST TEST ADMISSIONS OR CONFESSIONS OF DECEPTIVE SUBJECTS

	Army CID	Army INSCOM	Navy NIS	Air Force OSI	Marine Corps CID
1980	46.4%	19.4%	34.4%	35.6%	50.0%
1981	44.7%	27.7%	36.5%	33.3%	52.4%
1982	48.7%	51.3%	30.1%	31.2%	36.7%

1.2.4 EXCULPATORY EXAMINATIONS

(Requested by the suspect or his attorney)
Percentage of total cases in parentheses

	Army CID	Navy NIS	Air Force OSI	Marine Corps CID
1980	328 (8.2%)	239 (18.1%)	506 (35.6%)	39 (15.1%)
1981	349 (9.5%)	164 (13.8%)	466 (32.9%)	24 (9.8%)
1982	324 (8.8%)	209 (15.6%)	542 (26.8%)	31 (11.8%)

1.2.5 Criminal Investigation Case Examples

In 1980, an Army captain was killed when his parachute failed to open. Investigation revealed that the static line of the officer's parachute had been intentionally cut. As this crime occurred in an airborne division, the possibility existed that other parachutes had been cut and that additional military members would be fatally injured during parachute jumps. As 160 parachute riggers had an opportunity to commit this crime they were all considered suspects. A decision was made to use the polygraph swiftly to determine the individual responsible for sabotaging the parachute. Five days after the death of the officer, use of the polygraph resulted in the identification of the person who sabotaged the parachute, who then confessed.

In 1982, a serviceman had been scheduled for trial for the rape and sodomy of a female military member. Based on a polygraph administered to the alleged assailant, who requested this test in exculpation, it was determined that he had not committed any sexual crimes with or upon the complainant. A subsequent polygraph examination of the female complainant resulted in a confession that she had made a false complaint because she was angry at some members of her former military unit. In this instance, the polygraph prevented an innocent man from going to trial for the serious crimes of forcible rape and forcible sodomy.

In June 1982, a female military person reported in a sworn statement that a male military person had assaulted her with intent to commit rape. A criminal investigation of the alleged incident failed to confirm or deny her complaint. Subsequently, the alleged incident became a security clearance matter and was reopened. The alleged perpetrator admitted "playing around" with the complainant, but denied any aspect of assault or attempted rape and he volunteered to undergo a polygraph examination. As a result of the examination, the male military person confessed to all the charges made by the complainant.

A civilian employee operating a government owned service (gas) station on a military installation was suspected of falsely reporting a \$1,800.00 robbery of the service station. HE was administered a polygraph examination which indicated deception. The employee then admitted stealing the \$1,800.00 himself and identified a local military member as an accomplice.

An individual was tried and sentenced to life in prison for the murder of a fellow soldier. This individual asked the Army to give him a polygraph examination for exculpation. The results revealed that he had not committed the murder. The investigation was reopened and the actual perpetrator of this crime was apprehended and the innocent soldier was released from prison. This matter would not have been resolved without the use of the polygraph.

The body of a nine-year-old girl was found in a trash dumpster on a military installation. An autopsy revealed the child had been sexually molested and the cause of death was asphyxia. Investigation revealed that an individual reported he had been robbed in the vicinity of the dumpster on the night in question. Further investigation revealed the complainant of the robbery had been in a bowling alley, which was the last place the girl was seen alive. The subject was offered a polygraph examination and he agreed. The examination results indicated deception on the issues of kidnapping and killing the girl. During the subsequent interrogation by the polygraph examiner, the subject made a full confession.

A U. S. military member was suspected of setting a fire aboard a ship that resulted in excess of one million dollars damage; he denied the charges. The military member was administered a polygraph examination which indicated deception, whereupon he confessed to intentionally setting the fire.

An individual charged with Possession and Sale of Controlled Substance maintained his innocence during the investigation and requested an exculpatory polygraph examination. The examination was administered by an Army examiner and the individual was found to be truthful when he denied criminal participation in the possession and sale of the controlled substance. The polygraph evidence was not considered during the pre-court martial hearings nor was it allowed to be introduced during the court martial proceedings. The individual was convicted and sentenced to serve time in prison. Following the conviction, the examiner continued the investigation and identified a civilian subject who confessed to the examiner that he committed the crime for which the military member was sent to prison. The examiner then coordinated efforts to obtain the release of the innocent military member from prison.

1.2.6 Criminal Conduct Revealed during Screening Examinations

A detailed analysis was made of the admissions made during the testing of 20,511 applicants for clearance and access at NSA from 1 October 1975 through 28 February 1979. There were 695 persons, 3.4% of the total, who admitted to the commission of a felony. In almost all of these cases the perpetrator had gone undetected. Among the few who had been caught, there were six who had been convicted, but who had falsified their forms to conceal the arrest, conviction, and time served. The admissions included murder, armed robbery, forcible rape, burglary, arson, embezzlement, hit and run driving with personal injury, thefts of expensive items or large amounts, smuggling and wholesale selling of illegal drugs.

In addition, 2,489 persons (12.1%) admitted to misdemeanors. These admissions included petty theft, simple assault, tax evasion, falsification of travel vouchers, malicious damage, indecent exposure, prostitution, selling illegal drugs and controlled substances for profit, deliberately writing bad checks, and other forms of fraud. Some of these cases may have been felonies. When there was doubt, they were statistically classified as misdemeanors. Not all of the misdemeanor admissions were disqualifying. The purchase, use or possession of illegal drugs was not listed in this category.

There were 8,383 (40.1%) who admitted to the use of an illegal drug on at least one occasion. There were 2,228 (10.9%) who admitted using amphetamines, barbiturates, hallucinogens and similar substances. There were 704 (3.4%) who admitted to the use of heroin, cocaine, or opium.

The statistical rates for the admissions of crimes and drugs have changed very little since that survey.

1.2.7 Examples of Crimes Admitted during Screening Examinations

The following admissions were made to NSA examiners during screening examinations. All are from FY 1982 cases:

An applicant for an engineering position at NSA, employed as an engineer by another government agency, admitted that his engineering degree was phony (he bought it through mail order from London for \$100). He also admitted that he shot and wounded his second wife (his prison term was not on his SPH) and his present wife is missing under unusual circumstances that he would not explain.

An applicant admitted to setting fire to the trailer that his ex-wife and child lived in. He had been questioned by the Michigan State Police as a suspect (attempted murder/arson) but denied it, and refused their offer of a polygraph test.

An applicant said he killed a young girl while in combat in Vietnam. He recognized her as a young girl when he shot her the first time, then for no reason he could give, he shot her several more times at close range. He called it murder. He also admitted stabbing a stranger in the face with a knife in an argument over some beer.

An applicant admitted to the forcible rape of his ten year old niece, which was never reported to the police.

An applicant for a position in which he would carry a firearm, admitted he had been charged with attempted murder but not tried for lack of evidence. He admitted firing his shotgun at six people, and hitting all of them.

An applicant admitted to firing a rifle into his estranged wife's home in an attempt to murder her. He fled Connecticut which had a current warrant outstanding for his arrest.

1.3 INTELLIGENCE, COUNTERINTELLIGENCE AND SECURITY

1.3.1 History

The instrumental detection of deception was first used in an investigation for the Army when a Secret Code Book was stolen from the Surgeon General's safe in 1917. The thief was detected among the 70 suspects tested, but he was not confronted. Followed from Washington, D.C. to New York City, he was apprehended in the act of passing the code book to a German agent. During World War I the Army trained a group of psychologists at Camp Greenleaf in lie detection techniques for counterintelligence purposes, but the Armistice was signed before they were put to use (Marston 1938).

Beginning in the 1940's, the polygraph was used at the Oak Ridge atomic facility for screening of employees. Operated entirely under contract by a private company, the program continued until 1951 when the security responsibilities then under contract were taken over by the government (Trovillo 1951). At the end of World War II at Camp Wetherill, New Jersey, the Army used the polygraph to examine 274 German prisoners of war who had been screened and selected for police leadership positions in the post-war German Government. A team of seven experienced examiners using RI Technique asked questions about Nazi party sympathy, communist sympathy, plans to engage in sabotage or subversion, activity for the Gestapo, SS, or SA, and serious crimes. The results cleared 156 Germans (57%) for senior police positions. There were 8 inconclusive cases (3%) and 110 (40%) were not recommended. The examiners obtained admissions to Nazi Party membership by 24

candidates, and to SA by two and SS by one. Three were communists, of which one was a party organizer. Among the Nazis was the Party Treasurer from 1933 to 1938 (Lanehan 1978).

In 1947 the newly formed Central Intelligence Agency began using the polygraph in support of operations and for specific investigations. They also began to use the polygraph in screening. By 1950, CIA was screening all applicants.

In May 1951, the Armed Forces Security Agency, predecessor of the National Security Agency, began using the polygraph to expedite the clearance processing of more than a thousand employees who had been hired but could not be cleared until the background investigation had been completed. Because of the Korean War, those investigations were taking from nine to eighteen months to complete. Accordingly, AFSA gave top secret access on an interim basis to employees based on a satisfactory polygraph examination and a National Agency check. Soon thereafter, AFSA-NSA began screening local applicants before they were hired and by 1953 was giving polygraph examinations to all applicants prior to employment.

During the years 1951 to 1983 a number of other special activities in the Department of Defense have used the polygraph for clearance and access determinations, and for operational purposes. Some of these polygraph operations were for specific projects of a limited duration, others were for long terms.

Acting on recommendations of a DoD Select Panel on Personnel Security, Frank C. Carlucci, Deputy Secretary of Defense, issued a Memorandum on 6 August 1982 which established an aperiodic counterintelligence polygraph program in the Department of Defense for those persons who have SCI access. Mr. Carlucci also restored the Reinvestigation Program in DoD. The Carlucci polygraph program was implemented only in the National Security Agency. Other elements of DOD needed a revision in the DOD polygraph regulation before they could begin. The polygraph regulation was under revision when Congress expressed an interest in the proposed expansion of the polygraph in the Department of Defense.

On March 11, 1983, the President issued National Security Decision Directive Number 84 "Safeguarding National Security Information," which was separate from the DoD action. Among the many security measures in NSDD 84 is the requirement to revise regulations and policies so that employees may be required to take a polygraph examination in the course of investigations of unauthorized disclosures of classified information.

Congress will hold additional hearings, on NSDD84 and the polygraph, and has passed legislation which prohibits The Department of Defense from expanding the use of the polygraph beyond that existing on 5 August 1982 (the day before the Carlucci memorandum), until 15 April 1984. NSA is exempt from this moratorium. The moratorium is to provide Congress with time for hearings and, if necessary, subsequent legislative action.

1.3.2 Specific Investigations of Espionage

In many cases, espionage activity is initially detected by other means, and the role of the polygraph examination is to find the guilty persons among those suspects developed by investigation. Not infrequently, the examiner will get admissions that are useful in furthering the investigation, or get confessions. Polygraph examinations were important to the successful prosecutions of Barnett, Kampiles, and Helmich. All received lengthy sentences for violation of the espionage statutes. And in each of these cases the polygraph examination was important to counterintelligence analysis and damage assessment.

Other espionage cases have been detected through screening operations conducted by the Department of Defense and the Central Intelligence Agency. Here, again, the examiners have obtained information in sufficient detail to initiate investigations, and in some cases have obtained confessions. It is important to note that in the screening situation, the applicant initiates the contact by applying for assignment, employment, or some form of access. The applicants know beforehand that they will be given a polygraph examination. The decision to take the examination and risk exposure must be a difficult one to make. There are several known cases in which agents have refused an assignment to seek employment where the classified access required a polygraph examination. This deterrent effect is illustrated by the refusal of Christopher Boyce to accept a job with the CIA as a courier between the United States and sites in Australia. He feared that the examination would reveal his espionage activities. He refused again for the same reason on a later occasion when his Soviet handler suggested he apply for work at CIA (Lindsey 1979). Likewise, Barnett opted not to apply for a staff position at CIA or NSA because he feared the polygraph test.

Prime Minister Thatcher (1982), in her statement on the report of the Security Commission about the Prime Case, said that "The Commission concludes that the polygraph is the only measure of which it could be said with any confidence that it would have protected GCHQ from Prime's treachery, either because it would have deterred him from applying to join or would have exposed him in the course of examination. In view of this and of the extreme gravity of the damage caused by Prime, the Government accepts the Commission's recommendation that a full and thorough pilot scheme should be carried out. The Commission recognizes that a polygraph examination would be seen by some as an unwarranted invasion of their privacy. But we are dealing with matters of the highest national security, and those who have access to the nation's most sensitive secrets must expect to be subject to the most rigorous vetting procedures."

1.3.3 Examples of Polygraph Cases - Espionage

A U.S. directed informant with access to the intelligence and security functions of a foreign power reported on an unidentified agent inside a highly sensitive U.S. communication center, and said that foreign government officials were reading U.S. classified communications almost as soon as they were put on the wire. These communications dealt with highly sensitive activities involving the Defense and State Departments, and the White House. Investigation led to five suspects. All were interviewed with sworn statements executed denying any activity on behalf of the foreign government. Investigation produced no additional indication of espionage activity. All five suspects agreed to undergo examination

on the polygraph. Four of the five were determined by the examiner to be innocent of involvement. The remaining individual was reported as deceptive and subsequently confessed that he was, in fact, in the employ of the foreign power. He admitted furnishing far more information to the foreign power than was reported by the U.S. informant. Much of the information he admitted providing to the foreign power was subsequently confirmed by the U.S. directed informant.

A U.S. military member was arrested after selling classified material to undercover federal agents following documented contact with the Soviets. The military member denied any additional contacts or any additional violations. He was administered a polygraph examination in which showed deception. He subsequently admitted to additional Soviet contacts and possession of additional classified information at his residence.

A U.S. controlled agent allowed himself to be recruited by a foreign intelligence service in 1978. From 1978 until 1982, the agent was met periodically by a foreign case officer, but never in the United States. In April 1982, the foreign intelligence service agreed to have a courier meet the agent in the United States. The courier was arrested when the meeting took place. He was tried and convicted. Throughout his interrogation following his arrest, he did not identify anyone else in the U.S. who might be engaged in espionage against the U.S. The convicted courier subsequently agreed to undergo a polygraph examination. The examination resulted in the courier furnishing the names of several persons in the U.S. known or suspected by him to be espionage agents for the foreign power he represented.

A military service received information from another agency that a military member was involved in espionage with a hostile intelligence agency. Subsequent investigation included a polygraph examination where the member admitted being involved in espionage against the United States for over a year.

A military service received information that an officer was involved in espionage. Subsequent investigation disclosed the suspect was a missile launch officer assigned to a western base. During one of his many trips he was arrested. Through his defense counsel, arrangements were made to grant immunity if the officer would disclose all compromises of classified information and pass a polygraph examination to confirm the admissions. He was then thoroughly debriefed by counterintelligence personnel and said he had told everything. However, he made many additional significant admissions to the polygraph examiner before ultimately passing the polygraph test.

A foreign civilian who was formerly employed by U.S. Forces, was reportedly providing U.S. documents to a foreign intelligence service. That individual's daughter was married to a member of the U.S. military, and she was also implicated in the espionage activity. During an investigation of these allegations, three sources of information were examined by the polygraph and were determined to be truthful. Those examination results significantly aided in the development of the investigation. The host country police arrested the foreign civilian and his daughter for espionage. The American member of the military forces was interviewed and denied any knowledge of his wife or father-in-law being involved in espionage. He agreed to undergo a polygraph examination. The examination resulted in the member admitting that he knew his wife and her father were involved in espionage, and that he did not report that fact, even though he knew he was required to, because he wanted to protect his wife.

1.3.4 Espionage Detected During Screening Examinations

An applicant reacted to questions about involvement in intelligence for a Foreign government, espionage activity, intent to commit espionage against the United States, the accuracy of his security forms, and other related questions. After the tests, he admitted that his forms were not correct when he listed his academic affiliation during two long tours abroad, amounting to a total of eight years. He admitted that he was, during those years, a scientific advisor to the chief of a foreign military intelligence service. Although he admitted to the examiner that he might pass classified information to that service, he claimed that he had not done so. He had a Secret U.S. clearance before, between tours, and after his work abroad for that agency. He admitted that he was still in contact with the foreign intelligence agency, and the subsequent test charts indicated consistent significant reactions to questions about giving or selling U.S. classified information to that service.

An Army Sergeant who had access to cryptologic information applied for a civilian position. During the polygraph examination, he reacted to various relevant questions. In the post-test interview, he admitted to various petty crimes and miscellaneous wrongdoing. The polygraph examiner noted continued specific reactions to relevant questions and when the Sergeant was reexamined several weeks later, the same situation continued. His access was withdrawn and an investigation opened. While that investigation was still in progress, he was found dead in his automobile. It was subsequently determined that he had been engaged in espionage on behalf of the Soviet Union.

A contractor employee seeking clearance and access reacted to polygraph questions concerning espionage. She told the examiner that her former husband was currently engaging in espionage against the United States for a foreign power. This had been going on for several years while her spouse held various positions in the government and with defense contractors requiring classified access. She gave very specific details on his espionage activities.

An applicant for employment reacted to questions about committing espionage, clandestine contacts, and related questions. He admitted that if employed, he would sell classified information to a foreign intelligence service if he could get enough money for it to live comfortably. The applicant had access to classified information while in the service. He continued to react to counterintelligence questions after his admissions.

An applicant described his various radical and Marxist connections including residence with a British Communist Party (CP) member while they both were students at a British university. The applicant visited the Soviet Union twice, both times with British student tours. He became particularly friendly with a young woman who described herself as a student and part-time INTOURIST guide. She was his tour guide on the second trip. Applicant later wrote his tour guide telling her he had applied for employment with U.S. intelligence agencies. The Soviet tour guide came to the U.S., supposedly to visit relatives; contacted the applicant; then arranged to meet the applicant at an airport the day after his polygraph examination. He continued to react to counterintelligence questions during his polygraph testing.

An applicant said he had lived with a foreign national, who he said was an intelligence agent of a foreign power, while he was stationed in Berlin with U.S. forces. The applicant provided information about her activities including observation of a transmitter/receiver which was apparently for clandestine use. He did not report her activity to his superiors, despite the fact that she worked for U.S. military finance, because she paid for their apartment and he enjoyed living with her.

An applicant for employment who had lived abroad for several years overseas admitted that she was cultivated for several months by the host country intelligence agency and finally offered a position in which she was to travel to another country under a false identity, but as a U.S. citizen, then obtain employment in the target country (not the U.S.). She said that after two days of thoughtful deliberation, she declined. She had not previously reported this to U.S. authorities, and did so during the polygraph test only after reacting to counterintelligence questions.

An applicant who was about to retire from military service reacted to questions about intending to commit espionage against the United States. The applicant then described several visits to the Soviet Embassy to make arrangements to defect to the Soviet Union. The Soviet officials took copies of his documents, got extensive biographical information and when they learned of his pending applications for employment with U.S. intelligence agencies, encouraged him to stay in the U.S.

An applicant reacted to questions about knowing others engaging in espionage, intent on his part to engage in espionage, and to questions about the truthfulness of the information on his security forms. He admitted that he had been terminated from employment with a U.S. intelligence service after a year of training but before he was assigned to a position. After being fired he worked as a free-lance journalist in the U.S. and abroad, with an Asian partner. During their work, the Asian told him he was a professional and trained intelligence agent for his home country. Although the applicant identified the agent by name, his location in the U.S., and his intelligence service, he would not give many details of their joint activities. After these admissions, he continued to react to questions about intending to commit espionage against the United States and the accuracy of his security forms.

An applicant admitted that a Russian, who stayed at his home for several days, asked for a tour of potential military targets in New Jersey. The Russian was allegedly with a Soviet delegation from the USSR Ministry of Health. The Russian took numerous pictures while the subject drove him to all the major bridges and petroleum plants in New Jersey, and to a nuclear power plant. The following year, he allowed two Soviet citizens from the Ministry of Health to stay in his home while they made tours during the daytime. They were vague about where they had been. The applicant provided additional information about other U.S. citizens who were assisting these Soviets in their non-medical activities.

One applicant, a frequent traveler to a Communist-bloc country, told the examiner of being drugged, and while drugged, an attempt was made to get him to engage in a homosexual act. Later, he was directly asked to work for the intelligence service of that country against the United States. He said he refused, but he did not report the entrapment attempt or the offer to any U.S. official.

1.3.5 Suitability Statistics

When considering for clearance and access those persons who have not yet had the opportunity to demonstrate their loyalty and trustworthiness, it is necessary to make judgments from their general conduct. Initial clearance is also the appropriate point at which undesirable people should be barred from access to classified information.

The extent and nature of admissions to criminal activity, including drugs, made by NSA applicants, has been set forth elsewhere in this report. Some other aspects of the admissions made during screening should also be reported.

Falsification of the Statement of Personal History or Personnel Security Questionnaire is reported only when it is deliberate, and the omission or false entry is significant. Among the 20,511 applicant polygraph examinations conducted at NSA from 1 October 1974 to 28 February 1979, there were 1,573 persons who falsified their security forms. That was 7.7% of the total number of persons examined. Omissions included criminal arrests and convictions, employment where their work was unsatisfactory or they were terminated, less than honorable military service, family, subversive organizations, falsified citizenship, education levels and degrees not attained, foreign travel and numerous other matters. In many cases, but not all, an accurate record would have given information that would have been a bar to clearance and access, or to employment, or both.

Mental and nervous disorders were described by 1,306 applicants (6.4%). When appropriate, medical releases were obtained for use by those who conduct the background investigation. In addition, 297 (1.5%) admitted they had attempted suicide. Because these applicants were also interviewed at NSA by a qualified clinical psychologist, an appropriate evaluation and prognosis was possible.

There were 2,820 persons (13.8%) who disclosed close contact with foreign nationals. Of particular interest were the 857 persons (4.2%) who admitted close contact with Soviet bloc citizens, whose identities were not listed on the security forms. Many of these were contacts began with foreign language training but developed into friendships, with contacts continuing through personal meetings and correspondence.

The examination includes questions about unauthorized divulgence. There were 2,153 persons in the 1974-1979 study who had prior access to SCI level material. Of those, 126 (5.9%) divulged classified information to members of their family and 129 (6.0%) disclosed classified information to others. The admissions, always checked by a classification authority, ranged from a one-time disclosure of confidential information to a member of the family to very serious compromises of extremely sensitive operations to outsiders, including foreign nationals. There were cases where the divulgence was not only serious, but frequent, and sometimes to total strangers. There were a few cases where persons who did not have official access to classified information heard it or saw it, and knowing it was classified, passed it on to other unauthorized persons. The most flagrant case of this kind was the son of a federal official who was stationed abroad. The son had casual access to his father's office, and was able to get improper access to highly classified material in the office without others noticing. He then disclosed this information to the sons and daughters of foreign diplomats and other foreign nationals in order to impress them. The disclosures were serious, but he was never detected while doing this.

1.3.6 USE OF POLYGRAPH IN ARMY PERSONNEL SECURITY CASES

The U.S. Army has no general personnel screening program in which polygraph is utilized; however, the polygraph is utilized on a selective case-by-case basis. When the U.S. Army Central Clearance Facility (adjudications) receives a completed Background Investigation from the Defense Investigative Service in which there are areas of adverse information which remain unresolved, a polygraph examination may be requested to aid in the resolution. The polygraph examination is offered to the subject on a voluntary basis to aid in clarifying the areas not fully clarified by the investigation.

From February 1982 to September 1983, 180 such cases were referred for polygraph examination. Of the 180 cases, 67 subjects declined to take the examination. The following statistics summarize the results of those 113 cases in which the subject agreed to undergo a polygraph examination:

Overall Results			
Nondeceptive	Deceptive	Inconclusive	No Opinion
28(25%)	81(72%)	2(1.5%)	2(1.5%)

Where there was Deception Indicated (DI), relevant admissions were obtained in 71 cases (or 88%). The following is a breakdown by area of the DI admissions:

Loyalty	Drugs	Sex Crimes	Other Criminal Acts
16(20%)	40(49%)	11(14%)	14(17%)

Loyalty cases involve unreported contacts with foreign intelligence, unreported travel to denied areas, unreported contacts with persons within denied areas, association with communist/subversive organizations, and hostage situations.

Drug cases involve the use, possession, distribution, purchase or sale of illegal drugs.

Sex cases involved homosexuality, child molestation, and other aberrant sexual practices.

Other criminal cases involved admissions to criminal activity other than drug involvement or sex crimes, e.g. theft, embezzlement, fraud, etc.

Clearance Actions in Polygraph Cases

	Deceptive	Nondeceptive
Clearance Granted:	15 (24%)	24 (89%)
Clearance Denied:	36 (76%)	3 (11%)

Action was still pending in 19 DI cases and 2 nondeceptive (NDI) cases. Some of the DI cases were cleared up by minor confessions.

The above figures indicate that adjudications were not based solely on polygraph results, but on the overall investigative file.

1.4 POLYGRAPH and the TRADITIONAL METHODS

The polygraph examination is part of the processing for clearance and access in NSA and CIA. Both are necessary for complete coverage. Although many agencies rely entirely on the background investigation, neither NSA nor CIA have considered authorizing SCI access without a polygraph in more than 30 years. During the Korean emergency in 1951, when resources were inadequate to conduct background investigations in a timely manner, NSA granted temporary access based on polygraph results and a National Agency Check, with full access on receipt of the background investigation.

1.4.1 1953 - Study of Polygraph/Background

In 1953, the National Security Agency conducted a study of the effectiveness of their emergency procedure of using the polygraph and National Agency Check.* That study considered 3,926 individuals who were processed for clearance and access by NSA (and its predecessor, AFSA) between 1 November 1951 through December 1952.

Of the 3,926 individuals concerned, 3,878 volunteered for a polygraph interview, and 48 refused to do so. These 3,926 individuals are further broken down into two categories: 2,902 who were interviewed prior to employment, and 1,024 who were recruited in the field and were interviewed after they were employed. Of those who refused to take a polygraph test, 41 were applicants and 7 were employees. There were 2,772 complete or partial background investigations reviewed during this study. The disparity between this figure and the total persons in the study is because, generally, when applicants revealed information during the polygraph examination which disqualified them from further consideration, no background investigation was initiated. Another contributing factor is that in the case of 64 employees and 209 applicants the reports of the complete background investigations had not yet been received by the agency at the time of the study. Of the 1,017 employees who were interviewed a total of 448 of the tests indicated no deception and the employees gave no information requiring evaluation, while 569 indicated deception, gave information requiring evaluation, or they were physically or emotionally unfit for testing.

Of the 569 employees who required further security evaluation after the polygraph interview, 83 were terminated or permitted to resign in lieu of termination. In 65 of these cases the information which formed the basis for this personnel action was furnished solely as a result of the polygraph interview. Eight persons were terminated solely on the basis of information furnished from the background investigation, and 10 persons were terminated on a composite of the information from the two investigative methods. Of the 8 people who were terminated solely as a result of their background investigations, 3 made no admissions and appeared truthful on the polygraph test, while the other 5 made minor admissions or were unfit for testing. Altogether, 8.10% of all employees in the study were terminated, 78.3% on the basis of information from the polygraph interview, 9.6% on the basis of information from the background investigation, and 12.1% from a composite of the two. In addition to the 83 persons who were terminated, 248 persons covered by this study resigned voluntarily, for reasons unrelated to security, leaving 693, or 67.67% of this group remaining with the Agency.

*NSA does not now authorize clearances on a polygraph and an NAC because PL 88-290 requires a full field investigation prior to clearance.

The clearance of 76 employees was delayed pending receipt of background investigations. Six of these persons were later terminated on the basis of information provided by the background investigation, while in the other 70 cases no information was developed which was a bar to clearance. These persons had been held for the completion of a background investigation because they were unfit for testing, because they refused to volunteer for a polygraph test, or because the information resulting from the polygraph interview was not sufficient to enable analysts to reach a security determination.

In the case of 2,902 applicants for employment, 41 persons refused to volunteer for a polygraph interview, leaving 2,861 who were examined with the polygraph. The tests of 1,251 applicants indicated no deception and the applicants gave no information requiring security evaluation. The remainder of the group of applicants, 1,651 persons (56.9%), required further security determination. Of these, 696 (24.3%) were disapproved for clearance on the basis of their admissions during polygraph examination. The 610 (21.3%) who gave minor admissions were evaluated as satisfactory for clearance. Of those 2,902 who applied for employment, 1,765 (61%) entered on duty. Some of the remaining 345 applicants were denied employment for reasons not related to security, others declined proffered employment.

There were 19 persons who were approved for hire on the basis of the satisfactory evaluation of their polygraph interview and a National Agency Check who were later terminated. Eleven of these persons had made no admissions and appeared truthful on their polygraph interview. In 3 cases the individual made minor admissions which were evaluated satisfactorily, and 2 cases involved those who had refused to volunteer for a polygraph test, but were nonetheless hired. A composite of the information from the background investigation and the polygraph test formed the basis for the termination of 2 persons, and the remaining individual was terminated on the basis of information developed during the polygraph interview of another applicant. The 17 persons on whom derogatory information was developed despite clear polygraph test results and no admissions or only minor admissions represent a false negative error rate of 0.6% in the testing of 2,902 applicants.

The use of the polygraph interview resulted in a considerable monetary saving in the security clearance of employees. In the group under study there were 696 applicants who were disapproved for hire and 65 employees who were terminated immediately on the basis of information derived from the polygraph interview. Calculated on the basis of a nine-month clearance period at the GS-4 level, this group of individuals would have cost the government \$1,814,322 in salary alone while awaiting the completion of a background investigation. This figure is low, since the average salary of individuals awaiting clearances in the agency was above the GS-4 level and the average background time was more than nine months.

The study concluded that the background investigation is at its best in areas which are a matter of record, such as employment, education, naturalization, criminal history, etc., although even in these areas more pertinent information was developed through polygraph interviews. On the other hand, in personal matters not of record, the polygraph interview is far more reliable as a producer of information for security determination. In the polygraph interview this information is obtained directly from the subject. It does not, as with the

background investigation, come from informants whose motivation and reliability are often unknown, and who, in a few cases where derogatory information is concerned, are vindictive.

The authors of the 1953 study observed that the primary justification for the use of the polygraph interview in personnel screening is not its financial savings to the government, but from the fact that a combination of a complete background investigation and polygraph interview provides more information for security determination than can be obtained from any other methods yet devised. Neither the polygraph interview nor the background investigation may be considered complete in itself. Each supplements the other; each improves the validity of security determinations.

1.4.2 1983 - Study of Polygraph/Background

In 1983, the National Security Agency conducted a pilot study comparing the information obtained from polygraph interviews where the examiner did not have any information from a background investigation, with background investigations where none of the polygraph developed information reached the investigators. These "dual track" cases are unusual in that the investigation started well before the polygraph examination was conducted. Even so, some of the dual track cases had to be discarded from the study because information developed during the polygraph interview was totally disqualifying and the Defense Investigative Service was advised to stop the investigation before it was complete. Other cases were deleted from the study because information from the polygraph interview was given to DIS as leads for further investigation, because DIS had not yet closed their case.

The subjects whose files were reviewed in this study had already been evaluated as having acceptable information on their Personnel Security Questionnaires, and had received a polygraph interview sometime between 1 October 1982 and 31 January 1983. The polygraph interview and Special Background Investigation (SBI) were conducted independently, without any exchange of information. From a total of 248 randomly selected dual track cases, 194 cases were selected as meeting the criterion of complete independence, required by this study.

The results of the study revealed that 78% of all information used for evaluation was obtained from polygraph reports. The remaining 22% of information used for evaluation came from the Special Background Investigations.

In 113 cases (58%), the polygraph report was of particular value to the clearance adjudicator because it was the only investigative method to develop information for evaluation. By comparison, the SBI developed the only information in two cases (1%).

In addition, there were 22 cases (11%) in which the polygraph interview and the background investigation produced dissimilar but useful information, and 14 cases (7%) in which they developed similar information. There were 43 cases (22%) in which neither source produced useful information. Although polygraph interviews produced far more information than the background investigation, the contributions of the latter were vital, and often on matters not developed or even covered in the polygraph interview. For example, credit is discussed in a full scope polygraph screening examination, but it is not the subject of a specific polygraph question because it is not practical to develop a dichotomous issue. Similarly, character

deficiencies, alcoholism, a poor work record, and many other topics are often better learned from the observation of others, or from official records. In addition, the background investigation provides positive "whole person" information. The obvious conclusion was that both sources of information are productive, each from different sources, and both vital to the process of evaluation for clearance and access.

1.4.3 1974 - 1979 Polygraph Results from Cleared Military Personnel

A study was made of admissions made by applicants who were currently or recently in the military service who were cleared for SCI access and were in a cryptologic service. This table includes the 2,426 who applied in the fiscal years 1974 through 1979.

Admissions During Polygraph Interviews, FY 74 - 79
From 2,426 Military Applicants

Topics	Number of Persons making Admissions	Percentage
Espionage	13	0.6%
Communist, Fascist or Terrorist Activity	25	1.0%
Divulgence of Classified Information:		
To family	135	5.6%
To others	132	5.4%
Secret Foreign Contacts	1	.04%
Soviet Bloc Travel	70	2.9%
Soviet Bloc Contacts	60	2.5%
Drugs		
Marijuana	1654	68.2%
Marijuana over 100 times	159	6.6%
Uppers, Downer, etc.	243	10.0%
Cocaine and Heroin		65
2.7%		
Crimes		
Misdemeanors	322	13.3%
Felonies	68	3.3%
Alcohol Problems		
Past	25	1.0%
Present	4	0.2%
Deliberate Falsification of the Security Form	152	6.3%
Serious Credit Problems	57	2.3%
Psychological Problems		
Treatment	107	4.4%
Suicide Attempted	14	0.5%

In regard to the espionage admissions, most knew of or had strong reason to suspect others of engaging in espionage against the United States but had not reported it. A few were personally involved in espionage. See examples in this chapter.

1.4.4 1981 Polygraph Results from Cleared Military Personnel

A study was made of the 318 applicant cases for FY 81 in which the applicant was currently or recently in the military service in a cryptologic assignment with SCI access. In every case they had been the subject of a Special Background Investigation at some time in their career, and some had update investigations. All these investigative results had been evaluated as satisfactory for clearance and access. In some cases, the background investigation was in the security file available to the examiner. In the majority of cases it was not.

The table below lists only that information obtained during the polygraph examination which was not in the security file. The tables exclude all information obtained during background investigation, special investigations, and security interviews.

Admissions During Polygraph Interviews, FY 81
from 318 Military Applicants

Topic	Number of Persons making Admissions	Percentage
Espionage	0	0
Communist, Fascist or Terrorist Activity	1	0.3%
Divulgence of Classified Information:		
To family	13	4.1%
To others	10	3.1%
Secret Foreign Contacts	0	0
Soviet Bloc Travel	15	4.7%
Soviet Bloc Contacts	6	1.9%
Drugs		
Marijuana	141	44.3%
Marijuana over 100 times	16	5.0%
Uppers, Downers, etc.	31	9.7%
Cocaine & Heroin	12	3.8%
Crises		
Misdemeanors	38	11.9%
Felonies	12	3.8%
Alcohol Problems		
Past	7	2.2%
Present	1	0.3%
Deliberate Falsification of Security Form	7	2.2%
Serious Credit Problems	14	4.4%
Psychological Problems		
Treatment	14	4.4%
Suicide Attempted	5	1.6%

Not all of the admissions listed above were disqualifying. The table does not disclose amounts or recency.

Note that the first major topics are similar to the topics usually included among the questions in counterintelligence polygraph examinations used for special access determinations.

1.4.5 1983 - Study of Interviews/Polygraph

One of the additional techniques sometimes used in processing people for classified access, particularly SCI, is a thorough security interview. For several years, NSA has conducted security interviews of incoming military personnel assigned to NSA. The interviewers are experienced Special Agents of NSA who are specifically trained for this work. The scope of their interview is very similar to that of the polygraph examinations given by NSA to civilian applicants for clearance and access.

A 1983 study at NSA reviewed the information obtained on 13 topics that are covered in both the security interview and the polygraph examination. A random sample of 100 security files containing military security interviews was taken from the list of those military persons who were interviewed between March 1981 and July 1983 on arrival at NSA. Another random sample of 100 cases for that period was taken from the security files in which there was a polygraph examination of a military assignee to NSA who took the examination as part of his processing for civilian employment at NSA.

In 49% of the cases, the interviewers obtained admissions from already cleared incoming military personnel which required security adjudication. In all, there were 87 specific admissions. The subject matter included ten of the thirteen topics covered in both the interview and the polygraph examination.

The polygraph examiners obtained admissions requiring security adjudication in 82% of the examinations of the already cleared military personnel who were seeking civilian employment. There were a total of 111 specific admissions. The admissions covered nine of the mutual topics.

A second analysis compared the security interview conducted on entry and the subsequent polygraph examination of those 100 military persons who applied for a civilian position at NSA. The security interview predated the polygraph examination by a range of a few months to three years. The polygraph examiner, of course, had access to the interview report prior to the examination. What is interesting is that in these 100 randomly selected cases the examiner got information which predated the security interviews, on nine of the thirteen mutual topics. For example, in 31 cases (31%), the examiner obtained information on drug involvement that predated the security interview.

1.5 SURVEYS OF EXAMINEES

1982 Air Force Survey

In 1982 the Air Force began a pilot polygraph project to conduct counterintelligence/security polygraph examinations of personnel who have access to extremely sensitive and highly classified USAF projects. After the project began, AFOSI began a survey of individuals who had voluntarily taken an examination in connection with that access. The questionnaire was answered in the reception room immediately following the examination out of the presence of the examiner. No identifying data was included with the replies. The 1,355 individuals responding to the survey gave their answers, totaled below in percentages, to each of the six questions. The "other" response includes answers such as "don't know" and no answers.

	YES	NO	OTHER
a. Were you offended, embarrassed, humiliated or degraded in any way during any part of the examination?	2.0%	98.0%	0
b. Do you think the examination was unfair in any way?	.9%	99.0%	.1%
c. Was there any objectionable or unwarranted invasion of your privacy during the examination?	.7%	99.1%	.2%
d. Do you feel counterintelligence security polygraph examinations enhance the security of your work environment?	94.9%	4.1%	1.0%
e. If you changed jobs and your new employer required a counterintelligence security polygraph examination, would you undergo the examination?	98.2%	1.5%	.3%
f. If an act of sabotage of espionage occurred and you were asked to take a polygraph examination to find the person who committed these acts, would you take a polygraph examination to resolved the matter?	99.2%	.7%	.1%

There are only two other surveys of employees who have taken polygraph examinations for security clearance and access, or have taken counterintelligence examinations.

1.5.1 1951 Survey of Atomic Energy Commission Employees

In 1951, Professor Paul V. Trovillo, a psychologist from Arizona State University, was employed to survey the use of the polygraph by a private contractor, Russell Chatham, Incorporated, at Oak Ridge, Tennessee. His survey covered the use of the polygraph on employees at the Atomic Energy Commission facilities who had sensitive access. All of the employees had a full field background investigation conducted by the FBI. The period covered by the survey was 17 February 1946 to 10 April 1951. (It is noted that none of the persons involved in the extensive Soviet atomic espionage network which operated during those years were among those who took polygraph examinations at Oak Ridge, Tennessee. Whether or not the polygraph deterred Soviet intelligence from an attempt to penetrate the Oak Ridge facility is unknown.) Trovillo reported that approximately 12,000 polygraph examinations were conducted in that period, including applicants for clearance by employees of contractors, and applicants seeking initial employment which required a Q clearance. In addition to the initial polygraph examination, each employee was subject to additional examinations. Depending on the sensitivity of access, some employees were reexamined every three or six months.

Trovillo personally interviewed a representative sample of employees who were in the retesting program. The employees included engineers, scientists, clerks, and chemical workers, including their union President. Of the 59 interviewed by Trovillo, only two (3.4%) expressed any resentment toward the polygraph tests (Trovillo 1947).

1.5.2 1956 Survey of NSA Applicants

A survey was taken of all applicants for employment at NSA who were processed in January 1956. Of the 522 applicants who were surveyed, 361 were male, 362 were unmarried, 186 had a baccalaureate degree in a liberal arts field, and 206 had a degree in a scientific field. The survey covered these statements, with the responses indicated in percentages:

a. The polygraph examiner impressed me as being professionally competent and well trained.

1. strongly agree	58%	
2. agree	36%	agree
3. undecided	4%	undecided
4. disagree	1%	disagree
5. strongly disagree		1%

b. In my opinion, the polygraph as used by NSA is important to protect the security of the Agency.

1. strongly agree	38%	
2. agree	36%	agree
3. undecided	19%	undecided
4. disagree	5%	disagree
5. strongly disagree		2%

c. If for future reasons, I were asked to volunteer for another polygraph examination, I would:

1. be willing	91%
2. undecided	8%
3. refuse	1%

1.5.3 Surveys in Law Enforcement and Commerce

The Washoe County Sheriff's Department (Reno, Nevada) surveyed 85 applicants after their preemployment polygraph examinations. The results were tabulated (Putnam 1978) according to the responses to these questions:

1. Were you in any manner embarrassed, humiliated, or degraded by any part of the polygraph examination process? No: 92.9% (n=79), Yes: 7.1% (n=6).
2. In your opinion, was there any objectionable or unwarranted invasion of your privacy during the conduct of the polygraph examination? No: 100% (n=85).
3. Should you be hired, do you believe you will be more secure and comfortable in your work knowing the polygraph is used in personnel evaluation? Yes: 97.6% (n=83), No: 1.2% (n=1), no opinion: 1.2% (n=1).

Several very similar surveys of subjects of commercial screening have been made in recent years. Dr. B. A. Silverberg of Canada conducted three surveys of the subjects of polygraph examinations in 1980 asking the same questions used earlier in surveys by Ash (1973) and Buckley (1980). The questions were used again recently by Phannenstill (1983). A table shows the results of the six surveys. The answers which are other than the one listed for each item are mostly the opposite, but there are also a few unclear replies, or no answers at all to that item.

TABLE
SURVEYS OF EXAMINEES OF COMMERCIAL TESTING

X (Number) Answered NO	Chicago Ash, 1973 n=241	Chicago & Denver Buckley, 1980 n=270	Buffalo & Western N.Y. Silverberg, 1980 n=102	Toronto Silverberg, 1980a n=217	Toronto Silverberg, 1980b n=115	Phannenstill, 1983 n=220	Milwaukee
1. Do you think the test was unfair in any way?	86% (208)	90% (244)	100% (102)	99% (216)	99% (114)	89% (195)	87% (191)
2. Did the test or any part of it offend you?	91% (220)	87% (235)	97% (99)	98% (212)	98% (113)	87% (191)	79% (173)
3. Do you think the test was an invasion of your privacy?	83% (200)	77% (209)	98% (100)	98% (213)	98% (113)	98% (173)	98% (173)
ANSWERED YES							
4. If the occasion occurred would you take a test like this as an applicant for a job?	96% (232)	94% (253)	93% (95)	95% (207)	93% (108)	94% (207)	94% (207)
5. If a loss occurred at your company and you were asked to cooperate by taking the test to help find the person who caused the loss, would you?	97% (233)	97% (263)	96% (98)	96% (208)	97% (111)	96% (210)	96% (210)

1.6 QUALITY CONTROL1.6.1 Selection and Training

The quality control program within the Department of Defense begins with a detailed selection process of applicants for polygraph training. By regulation all applicants must be trained investigators with a minimum of two years Federal Government investigative experience and possess a baccalaureate degree. Applicants must also be a U.S. citizen, 25 years of age who have been the subject of a Special Background Investigation. The culminating application procedure has the qualified applicant undergo a suitability and familiarization polygraph examination prior to final selection. Polygraph training is always on a voluntary basis. Most important, agencies are careful to select only those agents who have demonstrated mature investigative and personal attitudes. Examiners must be able to conduct low key interviews as well as intense interrogations. They must be highly professional investigators who get along well with subordinates and superiors, as well as suspects, witnesses and victims.

The basic examiner training is accomplished at the Army Polygraph School, Fort McClellan, Alabama. This course is 12 weeks in length. The examiner learns various test techniques and receives instruction in psychology, physiology, pharmacology, semantics, and polygraph instrumentation procedures. Each trainee conducts at least of 45 to 50 practical exercise examinations prior to graduation. After graduation each examiner serves a six to twelve month internship under the direct supervision by a certified examiner of his respective agency.*

In 1965 DoD initiated research to establish the validity of polygraph techniques and sought a means of monitoring field polygraph operations by having a qualified polygraph examiner conduct a "blind" analysis of the polygraph charts and allied documentation of another examiner. After a comprehensive study, it was concluded that blind analysis was a valid concept which would increase the quality of polygraph examinations. This concept led to the polygraph quality control programs now existing throughout the DoD. Under the quality control concept, supervisory polygraph quality control examiners, generally located at the headquarters level, review every polygraph examination conducted within their respective agencies. The review begins with a "blind" analysis of all polygrams collected by the field examiner. Once the "blind" analysis is performed, the reviewer then checks all related documents for correctness, completeness and technical accuracy. The specific areas reviewed are pretest interview, test construction, question formulation, chart patterns, chart markings, timing of questions, post-test interrogation, length of examination, and the polygraph report. Any notes, examiner comments and written admissions are analyzed and compared to the information contained in the formal report. The formal report is also checked for grammatical correctness and format prior to final approval.

*NSA examiners take another two weeks of formal instruction in counterintelligence screening techniques before beginning their internship. NSA always includes students and experienced examiners from other DoD agencies in their course whenever requested; and on a space available basis, NSA trains examiners from other federal agencies.

At NSA, every case is completely tape recorded. In all cases where the subject of the interview has made admissions which will be reported and will require evaluation prior to granting clearance and access, the examiner reviews with the subject, in precise detail, the contents of his notes. While doing that, he makes an additional recording with a cassette recorder in full view of the subject, and has the subject audibly acknowledge the accuracy of his notes on each topic as it is covered. When the supervisor reads the examiner's report he must listen to this summary tape and certify on the report that the accuracy of the report has been verified by listening to the recording.

All Air Force counterintelligence/security examinations are audio and video recorded. Similarly, review of the audio and video tapes of these examinations by polygraph supervisors provides a detailed quality control check. In criminal cases, and specific issue cases, it is customary to take a witnessed, signed, sworn statement covering all admissions/confessions. A written statement containing a subject's admission/confession is documented in the final report as well as any refusal to undergo further questioning or polygraph testing.

Each agency keeps independent statistics and other personal information on the professional attributes, training qualifications and performance of each examiner. If an examiner's proficiency is found to be falling below accepted standards, supervisor determines if the problem is the result of an atypical series of cases, or a change in the examiner's methodology. Methodology changes are discussed with the examiner and, when appropriate, corrective action is taken.

Advanced training of at least one week or more is required once every two years for all DoD polygraph examiners. In addition, examiners generally receive several days of advanced training throughout each year by attending state and national polygraph association meetings and seminars. Advanced training is an integral part of the quality control program within the Federal Government as it assures the continuing professional development of each examiner.

1.7 US ARMY POLYGRAPH TRAINING FACILITY

The first use of the instrumental detection of deception was in World War I to recover a stolen code book. The U. S. Army began using the modern polygraph during World War II to screen German prisoners of war (POW) for post-war police assignments. Use of the polygraph spread quickly into criminal and counterintelligence investigations due to the success of the polygraph in resolving the POW cases. Some Army agents received individual instruction in polygraph techniques, and in 1948, the Army began sending special agents to the new Keeler Institute, in Chicago, Illinois, the only polygraph school in existence at the time. The Army's training needs soon exceeded the capacity of the Keeler Institute. Therefore, in 1951 the Army established its own polygraph school and attached it to the Military Police School at Fort Gordon, Georgia. Initially, the school was eight weeks in length and was used exclusively by the military services and the U.S. Secret Service.

In 1964, as a result of the Moss Committee Hearings about the use of polygraph in the federal government, the need for more extensive training was recognized and the school was lengthened to 12 weeks. In 1969, the school was lengthened to 14 weeks in order to accommodate training requirements by military and federal intelligence agencies in the personnel security screening arena. As use of the polygraph in the federal government increased, all federal investigative agencies, except the CIA, began training their examiner personnel at the Army school. Three agencies gave up their own training courses to take advantage of the Army training.

In 1975, the Military Police School and the Polygraph School were moved to Fort McClellan, Alabama. During 1980, to accommodate the increased training requirements of the other federal agencies, the school was condensed to 12 weeks, permitting an increase of sessions from three to four classes per year.

Since the school's founding in 1951, the U.S. Army has trained over 2,000 military and federal civilian investigators to be polygraph examiners. Numerous training requests are received each year from state and municipal police agencies. While these requests cannot be accommodated in the basic training course, occasionally spaces are provided to state and municipal examiners in the advanced training course. The Defense Department plans to expand the Army Polygraph training facility to handle a maximum 18 students per class. Once expanded, the Army may be able to be more responsive to state and municipal police agency training requests.

There are two programs of instruction at the U.S. Army Polygraph School. The primary program of instruction is the Basic Polygraph Examiner Training Course, which is now twelve weeks in length and is conducted four times a year. Each class consists of 12 students and the student to instructor ratio is 2 to 1. This ratio provides the student with many hours of personal contact with qualified instructors during the learning process. Further, each student conducts over 40 polygraph examinations using a variety of testing techniques. This exposure to simulated testing and the instruction in multiple testing techniques has established the Army school as the leader in polygraph training.

The second program of instruction at the school is the Advanced Polygraph Examiner Course, which is three weeks in length. It provides experienced examiners with training in new instrumentation procedures and sophisticated testing techniques. These lessons are then incorporated in comprehensive practical exercises.

By regulation all DoD examiners must attend at least one advanced training course every other year. In practice, all examiners are involved in several short courses, seminars, and lectures every year, with a full course of a week or more at least every other year. Many get a week or more of formal training every year. Advanced courses used by DoD examiners are quite varied. Most commonly used are:

U. S. Army Advanced Course	3 weeks
Federal Interagency Polygraph Seminar	1 week
National Security Agency Advanced Polygraph Screening Techniques Course	2 weeks
Federal Bureau of Investigation Advanced Polygraph Studies Program	4 weeks
Delta College Polygraph Workshop	1 week
University of North Carolina Polygraph Colloquium	1 week
University of Houston Advanced Polygraph Seminar	1 week
University of Utah Polygraph Workshop	1 week
American Polygraph Association Annual Seminar	1 week

In addition, most DoD examiners are active in a regional or state polygraph association. These associations hold one or more weekend seminars each year, and a few conduct lengthy training courses, often in conjunction with local universities. Several of the courses above and some of the state associations seminars offer college credits or continuing education units.

1.8 PRIMARY POLYGRAPH TESTING TECHNIQUES

The test formats taught at the Army Polygraph Training Facility include the following:

1.8.1 Zone Comparison Technique (ZCT)

The ZCT was developed by Cleve Backster in 1960. The ZCT is a modification of the control question concept developed in the 1940's and introduced two new safeguards against errors and inconclusive results. The safeguards are referred to as the sacrifice relevant and symptomatic questions. The sacrifice relevant question allows for dissipation of excessive general nervous tension or undue anxiety prior to the asking of the primary relevant questions. The symptomatic question provides a means to identify outside issues extraneous to the test issue(s) which may be of overwhelming significance to the examinee. Identification of such issues aids the examiner in structuring a reliable test that is not degraded by these external issues. The symptomatic question also helps the examiner to properly word the relevant questions. Backster's ZCT was adopted by the Army in 1961. It is the technique of preference for resolving criminal issues which are limited or easily defined. The ZCT, as used by the Army, permits the asking of questions pertaining to two primary issues in the body of the test. It also has a "SKY" phase utilized on one or two charts which helps determine the degree of the examinee's criminal knowledge, if any, of the primary relevant issue. Because of its demonstrated accuracy (Berah 1969), it has become one of the most popular and widely used techniques in government law enforcement.

1.8.2 Modified General Question Technique (MGQT)

The MGQT was adapted by the Army in 1956 from the 1953 Reid control question test. It is the technique of preference in criminal investigation testing where there are multiple issues within a singular case to be resolved, as it allows the examiner to address primary involvement, secondary involvement, guilty knowledge and evidence connecting issues. The MGQT is one of the more popular examination formats in government law enforcement because of its flexibility. In addition to being able to address multiple issues, examiners can shift the relevant questions on one or more charts by collecting a mixed series questioning sequence. The Army's MGQT utilizes control questions which are separated from the relevant issues by time and/or place.

1.8.3 Relevant/Irrelevant (R/I)

The R/I techniques were developed in the 1920's and 1930's, and the Keeler version became the first standardized polygraph question technique. R/I techniques were used exclusively within the U. S. Government until 1956, when a control question technique was introduced. R/I techniques are used extensively in intelligence screening examinations and occasionally in criminal investigations. R/I techniques in the government employ the use of irrelevant questions interspersed among relevant questions, plus additional special purpose questions, including one or more control questions. The R/I technique is the technique of preference for people who decline to answer broad crime-related questions necessary for the development of control questions as they are used in ZCT and MGQT, as well as persons who are familiar with criminal polygraph testing procedures.

1.8.4 Peak of Tension (POT)

The POT was standardized by Leonarde Keeler in the 1930's and is used in conjunction with virtually every type of testing technique known to polygraph. Essentially, the POT is a guilty knowledge test where the examinee's knowledge of a particular item within the overall testing issue can be detected. This test is frequently used to find weapons, bodies, property, etc. It can be a known POT, wherein the examiner and the guilty subject know the key item and the innocent person does not, or a searching POT, where the key item is only known by the guilty subject and not by the examiner.

1.8.5 Counterintelligence Screening Test (CIST)

The CIST is a general question test used to cover multiple issues pertaining to intelligence or counterintelligence activity. If an examinee shows response to relevant questions during the course of an examination, the issues to which the examinee showed responses will be completely explored through the use of other polygraph techniques or through interrogation. Each relevant question will be asked at least three times.

1.8.6 Other Techniques

The techniques described above are among the techniques utilized in the federal government. There are a number of other techniques used in the law enforcement and commercial polygraph field. Among the more popular are those developed by John E. Reid, Richard O. Arther, and Lynn Marcy. Although some civilian schools teach these techniques, there are other civilian schools which teach the Army techniques, or teach both Army and other techniques. Government examiners are given familiarization lectures on the more common other techniques so that they will understand them; but they are not expected to use them.

CHAPTER 2 - RESEARCH ON POLYGRAPH CRITERION VALIDITY AND RELIABILITY

2.1 FIELD STUDIES

Field studies have investigated both the validity and reliability of the polygraph using various criteria. These studies typically use field model polygraphs which record respiration, electrodermal activity, and cardiovascular activity. Professional polygraph examiners are typically used, but they differ widely in experience. Some examiners are still in internship training programs; others have as much as 20 years of field experience. Field studies have used both relevant-irrelevant and control-question techniques. A description of the standardized formats appears in the Chapter on Utility.

The original examiner's decision of truth or deception is often a clinical judgment based on information from physiological recordings, subject behavior, and case facts, although some data on the numerical scoring of polygraph charts also will be discussed. Most of the field studies suffer from significant methodological problems.

Two types of studies will be discussed. First, studies investigating the relationship between the examiner's decision and some criterion of truth or deception will be presented as studies of polygraph criterion validity. All of these studies use the clinical diagnosis of the original examiner to predict the criteria. However, two of the studies (Barland and Raskin, 1978; Ginton, Daie, Elaad and Ben-Shakhar, 1982) also use both numerical scoring by the original examiners, and decisions of examiners not present during the test based on numerical evaluation and chart scrutiny to predict truth or deception.

Second, studies investigating the relationship between the decisions of a blind examiner and actual truth or deception using verified polygraph cases will be discussed. Some of these studies have been used as evidence for polygraph criterion validity and there are problems with this interpretation. The final section focuses on the reliability of the polygraph examiner's decision.

2.2 FIELD STUDIES OF CRITERION VALIDITY

Field studies of criterion validity have used various criteria of ground truth. Determination of ground truth is the major problem for such studies. The ideal criterion is independent of the polygraph examiner decision of truth or deception and accurately reflects subject guilt or innocence. If examiner decision and the criteria are not independent, the accuracy of the polygraph in correctly classifying innocent and guilty subjects will be reported as spuriously high. However, most of the independent determinations of ground truth probably produce spuriously low correct classification rates due to their nature. There is only one study where the criterion is both independent and accurate (Ginton, et al. 1982). This study will be discussed in detail at the end of this section.

Several studies have used the criterion of case disposition to assess the accuracy of the examiners' decision (Lyon, 1936; Peters, 1982; Edwards, 1981). Case disposition as a criteria may be neither independent nor accurate. Lyon (1936) determined the dispositions of randomly-selected cases involving 100 juvenile criminal suspects (81 boys and 19 girls over age 15). Twenty polygraph tests were classified truthful and 80 were classified as deceptive. These cases

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were followed to determine if examiners' results were corroborated by positive evidence or confession. Only 40 cases could be verified. Seven cases classified as truthful by the examiner were verified as truthful by additional evidence. Thirty-three of the deceptive cases could be verified by confessions; some of the confessions occurred immediately after the test. Thus, the examiner had correctly classified all cases. Lyon, however, gives insufficient detail about the verification procedure. Testing involved a unique procedure but was in the relevant-irrelevant category. Respiration and cardiovascular activity were recorded.

Peters (1982) reported on the disposition of 220 cases involving stipulated polygraph examinations conducted at a state crime laboratory from 1976 to 1979. Stipulation means that the prosecution, defense, and judge agree to admit results of the polygraph examination into evidence with the examiner testifying and subject to cross-examination, although the examiner actually testified about the subject's truth or deception in only 11 cases. Control-question procedures and numerical chart analysis (with an inconclusive range) were used. Of the initial 220 examinations, 25 were eliminated because they were inconclusive, 23 cases were eliminated because the test could not be completed. The disposition of 100 cases indicated that the subject was innocent or telling the truth (95 criminal suspects had charges dropped, 1 criminal suspect was acquitted, and 4 victims or witnesses were involved in trials where the accused was convicted). The polygraph examiner had classified 88% of these cases as truthful. The disposition of 63 cases indicated the subject was guilty or lying (10 criminal suspects were convicted at trial, 51 pleaded guilty, and 2 alleged victims were involved in trials where the accused was acquitted). The polygraph examiner had classified 98% of these cases as deceptive. Six cases were pending and 3 cases had charges dropped with conditions (these cases are not included in the correct classification figures).

Edwards (1981) surveyed licensed Virginia polygraph examiners to determine the correspondence between polygraph examiner decisions and dispositions of case in specific issue examinations. Only results from law enforcement examiners will be discussed; the response rate for private firms was so low that it is meaningless. Of the 2,433 polygraph examinations, 959 (594 guilty and 365 innocent) were verified by means such as acquittal, conviction, confession, etc. The examiners had correctly classified 99% of the guilty cases and 97.5% of the innocent cases.

Lack of independence between examiner decision and the criterion can occur in several ways and it is impossible to determine the extent the nonindependence influences the percentage of correct classifications. The examiner can influence the trial process either by increasing the probability of conviction or that charges are dropped. This is a particular problem in the Peters study involving stipulated polygraph tests. Peters does mention that the examiner testified about subject guilt or innocence in only 11 cases, but it is unclear the extent to which the results of the polygraph test were influential in the decision to go to trial or drop charges. Confession also is not independent of the polygraph examination. Examiners usually interrogate only those showing physiological responses to relevant questions. Thus, those showing no deceptive responses will be under less pressure to confess. It also is possible to induce a false confession, although that is extremely rare. Some researchers think the use of confession invalidates the study, others think confession is acceptable as a criterion (see Horvath, 1971; Lykken, 1981; Raskin and Podlesny, 1979).

Field studies using case disposition also are problematical because they report data on a restricted sample. Typically, a large number of cases cannot be verified and it is not clear if verified cases differ from unverified cases in the ease with which an examiner can make a decision about the case. Horvath (1977) provides preliminary data that verified and non-verified cases may be quite similar.

Two field studies have used panel judgments as the criterion to validate polygraph examiner judgment (Berah, 1969; Barland and Raskin, 1976). Barland and Raskin (1976) is one of the studies Lykken (1979; 1981) cites in maintaining that polygraph tests have a high rate of false positive errors.

Berah (1969) investigated the relationship between examiner judgment in criminal investigations by the military services and unanimous guilt-innocence decisions by a panel of four Judge Advocate General Attorneys who had complete access to case files except for the polygraph examinations. Examiners also had access to a subject's case file, but the author maintained the file was not complete and that polygraph tests are only given when there is doubt about a person's guilt or innocence. Cases were selected at random from 1963 to 1966 with some restrictions. Cases involving confession by the subject and inconclusive judgments by the examiner or the panel were eliminated. Cases were selected so that there were similar numbers of deception and no deception examiner judgments and a mix of zone comparison tests, Modified General Question Tests and relevant-irrelevant tests. The first two formats are control question tests. However, Berah grouped the Modified General Question Test and the relevant-irrelevant test in reporting the data. This was referred to as the General Question Test. Decisions by the panel were unanimous in 157 cases. With the General Question Test group, the examiner classified as deceptive 97% of the cases the panel judged as guilty, and classified as truthful 90% of the cases the panel judged as innocent. With the zone-comparison test, the examiner agreed with 90% of the cases the panel judged as guilty and 94% of the cases the panel judged as innocent.

Barland and Raskin (1976) investigated the correspondence between polygraph examiner decisions and panel decision (1 judge, 2 prosecuting attorneys, 2 defense attorneys) for 92 sequential independent cases involving criminal suspects. Panel decisions were based on evidence collected by untrained investigators and the panel had no knowledge of the outcome of the polygraph examinations. Polygraph examinations used control-question procedures. Panel decision was based on a numerical score by each panel member. The original examiner used field numerical scoring techniques and made a clinical decision from both this and other (e.g. subject's behavior) information.

The panel unanimously made decisions in the same direction in only 22 cases (24%) so these data will not be discussed separately but are included among those 66 cases (72%) where the criterion was a majority of the panel making a decision in the same direction. Among the 66 cases, 100% of the guilty subjects and 35.7% of the innocent subjects were correctly classified (omitting inconclusives) by the original examiner's clinical diagnosis. With the same criterion, original examiner's numerical score correctly classified 100% of the guilty subjects and 27.3% of the innocent subjects (omitting inconclusives). Numerical scoring by an independent examiner correctly classified 97.5% of the guilty subjects and 45.5% of the innocent subjects.

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Mr. DOUGLAS GENE WILLIAMS. My name is Douglas Gene Williams, and I plead guilty to crimes against humanity. I was a right-wing terrorist. I tortured thousands of people, documented more forced confessions than most Gestapo agents, violated countless constitutional rights, and had absolutely no regard for human dignity.

I was often rewarded for my skillful use of terrorism. There are some truly grim stories behind those official letters of commendation I earned as a police detective sergeant.

I was a highly trained, well-equipped terrorist agent. My specialty was psychological trauma and my weapon was the lie detector.

I am here today to try to undo some of the damage I have done by telling the truth about the lie detector.

The polygraph has been cloaked in shady scientific jargon for over 50 years. Lie detector operators claim an accuracy rate of 96 to 98 percent. It has been endorsed by such bastions of journalism and law as F. Lee Bailey and Jack Anderson. The polygraph has received media validation on a national level. The polygraph has developed into a multibillion dollar business since its invention in the late 1920's, and it is now the longest running con game in the history of this country.

The polygraph is not a lie detector and it is not a truth verifier. The polygraph is simply a crude reaction recorder, and the reactions it records can be indicative of just about anything. Anything except deception. Let me share with you how the polygraph works, and, incidentally, I have a machine here with me if anyone wants a demonstration.

Please look at this exhibit A—correction—B. That is what the polygraph actually records. I think you have been supplied with these. What we have here is a machine that can watch you breathe, watch two fingers on your right hand sweat, and watch your heartbeat. That is all the machine is capable of recording.

During the test the examiner will ask a series of questions and watch for any changes in your breathing, perspiration, and blood pressure. These changes are called reactions.

A casual look at this diagram shows a person's breathing has become erratic, blood pressure is elevated, and the hands are sweating. Does this mean the person is lying? Although it is absurd to come to this conclusion based on such flimsy evidence, that reaction is what polygraph operators refer to as indicative of deception, and that reaction has been the start of many tear-jerking sob stories because that reaction does, in fact, mean you have lied.

I would submit that this exact same lying reaction can be caused by many things other than a lie. As a matter of fact, any number of innocent stimuli can and do cause this exact reaction—fear, rage, embarrassment, a phone ringing, hanging from the cardio cuff, and even the tone of the examiner's voice.

The validity of the lie detector is based on a phony set of 50-year-old pseudo-scientific principles. And even polygraph experts do not have the temerity to refer to the polygraph as a lie detector, preferring words like "investigatory tool" instead. It is certainly a tool, or more correctly, a psychological billy club which allows even the