The Lie Behind the Lie Detector

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We, the authors, remain responsible for the contents of this book and any errors herein.

Foreword

We wrote this short book to call public attention to the dangers of polygraphy and to protect the innocent from polygraph abuse. Because of our government's reliance on this pseudoscientific procedure, thousands of truthful persons have been falsely accused of deception and suffered serious adverse consequences. On the other hand, deceptive persons can easily defeat polygraph "tests" through countermeasures, as did convicted spy Aldrich H. Ames.

We hope that this book will help to stimulate informed public debate about polygraph policy and hasten the day when our government comes to its senses and ends its reliance on this latter-day trial by ordeal. Our reliance on unreliable polygraphy is undermining—not strengthening—our national security. *Polygraphy must be abolished.*

We are distributing this book in electronic format free of charge in order to reach the broadest audience possible. We didn't write this book to make money. We only ask that you tell others about this book if you find it informative and useful.

This book is formatted for double-sided printing, and we encourage you to print out as many copies as you like to share with your family, friends, and colleagues.

We view this book as a work in progress and plan to release updated editions as new information warrants. Check AntiPolygraph.org for the latest edition.

Contact us to learn how you can help to put an end to polygraphy. We welcome your comments by e-mail at the addresses below. If you wish to protect the privacy of your correspondence, e-mail us for our PGP public keys.

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Introduction

To the rulers of the state then, if to any, it belongs of right to use falsehood to deceive either enemies or their own citizens for the good of the state: and no one else may meddle with this privilege.

—Plato

Truth will out!

—Old English saying

In this book, you will learn the little-known truth about polygraphy. You will learn:

- that polygraphy is not science (p. 15 ff.);
- that polygraphy, like phrenology and graphology, is without scientific validity (p. 15 ff.);
- that our Government's reliance on unreliable polygraphy serves to protect spies, *undermining*—not enhancing—our national security (p. 26 ff.);
- that polygraph "tests" are actually interrogations (pp. 16, 110 ff.);
- that polygraphy depends on your polygrapher lying to and deceiving you (p. 70 ff.);
- the simplistic method by which your polygrapher decides whether you are truthful or deceptive (pp. 15, 82);
- that polygraphy is biased against the truthful (p. 83);
- that polygraph "testing" can be (and has been) easily defeated through countermeasures (p. 19);
- how to ensure that *you* pass *your* polygraph interrogation (p. 104 ff);
- how to recognize interrogation tactics and not be fooled by them (p. 96 and p. 111 ff.);
- what to do if you have been falsely accused (p. 140 ff.);

- how you can help put an end to polygraph abuse (p. 147 ff.);
- where to learn more about polygraphy (p. 159 ff.).

(If you face an upcoming polygraph "test" and need to learn what to expect as quickly as possible, you may wish to proceed directly to Chapters 3 and 4 [p. 70 ff.] and come back to Chapters 1, 2 and 5 later.)

Every year, thousands of law-abiding Americans submit to polygraphic interrogation. And every year, hundreds—if not thousands—are falsely accused based on polygraph chart readings and are routinely denied due process.

Those subjected to polygraphic interrogation include employees of, and applicants for employment with:

- federal, state, and local law enforcement agencies, including the FBI, DEA, and U.S. Secret Service (applicants for state and local law enforcement agencies probably comprise the largest population subjected to pre-employment polygraph screening);
- fire departments (many firefighters and paramedics are subjected to polygraph screening);
- national intelligence agencies, including CIA, NSA, DIA, and NRO;
- the U.S. Army, Navy, Air Force, and Marine Corps;
- the U.S. Department of Energy.

While the 1988 Employee Polygraph Protection Act banned the use of polygraphy by most of the private sector, our Government exempted itself. Some industries, such as armored car companies, also received exemptions.

We care deeply about our country and our communities. In writing this book, our purpose is to help protect the innocent from polygraph abuse and to help strengthen our collective security by exposing waste, fraud, and abuse.

We believe that our Government should not, through the polygraph screening process, lie to and deceive its employees and those seeking

employment. We believe that Government should not determine the trustworthiness of its employees based on a pseudoscientific procedure that fundamentally depends on trickery, is biased against the truthful, and yet may be easily defeated by deceptive persons who employ countermeasures.

States should adopt the Minnesota polygraph statute (Appendix D), which prohibits all polygraph "testing" of employees or prospective employees, as a model. And Congress must broaden the 1988 Employee Polygraph Protection Act to provide protection for *all* Americans.

Discover now the lie behind the lie detector.

CHAPTER ONE

On the Validity of Polygraphy

When we lie, our blood pressure goes up, our heart beats faster, we breathe more quickly (and our breathing slows once the lie has been told), and changes take place in our skin moisture. A polygraph charts these reactions with pens on a moving strip of paper.… The result is jagged lines that don't convey a lot to you. But…an examiner can tell from those mechanical scribbles whether or not you've spoken the truth.

—polygrapher Chris Gugas, *The Silent Witness,* 1979

Whoever undertakes to set himself up as judge in the field of truth and knowledge is shipwrecked by the laughter of the Gods.

—Albert Einstein

Polygraphy is not science. Like its discredited sister disciplines, phrenology and graphology, it is codified conjecture masquerading as science. Polygraph "testing" is an unstandardizable procedure that is *fundamentally dependent on trickery.*[1] As such, it can have no scientific validity. The computerization of polygraph chart reading in recent years has no more made the underlying procedure "scientific" than has the computerization of astrological chart reading.

The polygraph format most widely used in the United States is commonly known as the "Control Question Test" (CQT). The overwhelming majority of polygraph examinations administered in the United States are of this format, and when we speak of "polygraphy" in this book, we refer to the CQT.

In the CQT, truth and deception are inferred from a comparison of a subject's physiological responses (breathing, blood pressure, heart, and perspiration rates) while answering "relevant" versus "con-

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[1] We will expose in detail the trickery upon which polygraphy depends in Chapter 3 (p. 70 ff).

trol" questions—questions the answers to which are known or assumed to be untrue.[2] If responses to the relevant questions are greater, deception is inferred. If responses to the "control" questions are greater, truth is inferred. If responses are about the same, the result is deemed inconclusive.

The validity of the CQT has never been scientifically established, nor can it be: the so-called "Control Question Test" is utterly lacking in scientific "control," and it is not a standardized psychometric "test" such that its validity might be determined through scientific experimentation.

Professor John J. Furedy of the University of Toronto (Furedy, 1996) explains regarding the "Control" Question "Test" that

> …basic terms like "control" and "test" are used in ways that are not consistent with normal usage. For experimental psychophysiologists, it is the Alice-in-Wonderland usage of the term "control" that is most salient. There are virtually an infinite number of dimensions along which the R [relevant] and the so-called "C" ["control"] items of the CQT could differ. These differences include such dimensions as time (immediate versus distant past), potential penalties (imprisonment and a criminal record versus a bad conscience), and amount of time and attention paid to "developing" the questions (limited versus extensive). Accordingly, no logical inference is possible based on the R versus "C" comparison. For those concerned with the more applied issue of evaluating the accuracy of the CQT procedure, it is the procedure's *in-principle* lack of standardization that is more critical. The fact that the procedure is not a test, but an unstandardizable interrogatory interview, means that its accuracy is not empirically, but only rhetorically, or anecdotally, evaluatable. That is, one can state accuracy figures only for a given examiner interacting with a given examinee, because the CQT is a dynamic interview situation rather than a standardizable and specifiable test. Even the weak assertion that a certain examiner is highly accurate cannot be supported, as different examinees alter the dynamic examiner-examinee rela-

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[2]We will also discuss "control" questions in fuller detail in Chapter 3.

> tionship that grossly influences each unique and unspecifiable CQT episode.

As Professor Furedy notes, the CQT is not a standardized "test," but an "unstandardizable interrogatory interview." One consequence is that the examiner's subjective opinion may influence the outcome, as was demonstrated in an experiment that Professor Leonard Saxe of Brandeis University helped CBS "60 Minutes" design (Saxe, 1991):

> In 1986, I was privy to a drama staged by the producers of CBS TV's news program, "60 Minutes," that investigated the controversial use of polygraph tests by private employers. My initiation into the lie detector conflagration was the unintended outcome of an assignment from the Congressional Office of Technology Assessment to examine the validity of polygraph tests.... The "60 Minutes" staff sought my help as they designed a demonstration of the use of polygraph tests. What resulted was an elaborate deception experiment that would have been the envy of 1960s social psychologists.
>
> Using CBS-owned *Popular Photography* magazine as a front, "60 Minutes" hired several polygraphers to identify the culprit in an alleged theft. The design was quite sophisticated: CBS randomly selected four polygraph examiners from the telephone directory and had each polygrapher examine four employee suspects. The polygraphers were initially contacted by a manager at the magazine, who told them that more than $500 of camera equipment had been stolen, almost definitely by someone on the inside. The polygraphers did not know that other examiners had been engaged, and they conducted their examinations in a *Popular Photography* office. Unbeknownst to them, the office had been modified to enable surreptitious filming. When the polygraphers arrived on-scene, each was told that although all of the suspects had access to the camera, one of the four was probably the guilty party. A different person was "fingered" for each polygrapher.
>
> Not surprising to polygraph critics, each examiner found the person who had been fingered to be deceptive, and each examiner tried mightily to get the guilty person to confess. No one, of course, had stolen anything. The four employees were confederates, paid $50 if they could convince the polygrapher of their innocence.

> With dramatic flair, CBS demonstrated that polygraphers do not necessarily use psychophysiological information to make their diagnoses of deception.

Polygraphy is not science. The CQT can have no scientific validity because it is not a scientific procedure. Yet there are some who pretend to make a distinction between the scientific validity of the CQT for security screening purposes as opposed to the investigation of specific incidents. We will discuss both applications of polygraphy.

Polygraph Screening

No one in the Federal Bureau of Investigation is more qualified than recently retired Supervisory Special Agent Dr. Drew C. Richardson to render an informed opinion on the scientific validity of polygraph screening. Dr. Richardson earned a doctorate in physiology from George Washington Medical Center in 1991. The NSA funded his doctoral dissertation research, which related to the use of novel cardiovascular indices applied to a lie detection task, and he collected his data at the Department of Defense Polygraph Institute (DoDPI). Dr. Richardson is a graduate of the DoDPI basic polygraph examiner's course and has worked in the Bureau's now defunct polygraph research unit.

Speaking before the United States Senate Committee on the Judiciary's Subcommittee on Administrative Oversight and the Courts (Richardson, 1997), Dr. Richardson testified:

> 1. [Polygraph screening] is completely without any theoretical foundation and has absolutely no validity. Although there is disagreement amongst scientists about the use of polygraph testing in criminal matters, there is almost universal agreement that polygraph screening is completely invalid and should be stopped. As one of my colleagues frequently says, the diagnostic value of this type of testing is no more than that of astrology or tea-leaf reading.[3]

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[3]The colleague Dr. Richardson refers to here is Professor Furedy. Upon

2. If this test had any validity (which it does not), both my own experience, and published scientific research has proven, that anyone can be taught to beat this type of polygraph exam in a few minutes.
3. Because of the nature of this type of examination, it would normally be expected to produce large numbers of false positive results (falsely accusing an examinee of lying about some issue). As a result of the great consequences of doing this with large numbers of law enforcement and intelligence community officers, the test has now been manipulated to reduce false positive results, but consequently has no power to detect deception in espionage and other national security matters. Thus, I believe that there is virtually no probability of catching a spy with the use of polygraph screening techniques. I think a careful examination of the Aldrich Ames case will reveal that any shortcomings in the use of the polygraph were not simply errors on the part of the polygraph examiners involved, and would not have been eliminated if FBI instead of CIA polygraphers had conducted these examinations. Instead I believe this is largely a reflection of the complete lack of validity of this methodology. To the extent that we place any confidence in the results of polygraph screening, and as a consequence shortchange traditional security vetting techniques, I think our national security is severely jeopardized.
4. Because of the theoretical considerations involving false positive results and because of anecdotal stories told to me by self-alleged victims of polygraph screening, I believe that the Bureau is routinely falsely accusing job applicants of drug usage or drug dealing. Not only is this result irreparably harming these individuals, but it is likely denying the Bureau access to qualified and capable employees. Although these individuals do not have an inalienable right to Federal Government employment, they do have an inalienable right to just treatment by their government.

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reviewing a draft of this book, Dr. Furedy wrote to clarify that his reference is "to all forms of the North American ['Control' Question 'Test'] polygraph, and not just the screening use."

> 5. I believe that claims of cost effectiveness, and the utility of polygraph screening are altogether wrong, reflect misplaced priorities, and lead to activities that are damaging to individuals and this country.

Dr. Richardson is not the only scientist to warn that polygraph screening is without validity. Before his retirement in 1995, the late Dr. William J. Yankee, then DoDPI director, had assembled an independent scientific advisory board which reviewed and provided comment on DoDPI's academic curriculum and intramural research program. This board was comprised of Drs. John J. Furedy, William G. Iacono, Edward S. Katkin, Christopher J. Patrick, and Stephen W. Porges. It was the consensus of the scientific advisory board that polygraph security screening is without scientific validity. When Michael H. Capps succeeded Dr. Yankee as director of DoDPI, he promptly dismissed the entire scientific advisory board.

Dr. Sheila D. Reed developed and tested the polygraph screening format adopted by the Department of Defense in 1993 and the Department of Energy in 1999. Her research and her observations of DoDPI teaching methods led her to the conclusion that polygraph screening should be stopped. When she voiced this opinion publicly, DoDPI officials falsely accused her of having lied to the CIA, stripped her of her security clearance, seized her computer and research data, relieved her of her duties, and eventually coerced her into leaving DoDPI.

False Positives and the Base Rate Problem

In 1983, the Congressional Office of Technology Assessment (OTA) published a study on the scientific validity of polygraph "testing" (*Scientific Validity of Polygraph Testing,* 1983). The OTA report notes at p. 100:

> One area of special concern in personnel security screening is the incorrect identification of innocent persons as deceptive. All other factors being equal, the low base rates of guilt in screening situations

> would lead to high false positive rates, even assuming very high polygraph validity. For example, a typical polygraph screening situation might involve a base rate of guilt of one guilty person (e.g., one person engaging in unauthorized disclosure) out of 1,000 employees. Assuming that the polygraph is 95 percent valid, then the one guilty person would be identified as deceptive but so would 50 innocent persons. The predictive validity would be about 2 percent. Even if 99 percent polygraph validity is assumed, there would still be 10 false positives for every correct detection.

The OTA review assumes that a polygraph screening validity rate of 95% entails that 95% of guilty subjects will be detected. But with an extremely low base rate of guilt, as is the case with espionage, such an assumption is not warranted. If we allow that not more than one in a thousand persons examined are actually spies, then an accuracy rate of at least 99.9% can be achieved by simply ignoring the polygraph charts altogether and peremptorily declaring all examinees innocent. Of course, the usefulness of such a "test" for catching spies would be zero. Yet this is essentially how the remarkably high accuracy rates claimed for some security screening programs (such as those of the Departments of Defense and Energy) are achieved! The interpretation of polygraph charts is manipulated so that almost everyone "passes."

Specific-Issue "Testing"

As Dr. Richardson testified before the Senate Committee on the Judiciary, "there is almost universal agreement that polygraph screening is completely invalid and should be stopped." However, some researchers, like Professor Charles R. Honts (an opponent of polygraph screening), claim that "control" question "tests" are nonetheless highly accurate when used in specific-incident investigations. (The case of the missing hard drives at Los Alamos National Laboratory in the spring of 2000 is an example where polygraphy was used in the investigation of a specific incident.)

But Professor David T. Lykken, (Lykken, 1998, pp. 133–36) notes that as of 1998, only four studies purporting to assess the field validity of the "Control" Question "Test" had passed the muster of peer review in a scientific journal. Only four. And taken together, these four studies do not establish that polygraphy operates at above chance levels in specific-issue "testing." It should also be noted that in any event, these four studies could not possibly have established the validity of the CQT, because, as Professor Furedy has aptly pointed out, the CQT is not a standardizable and specifiable test such that its validity might be scientifically established.

In 1994, William G. Iacono and David T. Lykken conducted a survey of opinion of members of the Society for Psychophysiological Research (SPR) (Iacono & Lykken, 1997). Members of this scholarly organization constitute the relevant scientific community for the evaluation of the validity of polygraphic lie detection. Members of the SPR were asked, "Would you say that the CQT is based on scientifically sound psychological principles or theory?" Of the 84% of the 183 respondents with an opinion, only 36% agreed.

Moreover, SPR members were asked whether they agreed with the statement, "The CQT can be beaten by augmenting one's response to the control questions." Of the 96% of survey respondents with an opinion, 99% agreed that polygraph "tests" can be beaten.

CHAPTER TWO

On Polygraph Policy

You can fool some of the people all the time, and all of the people some of the time, but you cannot fool all of the people all of the time.

—Abraham Lincoln

You can fool too many of the people too much of the time.

—James Thurber

As we have seen, the field validity of polygraphy has not been established by competent scientific research, nor can it be. The majority of the relevant scientific community does not believe the format most widely used by Government—the "Control" Question "Test"—to be based on scientifically sound psychological principles or theory. An even greater majority of that relevant scientific community believes that the "Control" Question "Test" can be beaten by augmenting one's response to the "control" questions. And, as we shall see in Chapter 3, such polygraph "testing" is fundamentally dependent on a fraud: the polygrapher must lie to and deceive the subject about the nature of the procedure.

Doesn't the Government Know?

Yes. It does. Or at least it should. As early as 1976, the U.S. House of Representatives Committee on Government Operations completed a review of polygraph policy (U.S. House of Representatives, 1976) and concluded:

> It is the recommendation of the committee that the use of polygraphs and similar devices be discontinued by all Government agencies for all purposes.

But Congress took no action. Seven years later, the OTA report (*Scientific Validity of Polygraph Testing,* 1983) warned Congress:

> OTA recognizes that NSA and CIA believe that the polygraph is a useful screening tool. However, OTA concluded that the available research evidence does not establish the scientific validity of the polygraph for this purpose.
>
> In addition, there is a legitimate concern that the use of polygraph tests for personnel security screening may be especially susceptible to: 1) countermeasures by persons trained to use physical movement, drugs, or other techniques to avoid detection as deceptive; and 2) false positive errors where innocent persons are incorrectly identified as deceptive. (p. 5)

The OTA's warning has gone unheeded. While in 1988, Congress ratified and President Ronald Reagan signed into law the Employee Polygraph Protection Act (EPPA) prohibiting most polygraph screening in the private sector, the Act expressly exempted federal, state, and local government. In the years since the OTA report, the reliance of Government on polygraphy has grown, rather than diminished.

The Joint Security Commission Report

The Joint Security Commission convened on 11 June 1993. Reporting to the Director of Central Intelligence and the Secretary of Defense, the Commission was tasked with developing a new approach to security in the post-Cold War era, and was directed "to undertake an objective review of the Federal personnel security screening polygraph program to determine how well it works, how it could be improved, and whether it should be continued." The Commission submitted its report (Joint Security Commission, 1994) some six months later on 28 February 1994.

Regarding the validity of polygraph screening, the Commission notes in chapter 4:

> Many polygraph proponents and some research experts believe that it is unnecessary to study the validity of the polygraph process, meaning its accuracy in distinguishing truth from deception. They contend that as long as the polygraph elicits admissions to screen

> out unsuitable applicants and actual security risks, questions about the polygraph's validity remain academic. However, if the polygraph does not have established scientific validity in the screening arena, judgments about truthfulness based solely on chart interpretation will continue to be controversial. Without established validity, the process lacks full integrity and appears more like trickery because information is obtained from subjects under the pretense that it is in their best interest to be forthright since false answers will be discovered. Furthermore, arguments could be made that the polygraph may not have the same effect on a nonbeliever; that is, unless the validity of the process can be demonstrated, there is nothing to prevent a practiced deceiver from passing a polygraph examination. In fact, circumstantial evidence lending credence to this view was documented by a President's Foreign Intelligence Advisory Board study in 1988.

The Commission was clearly aware that the validity of polygraph screening has not been established by competent scientific research. The Commission understood full well that polygraph screening depends on the polygrapher lying to and deceiving the subject. The Commission also makes it clear that it was aware that innocent people may be falsely accused, and that guilty people may avoid detection.

But incredibly, the Joint Security Commission decided to ignore all of this and to recommend that the polygraph program be retained:

> Despite the controversy, after carefully weighing the pros and cons, the Commission concludes that with appropriate standardization, increased oversight, and training to prevent abuses, the polygraph program should be retained. In the CIA and the NSA, the polygraph has evolved to become the single most important aspect of their employment and personnel security programs. Eliminating its use in these agencies would limit the effectiveness of security, personnel, and medical officers in forming their adjudicative judgments.

The Aldrich H. Ames Espionage Case

On Monday, 21 February 1994—just seven days before the Joint Security Commission issued its report—the FBI arrested Aldrich Hazen Ames and charged him with spying for the former Soviet Union and later, Russia. Since beginning his betrayal in 1985, Ames had passed two CIA polygraph "tests" during which he falsely denied having committed espionage, first on 2 May 1986 and again on 12 and 16 April 1991. In 1988–1989, while Ames was betraying his country, the CIA's Office of Security—which had by that time realized that there was a mole in CIA's ranks—wasted a year focusing its attention on an innocent employee who "had difficulty generally getting through routine polygraph examinations over the course of his CIA employment." (U.S. Senate Select Committee on Intelligence, 1994)

The above-cited Senate report states that "Ames said he never received training from the KGB on how to beat the polygraph." But DoDPI researcher Dr. Andrew Ryan has directly contradicted this Senate report. Speaking at the Department of Energy's public hearing on polygraph policy at Sandia National Laboratories on 16 September 1999 (U.S. Department of Energy, 1999c), Dr. Ryan stated:

> …What we do know is that people have been successful in the past in using countermeasures to defeat the polygraph exam. The Ames case was an example. He was taught by the Soviets how to defeat our process.… (p. 20 of hearing transcript)

The following day, speaking at Los Alamos National Laboratory (U.S. Department of Energy, 1999d), Dr. Ryan stated:

> …We do acknowledge that there have been cases where we've been defeated by countermeasures.
>
> I guess one of the most famous ones was the Aldrich Ames case, by the CIA. It was found he was trained by the Soviets in how to defeat the polygraph. So we basically had a mole inside the agency taught how to beat the polygraph, even though he went through several of them. (p. 153 of hearing transcript)

Revisionists in the counterintelligence community have claimed that upon close inspection, signs of deception can be found in the charts of the polygraph examinations that Ames passed. Among them is Edward J. Curran, who in the aftermath of the Ames case was seconded from the FBI to direct the CIA's counterintelligence program. (He later moved on to become chief of the Department of Energy's Office of Counterintelligence and has since retired.) In an October, 1999 *Scientific American* article, Tim Beardsley writes (Beardsley, 1999):

> Asked about the possibility that spies might trick the test by self-stimulation, Curran says he has "never seen it work yet." He hotly denies that the polygraph failed to raise suspicions about Ames: the polygrapher in that case made errors, Curran maintains, because subsequent examination of Ames's polygraph charts shows evidence of deceptiveness.…

In claiming that he has "never seen [polygraph countermeasures] work yet," the Department of Energy's former chief of counterintelligence was willfully blind. Had he been willing to see, he might have found enlightenment from Dr. Richardson, formerly of the FBI laboratory division. We will recall his Senate testimony (previously cited at p. 19):

> …I think a careful examination of the Aldrich Ames case will reveal that any shortcomings in the use of the polygraph were not simply errors on the part of the polygraph examiners involved, and would not have been eliminated if FBI instead of CIA polygraphers had conducted these examinations. Instead I believe this is largely a reflection of the complete lack of validity of this methodology. To the extent that we place any confidence in the results of polygraph screening, and as a consequence shortchange traditional security vetting techniques, I think our national security is severely jeopardized.

One psychophysiologist who has requested anonymity discusses in an unpublished paper the question of whether the polygraph could have caught Aldrich Ames. Because of the particular importance of

the Ames case, we cite this scientist's discussion of it in its entirety (Anonymous, n.d. a):

> **Could the Polygraph Have Caught Aldrich Ames?**
>
> In the wake of the failure of the polygraph to detect CIA double agent Aldrich Ames, there has been considerable discussion of what exactly went wrong. Unfortunately, most government leaders seeking an explanation have not consulted the independent scientific experts on the polygraph, but rather have spoken only to those who have the most to hide—the polygraphers within the government. In the absence of any input from scientists who possess relevant knowledge and do not have a job to protect, the truth regarding this situation has not been forthcoming.
>
> The fact that Ames failed to exhibit detectable polygraph responses to a number of specific questions directly bearing on his crimes is not in dispute. This is a matter of record. What polygraphers have often stated, however, is that Ames exhibited tell-tale responses to some other questions (e.g., financial ones), and that this should have tipped off the polygrapher or someone in his chain of command. This contention could not be further from the truth.
>
> The truth is that many of the questions on CIA screening polygraph exams are highly emotionally charged, and many if not most completely innocent people have trouble with at least some of the questions. If Ames did indeed respond somewhat to some of the questions, this would not set him apart from several thousand other employees who were subjected to polygraph interrogation.… With 20-20 hindsight, knowing that a polygraph chart belonged to a spy, a polygrapher could point out difficulties with virtually any polygraph chart—particularly if his audience did not include independent scientists competent to evaluate what was being said.
>
> There is a scientific way to detect whether or not the polygraph might have possibly caught Aldrich Ames. Take the records of the 100 polygraph interrogations that preceded Ames', and the 100 interrogations that followed Ames'. Remove any identifying information from the polygraph charts. Give these charts, along with Ames' chart, to a panel of the best polygraphers. See if they can pick out the one spy from the 200 polygraph charts.

Have them rank the charts from most guilty looking to most innocent.

Even if the polygraph were as high as 90% accurate for screening (which experts agree that it is not), 20 innocent people out of these 200 cases would have failed the test. Given that Ames passed the test and did not show responses to several espionage-related questions, there would be many innocent individuals in such a test who would look much guiltier than he did.

Given that Ames did not show any tell-tale responses to questions directly relating to his crimes, even if he did indeed show some stress responses to some of the other questions, this would put him somewhere in the middle of the sample. Perhaps 30 to 50 percent of the people would have polygraph results that would look more guilty than Ames'. Now let us extrapolate this to the whole Agency. If, say, 10,000 people took polygraph exams, 3,000 to 5,000 of them would look guiltier than Ames on each test. Even if only 10% looked worse than Ames, this would amount to 1,000 people. It would not be practical to fire or even to investigate all of these people.

The situation becomes even more problematical when we take into account the fact that people are tested repeatedly. (Recall that Ames passed the polygraph not once but twice while engaging in espionage.) When people take the test repeatedly, the chances of falsely being found guilty increase. If 30% of Agency employees did worse than Ames did on one test, statistically 99% of the employees would show a result worse than Ames' on at least one test if they were tested every five years over a 35-year career.

What if we assume that the polygraph is as high as 90% accurate, a figure much higher than what scientific studies and experts have found? This would mean that only 10% would falsely be found guilty. These 10% would have results worse than Ames, who was determined to be truthful. If only 10% of those tested did worse than Ames on one test, statistically over 50% of employees would do worse than Ames if tested seven times over a career.... Clearly, the polygraph does not provide information that would allow the Agency to correctly identify one or a few spies from amongst thousands of employees.

From these facts it is clear that any contention that the polygraph might have been successful in detecting Aldrich Ames—if only

> the results had been more carefully scrutinized—is sheer nonsense. In light of the known facts of the Ames case—even if we make the most favorable assumptions imaginable regarding the accuracy of the polygraph—any criterion that would have identified Ames as suspicious would also have implicated at least half of the other CIA employees over the course of their careers.
>
> The failure of the polygraph in the Ames case came as no surprise to the scientific experts in the field. As Dr. Charles Honts (1991) (a leading supporter of the use of the polygraph in criminal investigations—but not in screening) stated, "The problems posed by the inability of national security screening tests to detect deception are exacerbated by the demonstrated existence of effective countermeasures. Given that polygraph tests used for screening are likely to be inaccurate with guilty subjects to begin with, the existence of effective countermeasures virtually assures that a well-prepared and determined opponent could achieve nearly a 100% penetration of the national security polygraph screen."
>
> This statement is in accord with historical fact. Indeed, the failure of the polygraph in the Ames case was the rule rather than the exception. According to Robert Gates of the CIA, numerous double agents, particularly Cubans and East Germans, have passed the CIA polygraph over the years. What was unusual about Ames was not that he passed the polygraph, but that he did much more damage than many other double agents who also passed.

The CIA's Reaction to the Ames Case

Instead of learning from the OTA's warning and from the experience of the Ames case, the CIA responded with a polygraph crackdown. The threshold for passing was raised, and as a result, CIA polygraphers falsely accused hundreds of employees of deception. *Washington Post* staff writer Vernon Loeb notes in a 16 July 2000 article on the Department of Energy's polygraph screening program (Loeb, 2000):

> [Department of Energy counterintelligence chief Edward J.] Curran acknowledged that "false positives" became a serious issue at the CIA in the wake of the Aldrich Ames spy scandal when polygraphers were reluctant to accept any explanations from employees

> who indicated "deception" during their tests, leaving hundreds of employees unable to pass the test.

In the words of former Director of Central Intelligence John M. Deutch, "[The CIA's] reliance on the polygraph is truly insane." (Weiner, 1999)

The FBI Reacts

The FBI didn't learn from the Ames case, either. In March 1994—a month after the FBI arrested Ames, who had successfully employed countermeasures and passed his CIA polygraph "tests"—FBI director Louis J. Freeh mandated polygraph screening for all new special agents hired. (Kerr, 1997) Having failed to learn from the CIA's experience, the FBI was about to receive an object lesson of its own on polygraph validity. Attorney Mark S. Zaid, in a federal polygraph lawsuit brought in behalf of seven plaintiffs (Zaid, 2000), writes at para. 50:

> Upon information and belief, when the FBI implemented its polygraph program in 1994, the then current special agent class had already begun its training. Nevertheless, members of the 1994 class were administered polygraph examinations and approximately half the class failed. However, the FBI simply overlooked this problem and waived the requirements of the polygraph for the 1994 class.

The FBI has not publicly acknowledged the 1994 special agent class polygraph incident. Nor has it learned from it: the FBI continues to rely on polygraph screening.

Special agents aren't the only FBI employees required to submit to pre-employment polygraph screening. *All* FBI employees must submit. Even the janitorial staff are polygraphed. (Curreri, 2000)

As a rule, the Bureau conducts pre-employment polygraph screening of applicants only after they have received a tentative offer of employment. Those being polygraphed are the best and the brightest. But in the first three years of the pre-employment polygraph pro-

gram, 20% of FBI applicants were "determined to be withholding pertinent information" (Kerr, 1997) through a process that, as Supervisory Special Agent Dr. Drew Richardson testified, "is completely without any theoretical foundation and has absolutely no validity." (Richardson, 1997)

The FBI summarily terminates the applications of those "determined to be withholding pertinent information" based on their polygraph chart readings. There is no appeal process.

Coincidentally, in a recent laboratory study conducted by Dr. John A. Podlesny of the FBI laboratory division and Professor John C. Kircher of the University of Utah (Podlesny & Kircher, 1999), 20% of subjects who were innocent of committing a mock crime were classified as either "deceptive" or "inconclusive." (In the pre-employment context, an inconclusive outcome is treated the same as a deceptive outcome.)

In addition to pre-employment polygraph screening, the FBI also conducts periodic screening of some current employees with access to especially sensitive information. Special Agent Mark E. Mallah worked in FBI foreign counterintelligence. In January, 1995, he and other agents in his unit were required to undergo a counterintelligence-scope polygraph examination. SA Mallah's polygrapher accused him of showing signs of deception on the question about unauthorized contact with foreign nationals. A full-scale espionage investigation ensued that continued until September 1996. Although SA Mallah was ultimately cleared of having had unauthorized contacts with foreign nationals, his polygrapher's false accusation and the ensuing rumor and innuendo ruined his career prospects with the Bureau. He chose to resign, and did so with a clean record. (Mallah, 1998)

Despite the experience of the Ames case, the 1994 special agent class incident, the case of Special Agent Mark Mallah, and the testimony of the Bureau's own leading polygraph expert, the FBI persists in its reliance on polygraph screening. And it forbade that leading

polygraph expert, Dr. Drew C. Richardson, from testifying in court on polygraph matters while he remained employed with the Bureau. (Mateo, 2000)

Nonetheless, FBI's parent agency, the Department of Justice, knows something about the unreliability of polygraphy. Arguing before the U.S. Supreme Court in *U.S. v. Scheffer* against the admissibility of polygraph "evidence" in military cases, DOJ lawyer Michael R. Dreeben noted that "[t]he fundamental unreliability of polygraph evidence is underscored…because of the possibility that countermeasures can defeat any test." (Asseo, 1997)

The FBI Reacts…Again

On 18 February 2001, the FBI arrested one of its own, Robert Philip Hanssen, on charges of spying for the Soviet Union and Russia. On 6 July 2001, he pled guilty and was sentenced to life imprisonment. Hanssen, a counterintelligence specialist, is the highest ranking FBI employee ever arrested for espionage, and the damage he caused has been characterized as exceptionally grave. Hanssen's former boss, David Major, described his access to classified information as: "Everything—all sources, all methods, all techniques, all targets. There's only a few people in counterintelligence that have to know everything. And he was one of them." (Loeb & Masters, 2001)

A furor erupted over press accounts that Hanssen was never polygraphed during his FBI career. Although Director Freeh had ordered pre-employment polygraph screening in 1994, most current FBI employees had not been subjected to polygraph screening. During the week of 11–17 March 2001, Director Freeh signed an order directing that high-level employees with access to the FBI's most sensitive information be polygraphed starting within the next 60 days. (Seper, 2001)

Some four months later, Knight Ridder Washington correspondent Lenny Savino reported that more than 500 FBI employees had been administered counterintelligence-scope polygraph interrogations,

and "less than 25" had "failed to pass." According to Savino, a senior FBI official described this failure rate as "surprisingly low." (Savino, 2001) But can a failure-to-pass rate on the order of 25 out of 500 (5%) honestly be characterized as "low?" In absolute terms, it could only be considered "low" if one expected more than 5% of FBI employees to be spies!

According to C.S. "Steve" Rogers, a retired FBI polygrapher working as a counterintelligence officer at the Office of Internal Security, Los Alamos National Laboratory (LANL), *less than 1%* of FBI applicants polygraphed failed the counterintelligence portion of their pre-employment polygraph examinations. (LANL Employee Advisory Committee, 2001) If high-level FBI employees are failing to pass their polygraph interrogations on counterintelligence issues at some *five times* the rate of applicants, can such a failure rate truly be considered "low?" Perhaps only by a self-interested FBI official hiding behind the cloak of anonymity as he/she tries to manage public perception.

According to the minutes of the LANL Employee Advisory Committee, Steve Rogers also told the Committee that the Department of Energy's Albuquerque test center "hasn't had a false positive result in the over 1800 tests they have performed." The FBI's roughly 25/500 failure to pass rate seems rather high by comparison.

If the FBI were to require periodic polygraph screening of all employees, then a 5% failure-to-pass rate applied to a work force of roughly 28,000 would mean some 1,400 failures to pass. And this situation would be repeated every five years with successive rounds of polygraph interrogations.

If FBI management treats those who fail to pass their pseudoscientific truth test the same way they treated former FBI Special Agent Mark Mallah, they are going to have a serious morale, retention, and recruitment problem.

The Department of Energy Polygraph Program

In 1999, the Department of Energy (DOE), in reaction to unsubstantiated suspicions of Chinese espionage at Los Alamos National Laboratory, greatly expanded its polygraph screening program for employees and contractors with access to certain nuclear weapons-related information. At first, DOE announced that some 12,000 employees would face polygraph screening.

In September 1999, the Department held a series of four public hearings on polygraph policy at which General Eugene E. Habiger, retired, then director of the Department's Office of Security and Emergency Operations, presided. The ostensible purpose for these hearings was to allow the public to comment on the Department's proposed polygraph regulation, which had been published in the Federal Register in August.

At the beginning of each of these four hearings, DOE's polygraph program manager, Mr. David M. Renzelman, delivered a brief presentation during which he provided false and misleading information about polygraph screening to the public. He suggested that the purpose for the "pre-test" interview is to make sure that the subject understands what is meant by "espionage" and "sabotage," whereas its main purpose (as we will see in Chapter 3) is actually to elicit admissions and to obtain leads that may be useful in a "post-test" interrogation.

Mr. Renzelman lied to scientists and engineers at Sandia National Laboratories and Los Alamos National Laboratory about the rationale for the directed-lie "control" questions used in DOE's polygraph screening format, claiming that they "are designed to elicit your capability of responding physiologically should you intentionally tell a lie." (Maschke, 1999). (We will discuss the true rationale for directed-lie "control" questions in Chapter 3.)

During the course of DOE's public hearings on polygraph policy, General Habiger's panel heard from dozens of scientists who warned of the lack of validity, the danger of false positives and false negatives,

the base-rate problem, and the fact that lie detector "tests" can be easily defeated through countermeasures. But their concerns fell on deaf ears. The public hearings were merely window dressing: the decision to implement polygraph screening had already been made.

On the DOE False Positive Rate

In July 2000, then DOE counterintelligence chief Edward J. Curran told *Washington Post* staff writer Vernon Loeb that not a single one of the 800 DOE employees polygraphed up to that point had "failed." This is a truly amazing claim. Dr. Sheila D. Reed, who developed the "Test" for Espionage and Sabotage (TES) screening format used by DOE, conducted three laboratory experiments attempting to assess TES validity, using volunteers who committed mock acts of sabotage or espionage. (The TES is a variety of "Control" Question "Test" and as such suffers from the same lack of scientific control and standardization. See Chapter 3 for further discussion of the TES.)

Dr. Reed's three experiments showed false positive rates of 15.2%, 2%, and 11.1%, respectively, for an average false positive rate of 9.4%. Keep in mind that in these laboratory experiments, the subjects had nothing to lose if they were falsely accused of deception. One might naturally expect a higher false positive rate in the field, where truthful persons whose careers depend on the outcome might well be more anxious while truthfully denying having committed espionage than when falsely denying—on the polygrapher's instructions—a common human failing such as having told a lie, even once in one's life.

Applying this experimental average false positive rate of 9.4% to a population of 800 employees screened, one would expect 75 false positive outcomes. But Edward Curran asserted that there were none!

Could it be that this amazing false positive rate of 0% is achieved by arbitrarily choosing to ignore charts where the outcome, according

to standard DoDPI doctrine, should properly be "significant response" (that is, "deception indicated")?

Indeed, this seems to be, in essence, how DOE has achieved its claimed false positive rate of 0%. Loeb reports:

> …Curran…said that about 20 percent of test subjects showed physiological responses indicating some "deception" to a question about unauthorized contacts.
>
> But all of those subjects ultimately passed when asked the question a second time after being allowed to explain a minor transgression or admit to past conduct that may have been causing slight feelings of guilt, Curran said.

The true false positive rate in the DOE polygraph program is about 20%, not zero. But DOE polygraphers are no doubt aware that they cannot get away with falsely accusing some 20% of those they interrogate of being spies and saboteurs. It seems clear that, after grilling subjects a bit, DOE polygraphers are choosing to overlook charts which, based on DoDPI doctrine, should be scored as indicating deception.

On the DOE False Negative Rate

Edward Curran said of DOE employees, "These are not bank robbers or embezzlers. These are patriotic American citizens who already have clearances—you expect them to pass." (Loeb, 2000) But the ostensible purpose of DOE's polygraph program is to detect espionage and sabotage, not bank robbery and embezzlement. To the best of our knowledge, there is no evidence that bank robbers and embezzlers are any more likely than anyone else to commit espionage or sabotage.

DOE's expectation that employees will pass makes it all the easier for any real spies or saboteurs to escape detection. Just because all DOE employees polygraphed as of July 2000 ultimately "passed," it does not follow that none of them were spies or saboteurs. By relying on unreliable polygraph "testing," DOE and other agencies

may succeed in deluding themselves into a false sense of security, but actual spies will go undetected, as did CIA's Aldrich Ames. The false negative rate of DOE's polygraph program will, in all likelihood, never be known.

The Case of Wen Ho Lee

> In 1995, a "walk-in" approached the Central Intelligence Agency outside of the PRC and provided an official PRC document classified "Secret" that contained design information on the W-88 Trident D-5 warhead, the most modern in the U.S. arsenal, as well as technical information concerning other thermonuclear warheads.

Thus began an ongoing investigation of suspected Chinese espionage within the Department of Energy, according to chapter 2 of the report of the House Select Committee on U.S. National Security and Military/Commercial Concerns with the People's Republic of China, more commonly known as the "Cox Report." But in the very next paragraph, the Cox Report notes:

> The CIA later determined that the "walk-in" was directed by the PRC intelligence services. Nonetheless, the CIA and other Intelligence Community analysts that reviewed the document concluded that it contained U.S. thermonuclear warhead design information.

The Cox Report does not disclose how the CIA determined that the "walk-in" was "directed by the PRC intelligence services." Nor does the Cox Report offer any insight into why the PRC intelligence services would provide the CIA with documents that could reasonably be expected to compromise their own sources and methods.

As previously noted (p. 30), hundreds of CIA employees were unable to pass their polygraph screening exams in the wake of Aldrich Ames' arrest in 1994, and the 1995 "walk-in" incident occurred squarely in that wake. Could it be that the CIA determined that the "walk-in" was directed by the PRC intelligence services because a CIA polygra-

pher found portents of prevarication when he gazed into the polygraph charts? A report by Walter Pincus and Vernon Loeb of the *Washington Post* (Pincus & Loeb, 2000) suggests that such is the case:

> "He failed an agency polygraph," one intelligence official explained.

Pincus and Loeb report that notwithstanding the CIA's polygraph results, the FBI later debriefed the defector in the United States and believes him to be legitimate. If, as seems likely, the CIA did terminate its relationship with the "walk-in" based on the voodoo science of polygraphy, then it committed a blunder of monumental proportions.

In light of the information provided by the "walk-in," the U.S. Department of Energy launched an espionage investigation that was eventually taken over by the FBI, which focused on Los Alamos physicist Wen Ho Lee as its sole suspect. With the FBI's consent, DOE counterintelligence chief Edward J. Curran ordered that Lee be polygraphed. According to the Final Report of the Attorney General's Review Team on the Handling of the Los Alamos National Laboratory Investigation, better known as the "Bellows Report," Curran predicted in a memorandum dated 21 December 1998 to Secretary of Energy Bill Richardson only two possible outcomes: "either he would *refuse* to take the polygraph and DOE would pull his clearance and take steps to terminate his employment or he would *agree* to take the polygraph, not 'pass' it, and his clearance would be pulled and termination proceedings initiated."[4]

Clearly, the demand that Lee take a polygraph "test" was intended merely a pretext for revoking his clearance and firing him. According to the Bellows Report, on 23 December 1998, the day of the "test," FBI Special Agents Carol Covert and John Hudenko, who were on hand to interrogate Lee after the "test" in the event that he failed, "became concerned about what exactly was supposed to happen if

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[4]Footnote 850 at p. 633.

Lee *passed* the polygraph." The report continues, "SA Covert said they got Curran on the telephone and he said 'it's not going to happen.'"[5]

Two days later, on 23 December 1998, polygrapher Wolfgang Vinskey, employed by DOE contractor Wackenhut Corp., administered a polygraph interrogation to Dr. Lee. There were four relevant questions:

> Have you ever committed espionage against the United States?
>
> Have you ever provided any classified weapons data to any unauthorized person?
>
> Have you had any contact with anyone to commit espionage against the United States?
>
> Have you ever had personal contact with anyone you know who has committed espionage against the United States?

Ed Curran's prediction notwithstanding, Dr. Lee received one of the highest "passing" scores possible. According to the Bellows Report:

> After the polygraph examination was over, SA Covert and SA Hudenko talked to the polygrapher and were told that Lee had not only passed the polygraph but "blew it away." (p. 634)

CBSNews.com reported, "The polygraph results were so convincing and unequivocal, that sources say the deputy director of the Los Alamos lab issued an apology to Lee, and work began to get him reinstated in the X-Division." (CBSNews.com, 2000)

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[5] p. 634. Although the names of Special Agents Covert and Hudenko have been redacted from the publicly released version of the Bellows Report, they are identified as the agents who were present at p. 175 of *A Convenient Spy: Wen Ho Lee and the Politics of Nuclear Espionage* by Dan Stober and Ian Hoffman, and their redacted names can be distinguished from one another in the Bellows Report based on their relative lengths.

However, when the FBI later wanted to search Wen Ho Lee's home, Special Agent Michael W. Lowe, at para. 11 of an affidavit in support of a search warrant filed on 9 April 1999 (Lowe, 1999), swore that:

> …[f]ollowing the interview on December 23, 1998, DOE polygraphers administered a polygraph examination of LEE. The examiner's initial opinion was that LEE was not deceptive. However, subsequent quality control reviews of the results, by both DOE and by FBI Headquarters (HQ) resulted in an agreed finding that LEE was inconclusive, if not deceptive, when denying he ever committed espionage against the United States.

That DOE's original determination that the polygraph charts unequivocally indicated that Dr. Lee was truthful could be reinterpreted through "quality control reviews" to be "inconclusive, if not deceptive" is further proof—if any were needed—that polygraph chartgazing is no science. The polygrapher may read whatever he (or his boss) pleases into the charts.

Indeed, it seems that the "quality control reviews" referred to in SA Lowe's affidavit were a sham. Speaking at a public meeting of the National Academy of Sciences Study to Review the Scientific Evidence on Polygraphs on 26 January 2001, DOE polygraph program chief David M. Renzelman revealed that the DOE polygraph "quality control" program was only instituted in January 1999—*promptly after Wen Ho Lee had passed his polygraph "test!"* Mr. Renzelman stated that DOE and FBI reviewers unanimously agreed that Dr. Lee's polygraph examination of 23 December 1998 was "not finished." (We have not succeeded in finding in the polygraph literature any criteria for a determination that a polygraph examination is "not finished.") In any event, Mr. Renzelman's contention that Dr. Lee's polygraph examination was "not finished" is inconsistent with SA Lowe's sworn testimony that "quality control reviews of the results, by both DOE and by FBI Headquarters (HQ) resulted in an agreed finding that LEE was inconclusive, if not deceptive, when denying he ever committed espionage against the United States."

AntiPolygraph.org has referred this matter to the FBI Office of Professional Responsibility.

The FBI decided to re-polygraph Lee. On 9 February 1999, FBI agents falsely explained to Lee that they "needed his help solving a puzzle related to the W88, but first he had to be cleared with a polygraph." (Stober & Hoffman, 2001) Lee reluctantly agreed. Stober and Hoffman describe the beginning of his polygraph interrogation by FBI Special Agent Rich Hobgood as follows:

> Resigned, Lee reported to the Los Alamos Inn at 9 A.M. on February 10. He was shown into a room where the polygrapher, named Hobgood, was waiting. Agents had taken down the room's artwork and situated a table and a chair for Lee facing one of the blank walls. The room was uncomfortably warm, and Lee had the distinct impression that the FBI had turned up the thermostat. He took a seat and Hobgood hooked him up to the machine. The polygrapher cinched the finger cuff around his thumb to a painful tightness. Hobgood informed Lee that he was a suspect in an investigation into the loss of classified information on the W88 warhead—the first time the FBI had clearly told him. He was advised of his rights, just as he would be if he were being arrested. Lee found this upsetting.

Upsetting indeed. Placed in an overheated room, with a polygraph attachment tightened to the point of causing pain, and faced with the sudden shock of learning that he was the suspect in an espionage investigation, it is hardly surprising that Lee would physiologically respond to the accusatory relevant questions. *If Stober and Hoffman's account is accurate, it would suggest that the FBI deliberately rigged the "test" to ensure that Lee would "fail."*

SA Lowe describes the outcome of SA Hobgood's polygraph interrogation of Dr. Lee at paragraph 17 of his 9 April 1999 affidavit:

> On February 10, 1999, the FBI conducted a polygraph examination of LEE. During this examination, the FBI asked LEE whether he had provided two classified codes…to any unauthorized person and whether he deliberately obtained any W-88 documents. It was the examiner's opinion that the polygraph results were incon-

> clusive as to those questions. The second question was rephrased to cover a broader range of activities. LEE was then asked the follow [*sic*] two questions:
>
> Q: Have you ever given any of those two codes to an unauthorized person?
>
> A: No.
>
> Q: Have you ever provided W-88 information to any unauthorized person?
>
> A: No.
>
> The polygraph examiner concluded that LEE's answers to these questions were deceptive.

However, it now seems highly unlikely that Wen Ho Lee was the source of any W-88 information included in the "walk-in" documents. As the *Washington Post* reported on 19 October 2000 (Pincus & Loeb, 2000):

> A new review of Chinese military documents provided by a defector in 1995 has led U.S. intelligence agencies to conclude that Chinese espionage has gathered more American missile technology than nuclear weapons secrets, senior U.S. officials said.
>
> The conclusion was reached only this year [2000] because the CIA and other intelligence agency linguists did not fully translate the huge pile of secret Chinese documents, totaling 13,000 pages, until four years after the agency obtained them, according to a senior law enforcement official, who described the delay as a major blunder.
>
> The belated translation and analysis has prompted a major reorientation of the FBI's investigation into Chinese espionage. From 1996 until late last year, the FBI probe centered on the suspected loss of U.S. nuclear warhead data, and quickly narrowed into an investigation of Wen Ho Lee, a researcher at Los Alamos National Laboratory in New Mexico. Now, however, the FBI—which never found evidence that Lee spied for China—has shifted its focus to the Defense Department and its private contractors.
>
> That is because the documents provided by the defector show that during the 1980s, Beijing had gathered a large amount of

> classified information about U.S. ballistic missiles and reentry vehicles. The missile secrets are far more likely to have come from defense officials or missile builders than from Los Alamos or other U.S. nuclear weapons labs, officials said.

Thanks in large part to a misplaced faith in polygraphy, the CIA botched its handling of the "walk-in" source and the FBI botched the ensuing espionage investigation, which at the time of writing (February 2002) is ongoing.

The Department of Defense Polygraph Program

The Department of Defense (DoD) has long had a counterintelligence-scope polygraph program, the ostensible purpose of which is to deter and detect espionage, sabotage, and terrorism. The DoD polygraph program is a prime example of waste, fraud, and abuse at taxpayer expense. Every year, the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) prepares for Congress a report on the DoD polygraph program. These reports are designed to "sell" the polygraph program to Congress and cast it in the most favorable light. As we shall see, DoD has been selling Congress a fraudulent bill of goods.

The DoD Polygraph Program Report for Fiscal Year 2000 (U.S. Department of Defense, 2001) reveals that in that fiscal year, 7,890 DoD and contractor personnel underwent polygraph security screening, not including NSA and NRO. The report indicates that the only individuals who "failed" their DoD polygraph screening "tests" were those who made "substantive" admissions. Everyone else "passed." Thus, the key to passing is to simply to make no "substantive" admissions! The report explains:

> Approximately 71 percent of our polygraph tests are conducted as a condition for access to certain positions or information under the DoD Counterintelligence-Scope Polygraph (CSP) Program. The DoD CSP Program is authorized by Public Law 100-180. The

> purpose of the CSP Program is to deter and detect activity involving espionage, sabotage, and terrorism.
>
> The DoD conducts CSP examinations on military personnel, DoD civilian employees, and DoD contractor personnel. Of the 7,890 individuals examined under the CSP Program in Fiscal Year 2000, 7,688 showed no significant physiological response to the relevant questions (non-deceptive) and provided no substantive information. The remaining 202 individuals provided substantive information. Of these 202 individuals, 194 received a favorable adjudication, three are still pending adjudication, five are pending investigation, and no one received adverse action denying or withholding access.

The report goes on to clarify:

> There were 7,688 individuals whose polygraph examination results were evaluated as no significant response to the relevant questions (non-deceptive). The remaining 202 individuals yielded significant responses and/or provided substantive information.

This report makes it clear that the polygraph charts are not being used to determine whether individuals pass or fail: if the individual provides no "substantive information," then any physiological responses he/she may have shown to the relevant questions are ultimately deemed not to be significant, and the individual "passes." But if the individual provides "substantive" information, then he/she "fails," regardless of the polygraph chart readings.

While DoD claims that "[t]he purpose of the [Counterintelligence-Scope Polygraph] Program is to deter and detect espionage, sabotage, and terrorism," it seems that the only spies, saboteurs, or terrorists who will be deterred or detected by it are those who are stupid enough to make admissions.

If the DoD polygraph program is incapable of detecting those stubborn spies who won't confess, then it should come as no surprise that it is ineffectual at deterring would-be spies. Two recent espionage cases illustrate the point. On 23 August 2001, the FBI arrested Brian P. Regan, a retired U.S. Air Force master sergeant and employee of

National Reconnaissance Office (NRO) contractor TRW, on charges of conspiracy to commit espionage. The following month, on 21 September 2001, the FBI arrested Ana Belen Montes, the Defense Intelligence Agency's (DIA's) senior analyst for matters involving Cuba, on charges of conspiracy to commit espionage. Both Regan and Montes worked in DoD agencies in positions that require counterintelligence-scope polygraph screening. While the FBI and DoD have not, at the time of this writing (February 2002), disclosed whether Regan or Montes passed polygraph screening "tests" after beginning their alleged espionage activities, if the charges against them are true, then the prospect of future polygraph screening did not deter them.

Despite the ease with which spies can beat the DoD counterintelligence screening "test," innocent persons subjected to it are not necessarily safe from polygraph abuse, as Petty Officer Daniel M. King discovered in 1999.

The Case of Petty Officer Daniel M. King

On Wednesday, 29 September 1999, Special Agent Robert Hyter of the Naval Criminal Investigative Service (NCIS) polygraphed Cryptologist Technician (Collection) First Class (CTR1) Daniel M. King and came up with a "no opinion" outcome. What followed is one of the worst instances of polygraph abuse on record. Lieutenant Robert S. Bailey of the Naval Judge Advocate General's Corps documented this abuse in testimony before the U.S. Senate Select Committee on Intelligence on 3 April 2001 (Bailey, 2001):

> Public statements issued by the Navy have stated that all polygraph examinations performed on CTR1 King were conducted according to Department of Defense regulations. This is completely untrue. One of the Navy's statements indicates that recording the examinations is a requirement under the regulations. The first three days of exams were recorded in accordance with those regulations; the remainder were not. Perhaps agents stopped recording because they were aware that they were not conducting examinations in

accordance with the regulations. Those examinations that were recorded demonstrate a sharp departure from the practices established in the Department of Defense regulations.

Immediately following the first polygraph examination, the polygrapher, Special Agent (SA) Robert Hyter, told CTR1 King that he had failed the exam. This was a lie. SA Hyter actually was unable to render an opinion on the chart produced by the examination. SA Hyter never went back and attempted to retest CTR1 King on those questions in an effort to get a more accurate reading. An indeterminate or "no opinion" reading on a polygraph is very common. Both LT Freedus and I had similar results with our first polygraph examinations following assignment to this case. The polygraphers simply reran our polygraph tests and obtained positive results. SA Hyter never took this important and logical step in his polygraph examination of CTR1 King.

By lying to CTR1 King and failing to retest him, SA Hyter created a situation in which CTR1 King would be more likely to show an elevated response to the relevant questions when they arose again. The NCIS Manual encourages agents to lie during interrogations, but Department of Defense regulation 5219.48-R prohibits using the polygraph as such a "psychological prop." Lying about polygraph results is sure to result in inaccurate results. CTR1 King undoubtedly experienced considerable anxiety regarding the relevant questions after being lied to regarding the prior results. Such anxiety can create a false negative or deceptive reading to these questions. See Benjamin Kleinmuntz & Julian J. Szucko, On the Fallibility of Lie Detection, 17 L. & Soc'y Rev. 85, 87 (1982); see David T. Lykken, The Lie Detector and the Law, Crim. Def., May-June 1981, at 19, 21 ("Any reaction that you might display when answering deceptively you might also display another time, when you are being truthful.").

As the polygraphs continued, NCIS agents further departed from regulations when they stopped recording the examinations and the interrogations that followed. SA Hyter received specific orders from his superiors at NCIS headquarters to stop recording the examinations and interviews. SA Hyter felt that he had no discretion in whether or not to record interrogations. The NCIS Manual, however, states that the recording of interrogations is "strongly recommended." Despite more than three weeks of additional in-

terrogations, no sessions other than a meeting between CTR1 King and an NCIS psychologist were recorded.

After the initial indeterminate results, the polygraph examinations continued intermittently over the next several weeks. CTR1 King would undergo five or more examinations in a single day with mixed results. The Navy has stated that he failed the polygraph examinations. In truth, the results were almost always indeterminate. The only time he registered deceptive results was after long sessions and days of constant interrogations, and under clearly impermissible conditions.

The NCIS agents skewed the results of the examinations by conducting them under conditions destined to produce inaccurate results. The examinations were regularly conducted when CTR1 King was fatigued or complaining about a lack of sleep. On the tape of the examination and interview on October 2, 1999, SA Hyter states that he recognizes that CTR1 King is very tired, operating on a lack of sleep and fatigued from the constant questioning. Nonetheless, he proceeded to administer a series of polygraphs which CTR1 King predictably failed to pass. Administering a polygraph examination under these conditions is improper and likely to lead to inaccurate readings, and is prohibited under Department of Defense regulation 5210.48-R. Nonetheless, SA Hyter simply told CTR1 King that he appreciated the fact that he was tired but that the polygraph would take place anyway.

In addition to conducting examinations under sleep-deprived conditions, the agents mingled polygraph examinations with abusive interrogations. The commingling of these techniques had the predictable result of elevating CTR1 King's reaction to the relevant questions and producing unreliable examinations. Specifically, CTR1 King was told that he was a spy. SA Hyter is heard telling CTR1 King during the October 2, 1999 interrogation that his inability to pass the polygraph examination indicates that he is a spy and has engaged in espionage. When CTR1 King is asked questions on to [*sic*] this subject in subsequent examinations, he experiences predictable anxiety over being labeled a spy and has physiological reactions that trigger a false reading on the polygraph.

This type of manipulation is the exact reason polygraph results remain inadmissible in court. Polygraph machines are notoriously unreliable and unethical examiners can manipulate the results. It

> is beyond question that NCIS agents engaged in unethical conduct in this case. The fact that this conduct extended to the administration of polygraph examinations should come as no surprise.

NCIS subjected CTR1 King to days of polygraphic interrogation and sleep deprivation and denied him a lawyer when he requested one. At 3:30 A.M. on 6 October 1999, after a 19-hour interrogation session (and having been interrogated during 30 of the 39 previous hours) CTR1 King signed a confession stating that he had sent a computer disk containing classified information to the Russian embassy. His confession was uncorroborated by any evidence whatsoever, and he promptly retracted it. Nonetheless, CTR1 King spent well over a year in pre-trial confinement before the presiding military investigator, Commander James P. Winthrop, USN, recommended that charges be dismissed. CTR1 King was released on 9 March 2001 and has since retired from the Navy with a clean record.[6]

The Marine Embassy Guard Scandal

The polygraph abuse suffered by CTR1 King is not without precedent. In *A Tremor in the Blood: Uses and Abuses of the Lie Detector,* David T. Lykken describes an eerily similar instance of polygraph abuse by the Naval Investigative Service (which in 1992 was re-named the Naval Criminal Investigative Service):

> In 1986, newspaper headlines revealed that Marine guards at the U.S. Embassy in Moscow had been found to have conducted guided tours for Soviet KGB agents through the secret inner sanctums of that building. A *Time* magazine cover graphically portrayed by far the worst shame ever to bedraggle the honor of the Corps. Several silent months after these horrific revelations, an article by *Washington Post* reporter Don Oberdorfer revealed the even more shameful truth. Agents and polygraphers of the Naval Investigative

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[6]For further reading on the King case, see the Federation of American Scientists website at:

`http://www.fas.org/irp/ops/ci/king/index.html`

> Service learned that a Native American Marine, Sgt. Clayton Lonetree, had befriended a Russian woman employed by the KGB. They then sought out three other enlisted Marines who had also worked as guards at the U.S. Moscow Embassy during Lonetree's tenure there and subjected them to repeated cycles of polygraph testing and interrogation. Each polygraph test included increasingly bizarre allegations to which these young Marines reacted with increasing physiological disturbance. Ultimately, Cpls. Arnold Bracy and Robert Williams and Sgt. Vincent Downes signed wildly incriminating statements—statements they at once repudiated after being rescued from the NIS interrogators. According to Robert Lamb, head of the State Department's Diplomatic Security Bureau, "there were things in Bracy's statement that could not have happened."[7] These were young African American Marine noncoms, plucked from their subsequent posts by NIS investigators and questioned, more or less nonstop for three days, each successive polygraph test suggesting still more outlandish possibilities, accusations that the young men reacted to with increasing alarm, thus confirming the polygraphers' beliefs that they were on the track of something big. Sometime later I received a phone call from a Marine colonel, a Judge Advocate General officer who had served as defense counsel in Cpl. Bracy's court-martial. This colonel wanted nothing more from me than understanding corroboration of his outrage at what these NIS operatives and their "damnable polygraphs" had done to his client and, especially, to the reputation of his beloved Marine Corps. Reagan administration officials finally admitted that, in fact, the Marines didn't admit any Soviet agents into the embassy. As journalist Oberdorfer wrote, "the government has been grappling mainly with phantoms of its own invention." (pp. 245–46)

Other Agencies

Apart from CIA, NSA, FBI, and the Departments of Defense and Energy, other federal agencies such as the U.S. Secret Service, DEA,

[7]Endnote in original: "Patt Derian, Embassy scandal was fiction, *Minneapolis Star-Tribune,* January 31, 1988. Derian was assistant secretary of state for human rights during the Carter administration."

the Internal Revenue Service, the U.S. Capitol Police, and the Food and Drug Administration also rely on polygraphy. In addition, many state and local law enforcement agencies and fire departments use polygraphy to screen applicants and to interrogate their current employees in internal affairs investigations.

If They Know Polygraphy Is Unreliable, Why Do They Rely on It?

Government agencies rely on polygraphy primarily because naïve and gullible subjects, fearing that the polygraph will detect the slightest hint of deception, will often make admissions that they might not otherwise make. Those innocent persons who are falsely accused in the process are considered "acceptable losses."

In an article on DOE's decision to adopt polygraph screening (Park, 1999), physicist Robert L. Park, writes:

> The 1971 Oval Office tapes captured President Richard M. Nixon explaining why he had ordered polygraph screening for the White House staff: "Listen, I don't know anything about polygraphs and I don't know how accurate they are, but I know they'll scare the hell out of people."

In 1983, the Congressional Office of Technology Assessment (OTA) reported:

> It appears that NSA (and possibly CIA) use the polygraph not to determine deception or truthfulness per se, but as a technique of interrogation to encourage admissions. NSA has stated that the agency "does not use the 'truth v. deceptive' concept of polygraph examinations commonly used in criminal cases. Rather, the polygraph examination results that are most important to NSA security adjudicators are the data provided during the pretest or posttest phase of the examination"… (*Scientific Validity of Polygraph Testing,* p. 100)

On 4 May 1993, the NSA wrote to the White House, "over 95% of the information the NSA develops on individuals who do not meet

federal security guidelines is derived via [voluntary admissions from] the polygraph process." (National Security Agency, 1993) And as previously noted (p. 24), the Joint Security Commission acknowledged in its 1994 report that many polygraph proponents "contend that as long as the polygraph elicits admissions to screen out unsuitable applicants and actual security risks, questions about the polygraph's validity remain academic."

In a CBS "60 Minutes II" report on polygraph screening titled "Final Exam" which aired on 12 December 2001, former CIA and DOE counterintelligence chief Edward J. Curran explained to Scott Pelley what good the polygraph is, after acknowledging that "it is not scientific":

> It's a very, very effective screening device, because if people believe that that machine's gonna catch them in the lie, they're more willing to make statements or admissions to you prior to the test, or during the test.

After Supervisory Special Agent Drew C. Richardson's damning Senate testimony on polygraph validity, Senator Charles E. Grassley wrote in a letter (Grassley, 1997) to the then new director of the FBI laboratory division, Dr. Donald M. Kerr[8]:

> …Dr. Richardson is perhaps the FBI's most eminently qualified expert on polygraphs. In his testimony, Dr. Richardson states the following regarding polygraph screening:
>
> *"It is completely without any theoretical foundation and has absolutely no validity. Although there is disagreement among scientists about the use of polygraph testing in criminal matters, there is almost universal agreement that polygraph screening is completely invalid and should be stopped."*
>
> Enclosed is a copy of the full text of Dr. Richardson's testimony. As Chairman of the Subcommittee on Administrative Oversight

[8]Dr. Kerr, who came to the FBI laboratory division without a background in forensic science, served as director of Los Alamos National Laboratory from 1979–1985. In 2001, he left the FBI to become the CIA's Deputy Director for Science and Technology.

> and the Courts, I request that you respond in writing to the Subcommittee answering Dr. Richardson's charges on grounds of science. If you disagree with his charges, I ask that you so state, and also indicate your intention to raise the matter with the FBI Director immediately and advise him of your position. If Dr. Richardson is correct, polygraph screening should be banned from the FBI.

Senator Grassley requested that the Director of the FBI laboratory division answer Dr. Richardson's charges *on grounds of science.* But instead, this is how Dr. Kerr (who with a doctorate in plasma physics from Cornell University should have known better) replied:

> With regard to the testimony provided to your Subcommittee on September 29, 1997 by the Chief of the FBI's Hazardous Materials and Response Unit, Dr. Drew Richardson, you have asked for my position regarding the use of polygraph examinations as an applicant screening procedure. For the reasons set forth below, I support the use of polygraph testing for applicants seeking employment with the FBI.
>
> In March, 1994, Director Freeh authorized the use of polygraph examinations for all FBI employment applicants. Since that time, the FBI has conducted approximately 16,200 pre-employment polygraph examinations. Of those, 12,930 applicants (80 percent) passed and continued processing; 3,270 applicants (20 percent) were determined to be withholding pertinent information. When these individuals were interviewed about their unacceptable performance in the polygraph session, 1,170 (36 percent) admitted to withholding substantive information, thereby confirming the results of the polygraph examination.
>
> The FBI's polygraph screening focuses exclusively on counterintelligence issues, the sale and/or use of illegal drugs, and the accuracy and completeness of information furnished by applicants in their employment applications. It is not a substitute for, but merely one component of, a thorough and complete background investigation. We have found that conventional investigative methods are not always capable of detecting certain national security risks and personal suitability issues, which have been discerned through polygraph interviews.…

Tellingly, the director of the FBI laboratory division failed to answer Dr. Richardson's charges on grounds of science, as Senator Grassley had requested. Nor did Dr. Kerr state whether he disagrees with Dr. Richardson's charges, as the Senator had asked. Instead, Dr. Kerr admitted that he supported polygraph screening because his boss, Director Freeh, authorized it and because it is useful for obtaining admissions.

Part of Dr. Kerr's response to Senator Grassley is also misleading. Dr. Kerr claimed that polygraph screening "is not a substitute for, but merely one component of, a thorough and complete background investigation." He neglected to mention that the FBI summarily rejects the applications of those whose polygraph charts are interpreted either as indicating deception or inconclusive. For them, the polygraph *is* a substitute for a "thorough and complete background check." Moreover, the FBI shares derogatory "information" about those who "fail" with other agencies, creating a permanent smear and harming their prospects for employment elsewhere.

All Americans should be concerned that a director of the FBI laboratory division—an ostensibly scientific institution—supported the use of a procedure that, as Dr. Richardson has charged and Dr. Kerr did not dispute—is "completely without any theoretical foundation and has absolutely no validity."

Despite official claims to the contrary, it also appears that the primary purpose of the Department of Energy's polygraph program is simply to elicit admissions. During DOE's public hearings on its then-proposed polygraph regulation, polygraph program manager David M. Renzelman claimed:

> I have a mandate from Mr. Curran and General Habiger that we're not interested in what people commonly refer to as pillow talk.
>
> Pillow talk is a slang term that is pretty much used in DOE to describe what happens when a husband goes home or a wife goes

> home and talks to their significant-other or spouse, or a friend or neighbor or somebody, about something that's classified.
>
> By that we mean something that other person does not have a clearance for, access to, or need to know.
>
> That's a couple of things; probably a security infraction, but that's not what I'm concerned about, and it's not terribly intelligent, because it shouldn't be done. (U.S. Department of Energy, 1999d)

But one DOE employee tells a story that gives the lie to Mr. Renzelman's claim that DOE's polygraph program is not concerned with "pillow talk." (Anonymous, 2000):

> Since I had the nagging thought of possible disclosure to my spouse, I caved when he said that I should talk about anything that was bothering me and that they could emphasize or even reword the questions as needed to make me more comfortable. So I talked about it, and although he questioned pretty hard at first, he allayed my fears and the second set of questions went well.
>
> The interrogation: after a short break, we sat down again. He said that the results were good, but there was a slight indication on one of the repeats of one [of the] questions that something was bothering me and he asked if I [was] thinking of the stuff I told my [spouse]. I think he was lying, but it did not matter because my answer was truthfully No. This lead [*sic*] into a thorough and relentless grilling about what I may have said, when I may have said it, did my [spouse] specifically ask any questions, etc, etc, etc. I did not have an answer, it was just fuzzy memories of cutting of conversations because I suddenly realized that they were starting to get classified. I couldn't remember any specifics. He took copious notes and kept asking, until I halfway made something up just to get him to stop.

The DOE polygrapher was keenly interested in this employee's possible "pillow talk." Since polygraph screening lacks both theoretical foundation and scientific validity—and stands virtually no chance of exposing a true spy—it seems that the primary purpose of the DOE polygraph program is, despite Mr. Renzelman's representations

to the contrary, precisely to elicit such admissions of "pillow talk" and other security infractions.

Interestingly, the DOE false positive rate of some 20% (see pp. 36–37) corresponds precisely with DoDPI's estimated base rate of guilt for security violations. (Barland, Honts, & Barger, 1989 at p. 57)

Is it mere coincidence that DOE polygraphers are finding roughly 20% of those they polygraph to be deceptive with regard to unauthorized contacts (or other security violations)? Maybe. But maybe not… Could it be that, assuming a base rate of guilt of 20% for security violations, DOE polygraphers are simply adjusting their scoring criteria to produce a 20% "significant response" rate, and then grilling whoever "fails" for admissions of security violations?

Obtaining admissions is not the only reason why government officials who know that polygraphy is unreliable nonetheless rely on it. Convicted spy Aldrich H. Ames, in a letter postmarked 28 November 2000 to Steven Aftergood, director of the Federation of American Scientists' Secrecy in Government Project, offered a cogent analysis. From the Allenwood federal penitentiary Ames writes:

> Most people in the intelligence and CI [counterintelligence] business are well aware of the theoretical and practical failings of the polygraph, but are equally alert to its value in institutional, bureaucratic terms and treasure its use accordingly. This same logic applies to its use in screening potential and current employees, whether of the CIA, NSA, DOE or even of private organizations.
>
> Deciding whether to trust or credit a person is always an uncertain task, and in a variety of situations a bad, lazy or just unlucky decision about a person can result not only in serious problems for the organization and its purposes, but in career-damaging blame for the unfortunate decision-maker. Here, the polygraph is a scientific godsend: the bureaucrat accounting for a bad decision, or sometimes for a missed opportunity (the latter is much less often questioned in a bureaucracy) can point to what is considered an unassailably objective, though occasionally and unavoidably fallible, polygraph judgment. All that was at fault was some practical

> application of a "scientific" technique, like those frozen O-rings, or the sandstorms between the Gulf and Desert One in 1980.
>
> I've seen these bureaucratically-driven flights from accountability operating for years, much to the cost of our intelligence and counterintelligence effectiveness. The US is, so far as I know, the only nation which places such extensive reliance on the polygraph.… It has gotten us into a lot of trouble.

Polygrapher Bias

Special Agent H.L. Byford, an FBI polygrapher, wrote in an e-mail exchange with the webmaster of NoPolygraph.com (Byford, 1999):

> It only gets tight, when there are indications of drug usage above the guidelines or drug dealing. I mean, if someone has smoked marijuana 15 times, he's done it 50 times. Don't you agree? Those who have any doubts about how many times they used are going to fail. Those who are certain that they only tried it once or three times or five or whatever, will pass.…I got to tell you though, if I was running the show, there would be no one in the FBI that ever used illegal drugs!

By SA Byford's own admission, an FBI applicant who reports that he smoked marijuana say, about eight times (well within the Bureau's limit of 15 times), but cannot precisely recall the number of times, is going to "fail."

Racial bias may also play a significant role in polygraph outcomes. At a meeting in 1990, Dr. Gordon H. Barland, then Director of Research at DoDPI, presented a 22-page handout to members of the federal polygraph research community which, at face value, suggests that innocent blacks are more likely to be found deceptive on polygraph examinations than are innocent whites. Shortly thereafter, the DoDPI director, who attended the presentation, requested that all of the handouts be returned or that the portion which referred to racial bias studies conducted by DoDPI (the last nine pages) be destroyed.

In this study, only 23.5% of innocent black subjects were correctly classified as being non-deceptive, which is considerably less than the 36.9% of whites correctly classified. This outcome has serious implications for applicants for federal law enforcement positions because it suggests at face value that if they tell the truth on a polygraph exam, they would have a roughly 63% chance (if white) and a 77% chance (if black) of being found either deceptive or having an inconclusive result. Either outcome would likely eliminate them from further consideration for federal employment.

Despite DoDPI's best efforts to suppress this study, at least one copy survived, and it is now available on AntiPolygraph.org.[9]

Inflation/Fabrication of Admissions

Unfortunately, polygraphers have been known to inflate or even fabricate admissions. This may be especially likely to occur when the polygrapher believes that the charts indicate deception or simply harbors a bias against the subject.

The case of Dr. Wen Ho Lee provides a striking example of admissions inflation. Special Agent Lowe, at para. 18 of his affidavit in support of the FBI's request for a warrant to search Dr. Lee's home (Lowe, 1999), swore that after determining that Lee had shown deception on two questions

> [t]he polygraph examiner then gave LEE an opportunity to discuss his answers further. During the discussion, LEE volunteered the following new information that he had not revealed in the prior interviews with the FBI or DOE. LEE said that during his trip to the PRC in 1986, he was approached by WEI SHEN LI, who [*sic*] LEE knew to be involved in the PRC's Nuclear Program. LI came to see LEE, and asked if LEE could assist him in solving a problem he (LI) was having. LEE agreed. LEE illustrated what he had pro-

[9]This study, along with an explanatory cover sheet, may be downloaded as a 1.3 mb PDF file at:

`http://antipolygraph.org/documents/dodpi-racial-bias-study.pdf`

> vided to LI in the form of an equation to assist LI in solving his problem. The polygrapher's report states that LEE said that this equation was the same used in two classified codes. LEE admitted that his assistance to LI could have been used easily for nuclear weapons development.

Dr. Lee, who had agreed to be polygraphed without the benefit of legal counsel, made the mistake of trying to explain to his FBI polygrapher why he might have physiologically "responded" to a relevant question.

Here we see SA Lowe spinning an innocuous statement into a damaging "admission." Dr. Lee, trying to explain why he might have physiologically "responded" to a relevant question, mentioned that he had provided a Chinese scientist with a mathematical equation in 1986 during a DOE-authorized visit to Beijing . That this equation was used in two classified codes does not mean that the equation itself was classified. It wasn't, and Dr. Lee committed no security violation by sharing it.

But SA Lowe intimated to the judge that Dr. Lee had "admitted" that he assisted China's nuclear weapons development program! SA Lowe further insinuated that Lee had been deliberately withholding this information from DOE and FBI investigators. But Lowe failed to disclose to the court that Dr. Lee had listed the names of the scientists with whom he met in a 1986 trip report (Stober, 2000), but was asked no further questions at the time.

As former FBI special agent Mark Mallah testified during DOE's public hearings on polygraph policy (U.S. Department of Energy, 1999a):

> …[I]n my experience, polygraph examiners inflate their own figures, mischaracterize what is an admission, all for the purpose of serving their own industry.
>
> Now, I'm not saying they're lying. But I am saying that they have a strong incentive to shade all the evidence in their favor.
>
> And also be aware that to a polygraph examiner/interrogator, a confession is like a trophy. So the slightest sliver of anything—any-

> thing that can be construed or misconstrued as damaging—that examiner has a strong incentive to say, "I got an admission; this person was deceptive; here's the proof."

Mallah, who in 2001 (after four years of waiting) obtained some documentation of his case under the Privacy Act, provides instances of admissions inflation/fabrication during the FBI's polygraph-inspired espionage investigation of him in a letter to the members of the U.S. Senate Committee on the Judiciary (Mallah, 2001). The following is an example:

> Background- One year into the investigation and grasping for theories, the FBI first raised their suspicion that I had classified documents stolen from a briefcase inside the trunk of my wife's car. The trunk was broken into on a Friday night while my wife and I joined some friends for a social outing. A non-FBI friend had his briefcase stolen as well, and we immediately reported the theft to the police. The FBI polygraphed me (the polygraph interrogator was Mark Johnson) on this incident, which had occurred about four years prior to this polygraph.
>
> What I said- That I was sure there were no classified documents in the briefcase because it was my regular practice not to take classified documents out of the office, and it was on a Friday night, so even if my practice was otherwise, I would have no need for any classified documents over the weekend. Johnson polygraphed me, then insisted that I was showing deception on this issue. He challenged me as to how I could be so sure about it, especially when the incident was four years ago. Did I inventory the briefcase before it was stolen, he asked? I responded that I could look out the window and see it was daylight, but if I did not actually see the sun and he asked me if I was absolutely sure that the sun was really there, then no, I could not be 100% sure of that either, but I could be as sure as I could possibly be. The same with the absence of classified documents in the briefcase, I told him.
>
> The FBI Version- "Mallah admitted that he could not be 100% certain that there were no classified documents in the briefcase the night it was stolen. Mallah stated that he had no specific

> knowledge of what classified document could have been in the briefcase."
>
> Subsequent reporting on this issue, from a Special Agent in Charge of the New York Office at the time, Carson Dunbar, stated: "Prior to the polygraph, SA Mallah stated that 'to the best of his knowledge, he can 'categorically' state that there were no Bureau (FBI) documents, classified or otherwise, contained in that briefcase when it was stolen (end quotes missing). After being told that his polygram reflected that he was deceptive, Mallah stated that 'he could not be 100% certain that there were no classified documents in the briefcase the night it was stolen.'"

The Case of David A. Tenenbaum

The case of David A. Tenenbaum seems to be one of the most egregious instances of admissions fabrication on record. Mr. Tenenbaum, an American orthodox Jew fluent in Hebrew, is an engineer with the U.S. Army Tank Automotive and Armaments Command (TACOM) in Warren, Michigan whose official duties had originally included liaison with Israeli officials. Sometime around January 1997, counterintelligence officials at TACOM came to suspect Mr. Tenenbaum of being an Israeli spy. On 13 February 1997, Mr. Tenenbaum submitted to a polygraph interrogation conducted by Special Agent Albert D. Snyder of the Defense Security Service (then the Defense Investigative Service), who accused him of deception. A lengthy espionage investigation ensued, but Mr. Tenenbaum was ultimately absolved of all wrongdoing.

In a complaint filed in U.S. District Court for the Eastern District of Michigan (Mateo, 1999), Mr. Tenenbaum's attorney alleges at para. 34

> [t]hat Agent Snyder indicated to plaintiff that he had "done other Jews before," including one Jew who married an Israeli. Agent Snyder claimed to have gotten all of these "Jews" to confess, even though in some cases it may have taken months. Agent Snyder claimed he would get plaintiff to confess, no matter how long it took. Agent Snyder called plaintiff a liar and said he could tell

> plaintiff was a spy just by looking into his eyes. Further, Agent Snyder claimed that all plaintiff had to do was confess and he would suffer only a "slap on the wrist." Agent Snyder also spoke about his involvement with the Jonathan Pollard case. Jonathan Pollard (also a Jew) was a navy intelligence officer who is serving a life sentence for his conviction of spying for Israel. In spite of these accusations, plaintiff nevertheless tried to cooperate with defendant Snyder. Afterwards, defendant Snyder asked plaintiff to write out a confession, which plaintiff refused.

Mr. Tenenbaum maintains that he made no admissions whatsoever to espionage or providing classified information to unauthorized persons. Yet FBI Special Agent Sean Nicol, in an affidavit filed in support of an FBI request for a warrant to search Mr. Tenenbaum's home (and cited in Mr. Tenenbaum's complaint), swore in relevant part:

> (2) In conjunction with a single scope background investigation conducted by the Defense Investigative Service (DIS), Livonia, Michigan, as part of a security clearance upgrade for David A. Tenenbaum, Mechanical Engineer, Combat Vehicle Team, tank [*sic*] Automotive Research and Development Engineering Center (TARDEC), US Army tank [*sic*] Automotive and Armaments Command (TACOM), Warren, Michigan. Tenenbaum consented to a polygraph examination. On February 13, 1997, a polygraph examination was administered to Tenenbaum by Special Agent Albert D. Snyder, polygraph examiner, DIS.
>
> (3) During an interview of Tenenbaum by Snyder, after the examination, Tenenbaum admitted to divulging non releasable classified information to every Israeli Liaison Officer (ILO) assigned to TACOM over the last ten years. Tenenbaum stated that he inadvertently provided his Israeli contacts, specifically the ILOs and Dr. Reuven Granot, Scientific Deputy Director, Israeli Ministry of Defense (MOD), classified information from the three Special Access Program (SAP) projects to which he had access. The non releasable classified information provided to the Israelis by Tenenbaum includes hydra codes from the Light Armor Systems and Survivability (LASS), ceramic armor data, Advanced Survivable Test Battery (ASTB) data, Heavy Survival Test Battery (HSTB)

> data, and patriot [*sic*] missile countermeasures data. Additionally, tenenbaum [*sic*] admitted providing the Israelis with unreleasable classified information regarding the Bradley tank [*sic*] and the HUMV [*sic*].
>
> Tenenbaum admitted that he has taken documents classified "For Official Use Only" from TACOM to his residence, that he has taken cover sheets labeled SECRET from TACOM to his residence, and that he has taken TACOM computers to his residence, and currently has a TACOM computer at his residence.

Mr. Tenenbaum vehemently denies the "admissions" attributed to him in SA Nicol's affidavit. Mr. Tenenbaum's complaint goes on to state:

> Almost the entire contents of this affidavit are false.
>
> 37. Plaintiff never consented to a polygraph examination. He was coerced/threatened into taking a polygraph examination.
>
> 38. Plaintiff did not admit to divulging non-releasable classified information to any Israeli liaison officer assigned to TACOM over the last ten years. Plaintiff merely informed defendant Snyder that he had worked with other engineers and scientists in various other countries and they shared information. They shared only non-classified information and shared this information after it was cleared by their respective superiors.
>
> 39. Plaintiff never indicated to defendant Snyder that he "inadvertently provided Israeli contacts, specifically, the Israeli Liaison Officers and Dr. Reuven Granot, Scientific Deputy Director, Israeli Ministry of Defense, classified information from three Special Access Programs projects to which he had access." In fact, plaintiff had very limited access to Special Access programs and had eventually withdrawn from working on these programs with his supervisor's permission. Certainly, plaintiff never provided classified information from Special Access Programs or classified information from any other program to anyone.
>
> 40. Plaintiff denied indicating that he had provided non-releasable classified information to the israelis [*sic*], including HYDRA codes from the Light Armor Systems Survivability (L.A.S.S.). Plaintiff did not have access to HYDRA codes, and furthermore, L.A.S.S. was not a classified program. This was a

project that the United States, Germany and Israel were working to jointly develop.

41. Plaintiff denied giving any classified Ceramic Armor Data to anyone. The Ceramic Armor Data referred to in the affidavit was to be part of the D650 Foreign Material Acquisition Program whose funds Mr. Tenenbaum competed for and "won" and were approved by TACOM. The purpose of this program was to buy specific ceramic armor from a company in Israel for testing purposes. Again, this was a totally unclassified program that had not even begun at the time of the DIS interview process or the polygraphs. Mr. Tenenbaum did not have access to classified information involving Ceramic Armor Data.

42. Plaintiff denied giving any advance survivable test battery data. To the best of plaintiff's knowledge, the type of program referred to in the affidavit does not even exist.

43. Plaintiff denied giving any information regarding patriot [*sic*] missile countermeasures data. Plaintiff has no knowledge of patriot missile countermeasures data.

44. Plaintiff did not indicate to defendant Snyder that he had given the Israelis non-releasable classified information regarding the Bradley Tank and the HUMV [*sic*]. There is no such thing as a Bradley Tank. This vehicle is referred to as the Bradley Fighting Vehicle. Plaintiff reiterates that he never provided any type of classified information to the Israelis.

45. Plaintiff denied indicating to defendant Snyder that he had taken documents classified "For Official Use Only" from TACOM to his residence. Plaintiff did not take classified information to his residence. Plaintiff did have a TACOM computer at his residence, but he possessed that computer with his superiors' permission and approval so that he could work out of his home. Plaintiff could not have taken any classified documents from TACOM since he did not have access to the safes that contained the classified documents.

46. That in light of the false information given by defendant Snyder to the FBI, FBI Agent Sean Nicol either knowingly swore out a false affidavit or had been purposely mislead [*sic*] by defendant Snyder. In any event, based on this affidavit, a United States Magistrate Judge authorized the search of plaintiff's residence…

Incidentally, according to the American Polygraph Association (APA) website, polygrapher Albert D. Snyder won the Association's William L. Bennet Memorial Award in 1986 in "recognition of excellence-achievement…as a token of APA appreciation for unrelenting efforts and display of ability in the APA interest," and in 1992, he received the Al & Dorothea Clinchard Award "honoring extended, distinguished, devoted and unselfish service in behalf of the APA membership."

In 2000, in what seems to be a clear violation of the 1st Amendment, the FBI prohibited Dr. Drew Richardson—its then leading expert on polygraph "testing" (he has since retired)—from providing testimony about polygraphy in Mr. Tenenbaum's behalf, or even having any communication whatsoever with Mr. Tenenbaum's lawyers. (Mateo, 2000)

Predetermined Outcomes

Government officials have also used polygraph "testing" as a pretext for adverse action in the absence of supporting evidence. Polygraph "tests" may be deliberately rigged to increase the likelihood of the subject "failing." On 27 April 2001, at the second public meeting of the National Academy of Sciences/National Research Council Study to Review the Scientific Evidence on the Polygraph, Dr. James Blascovitch, a member of the review panel, stated, "…every examiner I asked at DoDPI, 'If you wanted someone to fail this test, could you have them do it, physiologically?' They all said 'yes.'"

Attorney Mark S. Zaid, in his prepared remarks submitted to the U.S. Senate Committee on the Judiciary at its 25 April 2001 "Hearing on Issues Surrounding the Use of Polygraphs" (Zaid, 2001) writes:

> …[I]n 1997–98, CIA polygraphers reported to the Department of Justice's Public Integrity Section that they were instructed by CIA management to "fail" certain employees. Additionally, they revealed that they were taught how to sensitize examinees during pre-testing interviews so as to create the likelihood of false positives. Notwithstanding these sensational allegations, there is no evidence

> either the CIA or Department of Justice ever conducted an investigation.

The case of former CIA lawyer Adam J. Ciralsky, a Jewish American who came under suspicion of having provided classified information to an Israeli national, is a good example of such polygraph "test" rigging. In April 1999, National Public Radio reported (National Public Radio, 1999):

> Ciralsky was interrogated by CIA investigators on numerous occasions and accused of a lack of candor for not disclosing that his chaperone on a high school trip to Israel at age 15, with whom he had not spoken in years, was an Israeli citizen. He was ordered to take polygraph examinations, which CIA officials say he failed. His lawyers believe that internal CIA memos show the test was rigged. In one, an unidentified CIA official writes, "Tenet (meaning the CIA director) says this guy is out of here because of his lack of candor…subject is scheduled for a poly… Once that's over, it looks like we'll be waving goodbye to our friend."…

According to the internal memo, Director of Central Intelligence George J. Tenet wanted Mr. Ciralsky fired. There could be little doubt about what the result of Mr. Ciralsky's polygraph "test" would be. He "failed," and was eventually fired in late 1999. Yet the CIA has produced no evidence that Mr. Ciralsky ever provided any classified information to any unauthorized person or violated any security regulation.

How Can They Be So Blind?

In his 1997 Senate testimony, FBI Supervisory Special Agent Dr. Drew Richardson (Richardson, 1997) provided a cogent analysis of the institutional problems that have blinded some policymakers to the problems of polygraphy:

> I think the aforementioned problems with polygraph continue to exist within the Bureau and elsewhere for the following reasons:

1. Polygraph research (direction, funding, and evaluation), training, and operational review is controlled by those who practice polygraphy and depend upon it for a living. This is tantamount to having the government's cancer research efforts controlled by the tobacco industry. Independent scientific experts must be (and have not been) consulted to obtain an objective view of polygraphy.
2. Within the Bureau, polygraph examiners who have little or no understanding of the scientific principles underlying their practice, report to mid-level managers who are largely ignorant of polygraph matters. These in turn report to executives, who have real problems for which they seek needed solutions (e.g., the need to protect national security from the danger of espionage, and the need to hire employees with appropriate backgrounds). These executives are left unable to evaluate that polygraph is not a viable solution and do not comprehend that ignorance and mis-information are built into their own command structure.
3. The fact that the human physiology is marvelously wonderful and complex, that polygraph methods have been able to accurately record this physiology for most of this century and beyond, and the fact that computerized acquisition and evaluation of this data is now available, in no way compensates for the vast shortcomings of polygraph applications and questioning formats. State of the art technology utilized on faulty applications amounts to nothing more than garbage in, garbage out.

As Dr. Richardson observed, ignorance and misinformation are built into the command structure. We hope that this book will serve to dispel that ignorance and counter that misinformation.

A Modest Proposal

Policymakers who mandate polygraph "testing" for others generally support their decisions on the ground that the jobs of those being "tested" are so sensitive as to justify this unusual practice: even if it's not scientifically valid, it's still "better than nothing."

We suggest that the jobs of those who are mandating polygraph screening for others are *even more sensitive* than the jobs of those for whom they are mandating it. If polygraph "testing" is truly necessary for those with sensitive jobs in law enforcement, intelligence, and defense, then it should be a fortiori necessary for those to whom they report. What's good for the goose is good for the gander.

We propose the establishment of a National Polygraph Agency whose mission it will be to "test" all persons sworn into public office in the United States. No person who fails to pass a polygraph screening "test" would be permitted to assume public office, and current office-holders would be subjected to periodic re-examination. The President and Members of Congress shouldn't mind answering a few simple questions like, "Have you ever made a campaign promise you didn't intend to keep?" or "Has your vote ever been influenced by a campaign contribution?" Federal judges should not object to being asked such simple questions as, "Have you ever allowed your personal views to influence a legal decision?" Political appointees should have no problem with being asked, "Have you ever made, for political reasons, a decision that was not necessarily in the public interest?"

If the 20% failure rate of the FBI pre-employment polygraph screening program were applied to Congress, we would see some 20 senators and 87 representatives expelled and barred from holding public office. Two justices of the Supreme Court would be similarly be ejected. Any innocent persons among them would have to be written off as "acceptable losses." After all, national security is at stake!

Summary

Thus far, we have seen that the "Control" Question "Test" lacks scientific "control" and is not a standardizable, specifiable "test." As a result, its validity cannot be determined through scientific

means. The majority of psychophysiologists do not believe polygraphy to be based on sound scientific principle, and an overwhelming majority believes that polygraph "tests" can be beaten through countermeasures. We have also seen that governmental agencies know this, but cynically rely on polygraphy because it is useful for eliciting admissions from naïve and gullible subjects.

As the lie behind the lie detector becomes more and more widely known, those agencies that rely on polygraphy will be able to fool fewer of the people less of the time. *They won't fool you.* In the next chapter, you will learn how polygraph "tests" *really* work (and don't).

CHAPTER THREE

Polygraphy Exposed

JUSTICE AND SECURITY THROUGH TRUTH

—Department of Defense Polygraph Institute motto

Tests of deception, ironically, must themselves include a deceptive element. Polygraph tests present, perhaps, the most egregious problem.

—Leonard Saxe

"I thought Oz was a great Head," said Dorothy.

"And I thought Oz was a lovely Lady," said the Scarecrow.

"And I thought Oz was a terrible Beast," said the Tin Woodman.

"And I thought Oz was a Ball of Fire," exclaimed the Lion.

"No, you are all wrong," said the little man meekly. "I have been making believe."

"Making believe!" cried Dorothy. "Are you not a Great Wizard?"

"Hush, my dear," he said. "Don't speak so loud, or you will be overheard—and I should be ruined. I'm supposed to be a Great Wizard."

L. Frank Baum, *The Wonderful Wizard of Oz,* 1900

LIKE THE WIZARD OF OZ, who used deception to inspire fear, polygraphers, too, depend on trickery to instill fear in their subjects. In this chapter, we will expose the little tricks used by the little men behind the polygraph curtain.

Polygraph "tests" have three distinct phases:

1. the "pre-test" interview and "stim test";
2. the "in-test" phase (polygraph exam);
3. the "post-test" interrogation (when applicable).

We will discuss all three phases, exposing the deception on which the polygraph procedure depends.

The "Pre-Test" Interview

In this phase, the polygrapher will attempt to establish rapport with you. He will ask about your background and interests, and may well remark on something both of you have in common. He will use information gleaned during this "pre-test" interview to choose the "control" questions he will be asking you later, and he will also exploit this information in an attempt to elicit admissions during any "post-test" interrogation. In addition, the polygrapher will take note of any damaging admissions you make.

Your polygraph examiner will next briefly explain how the polygraph instrument works. Here is the textbook explanation that Department of Defense Polygraph Institute-trained polygraphers provide to their subjects (Dollins, 1997):

> You may be a little nervous, especially if you have not had a PDD ["psychophysiological detection of deception," a more scientific-sounding term for "lie detection"] examination before. This is expected and is quite normal. To help put you at ease, I will explain what the instrument is and how it works. The polygraph is a diagnostic tool that is used to determine if a person is telling the truth. It simply records physiological changes that take place in your body when you are asked questions. Today, changes in your respiration, sweat gland activity, and blood pressure will be recorded. Please notice the two rubber tubes on the desk. One will be placed across your chest and the other will be placed around your abdominal area. They will be used to record your breathing. There are two metal finger plates next to the rubber tubes. These plates will be attached to two of your fingers and will record your sweat gland activity. Finally, there is a blood pressure cuff on the desk. It is the same type of cuff a doctor uses to measure blood pressure. It will be placed on your arm and will monitor changes in your cardiovascular activity.
>
> These physiological changes are a result of an automatic response system in your body. It is a response system over which you have no control. For example, visualize yourself walking down a dark alley late at night. Suddenly you hear a loud noise. You will instantaneously decide either to remain where you are and investigate

> the source of the noise, or to flee the area, sensing danger to your well being. Regardless of the choice you make, your body automatically adjusts itself to meet the needs of the situation; your heart may beat faster, your breathing may change and you may break out in a cold sweat.
>
> When you were growing up, if you are like most people, you were raised to know the difference between right and wrong. Quite probably, all of the adults you came in contact with--your parents, grandparents, relatives, teachers, church officials--taught you that lying, cheating, and stealing were wrong. Ever since you were a young child, you have been programmed to know that lying is wrong. Think about the first time you lied and got caught. Remember how your body felt during that confrontation. Your heart may have been racing or you may have been sweating. However, the responses were automatic; your body adjusted to the stress of the situation.
>
> People are not always 100% honest. Sometimes it is kinder and more socially acceptable to lie than to be honest - such as telling someone you like their clothes when you really think the clothes are awful. It is important for you to understand that even though a lie might be socially acceptable or only a small lie, or a lie by omission, your body still responds. The recording on the polygraph will show only the physiological responses. It cannot know what kind of lie you are telling. Therefore, it is extremely important that you be totally honest… (pp. 33–34)

The above explanation is carefully designed to instill fear. But like the Wizard of Oz, the polygrapher is making believe. His explanation is deliberately false and misleading: telling a lie may or may not result in physiological changes measurable by the polygraph. When the polygrapher says, "It is important for you to understand that even though a lie might be socially acceptable or only a small lie, or a lie by omission, your body still responds," he really means, "It is important for me that you *believe* this to be true."

Fear is an essential element of all polygraph "tests." In its 1994 assessment of the Ames case, the U.S. Senate Select Committee on Intelligence reports, "A former polygrapher noted that without proper preparation, a subject has no fear of detection and, without fear

of detection, the subject will not necessarily demonstrate the proper physiological response." (U.S. Senate Select Committee on Intelligence, 1994) But fear of being falsely accused may also entail physiological responses measurable by the polygraph and result in truthful persons being accused of deception.

The "Stim Test"

Your polygrapher will next conduct what in the polygraph trade is commonly known as a "stimulation test" or "stim test," though DoDPI calls it an "acquaintance test." Your polygrapher will tell you that the purpose of this little demonstration is to allow him to "adjust the instrument" and to make certain that you are "capable" of physiologically responding if you were to intentionally tell a lie. *But this explanation is itself a lie.* The true purpose of the "stim test" is to dupe you into believing that your polygrapher can read your mind and that the slightest deception will be detected.

In earlier times, the "stim test" was usually done with a deck of cards. Your polygrapher would ask you to pick a card and not show it to him. Then, while you are connected to the polygraph, he would ask you to answer "no" to each question he asked. Suppose you draw the jack of diamonds. Your "stim test" might go like this:

Did you pick a face card? (No.)
Did you pick a number card? (No.)

Your polygrapher nonchalantly tells you, "It's obvious you picked a face card." He then proceeds to ask:

Did you pick a king? (No.)
Did you pick a queen? (No.)
Did you pick a jack? (No.)

He then informs you, "You've clearly drawn a jack." He continues:

Did you pick a spade? (No.)
Did you pick a club? (No.)
Did you pick a diamond? (No.)
Did you pick a heart? (No.)

Your polygrapher gazes into his charts and earnestly tells you, "It's clear you picked the jack of diamonds. No doubt about it. You're a 'screamer.' You can't tell a lie without your body giving you away."

But what your polygrapher wouldn't tell you is that you drew your card from a trick deck, in which every card is a jack of diamonds. In another version of this card trick, an assortment of genuinely different cards is used, but the polygrapher has memorized their order.

But nowadays, the card trick has largely given way to the "numbers test." In a known-solution numbers "test," your polygrapher will ask you to pick a number, say, from one to six, and to write it on a sheet of paper. If you're right-handed, he may ask you to write the number with your left hand. This supposedly makes the act of your writing the number more significant to you. The number you write will be known to both you and the polygrapher. Let's say you pick "4." You write it on the slip of paper. Your polygrapher will then write in the other numbers, 1, 2, 3 and 5, 6 in a list above and below or to the left and right of the "4" that you wrote, then he will affix the paper to the wall in front of you. Your polygrapher will next instruct you to answer "no" each time as he asks, "Did you write 1? Did you write 2?," etc. And he will tell you that when you answer "no" to the number that you wrote, you are to look at that number on the wall and to consciously think about having chosen it and written it down, and then to deliberately lie and say "no."

Did you write 1? (No.)
Did you write 2? (No.)
Did you write 3? (No.)
Did you write 4? (No.)

Did you write 5? (No.)

Did you write 6? (No.)

Whether you showed any discernible reaction while "lying" or not, your polygrapher will attempt to convince you that you are not capable of lying without the polygraph instrument detecting it. This is how DoDPI instructed examiners to explain the "stim test" to volunteers in a recent research project (Dollins, 1997):

> Administer a standard known solution numbers test-- using the rationale below. DO NOT show the test to the examinee, but convince the examinee that deception was indicated. NOTE: be sure to use the word acquaintance or demonstration test when discussing this with the examinee.
>
> > I'm now going to demonstrate the physiological responses we have been discussing. This test is intended to give you the opportunity to become accustomed to the recording components and to give me the opportunity to adjust the instrument to you before proceeding to the actual test. In addition, this test will demonstrate to me that you are capable of responding and that your body reacts when you knowingly and willfully lie.
>
> The standard four components (two pneumograph tubes, electrodermal plates, and cardiovascular cuff) are attached at this time, followed by the acquaintance test. The acquaintance test should be conducted in the manner taught at DoDPI.… The results will be discussed with the examinee as follows:
>
> > That was excellent. It is obvious that you know lying is wrong. You're not capable of lying without your body reacting. You reacted strongly when you lied about that number. Even though I asked you to lie and it was an insignificant lie, you still responded. That will make this examination very easy to complete as long as you follow my directions.

Don't be your polygrapher's fool. The lie detector cannot detect lies (it only records physiological data), and your polygrapher cannot

read your mind. The most "prestigious" polygraph school, the Department of Defense Polygraph Institute, churns out polygraphers after a mere 520-hour (14-week) course of instruction. Mind reading is not on the DoDPI curriculum.

Reviewing the "Test" Questions

Next, your polygrapher will review with you all the questions that he will be asking you while you are hooked up to the machine. The polygrapher will ask you if there is anything that is bothering you that you think you should mention before the polygraph "test" begins, and any admissions will be duly noted.

As a rule (not always strictly followed), polygraphers are prohibited from asking questions about religious and political beliefs and sexual matters. However…

CIA Applicants Beware!

Both CIA and NSA use a broader "life-style" polygraph screening "test." CIA polygraphers in particular seem to have a prurient interest in the private lives of those they interrogate. In 1997, one CIA applicant, whose wife had recently left him, was asked the following mix of questions during the "pre-test" phase of his pre-employment polygraph screening:

- Have you ever participated in groups advocating the overthrow of the U.S. Government?
- Have you ever performed services for another intelligence service?
- Do you masturbate?
- What do you think about while masturbating?
- Have you ever had sex with another man?
- Have you ever thought about having sex with another man?
- Have you ever killed another person?
- Have you ever thought about killing another person?

- Have you ever thought about killing yourself?
- Do you lie?
- How much do you lie? Daily? Weekly?
- Would you lie to make yourself look better, if you knew you wouldn't get caught?
- Why did your wife leave you?
- Couldn't you satisfy your wife sexually?
- Has she or any other woman accused you of being unable to satisfy them?
- Have you ever cheated on your wife?
- Have you ever thought about cheating on your wife?
- Do you daydream?
- Would you consent to us medicating you for continued examination?
- Have you ever thought about having sex with your mother?
- Have you ever bounced a check?
- Have you ever been arrested for DUI?
- Should you have been?

In an article about the CIA's polygraph program published in the 27 November 1996 issue of *The Independent,* Daniel Jeffreys reported:

> Sarah, a case officer, found the inquisitors at "The Farm", the CIA's headquarters in Langley, Virginia, persistently curious about her private life. She describes her last polygraph, in July, as an exercise in abuse and intimidation. "They kept coming back to my sex life," she says. "They asked how many times we have sex in a month, what kind of sex we have, what kind of positions, what I was wearing. How can I have a normal sexual relationship now, knowing that whatever I do in bed I may be asked to describe in detail to one of my superior officers?"
>
> …
>
> Case officer "Mary" is a good example. On assignment in Turkey she fell in love. When it came to her polygraph test, officers took her through a list of the most perverse sexual acts, asking her if she had ever practised them with her new boyfriend. "I felt there was a degree of sexual harassment involved," she says. "I think

> the interrogators got a kick out of asking the questions. My feeling was that it was no way to treat a fellow professional. With the prospect of similar tests at least every two or three years, I decided to resign."
>
> …
>
> In 1995 Jane, on a posting in Asia, met a foreigner and they fell in love. When she reported the relationship, as required by CIA regulations, she was subjected to repeated polygraphs of a most intimate nature. "I passed every one," she says. "Whatever they asked, I was clean." Then Jane decided she wanted to marry. "The Agency told me my fiance must take a polygraph. He did, and he failed. He's not an intelligence professional, and I think he was just spooked."
>
> Jane was given a choice: dump the man or leave the Agency. She chose the man. "I have plenty of marketable talents and I can survive without the CIA" she says. "The question is, can the CIA survive without me, and the hundreds of people like me who think the senior officers have made conditions intolerable because they can't risk another Aldrich Ames?"

If you are considering going to work with the CIA, you may wish to ponder just how intimate a relationship you are willing to have with your Government.

Question Types

"Control" Question "Tests" consist of three distinct kinds of questions: relevant, irrelevant, and "control" questions.

Relevant Questions

These questions have directly to do with the matter at hand. In specific issue "tests," they deal directly with the crime under investigation. If, for example, you are suspected of leaking an embarrassing memo, then the relevant questions asked during your polygraph examination could well be:

1. Do you suspect someone of leaking that memo?
2. Do you know who leaked that memo?
3. Did you leak that memo?

With polygraph screening, the relevant questions are more general. Let us take the FBI's polygraph screening program as an example. Former FBI laboratory division director Dr. Donald M. Kerr mentioned in his letter to Senator Grassley (Kerr, 1997), "The FBI's polygraph screening focuses exclusively on counterintelligence issues, the sale and/or use of illegal drugs, and the accuracy and completeness of information furnished by applicants in their employment applications." If you are an applicant for employment with the FBI, then your relevant questions could very well be:

1. Has any group or organization directed you to seek employment with the FBI?
2. Have you ever been in contact with anyone from a non-US intelligence service?
3. Have you ever provided classified information to any unauthorized individuals?
4. Have you ever sold any illegal drugs?
5. Have you violated the FBI guidelines concerning the use of illegal drugs?
6. Have you deliberately withheld any important information from your application?

If you are a Department of Defense or Department of Energy employee facing a security screening polygraph interrogation, your relevant questions might very well be:

1. Have you had unauthorized contact with a foreign national?
2. Have you provided classified information to an unauthorized person?
3. Have you committed an act of espionage against the United States?

4. Have you committed an act of sabotage against the United States?

The "Sacrifice" Relevant Question

In some polygraph formats, the first relevant question—whether probable- or directed-lie—is what is known as a "sacrifice" relevant question. That is, although the question is relevant, it is not scored. The polygrapher assumes that truthful persons might physiologically respond to the first relevant question simply by virtue of its being the first one.

The sacrifice question is usually something along the lines of, "Do you intend to answer all questions truthfully?" This is how DoDPI has instructed examiners to explain the sacrifice relevant question while administering the directed-lie "Test" for Espionage and Sabotage (Dollins, 1997):

> Explain and review the sacrifice relevant question. The sacrifice relevant may be reviewed as the first relevant question or as the last (third) relevant question. Provide a rationale for the sacrifice relevant question (e.g. "I need to ensure that you intend to be truthful to the security questions, so I am going to ask you…"). The rationale may depend on whether the sacrifice relevant is reviewed as the first or third relevant question.
>
> Use one of the following sacrifice relevant questions (the first is preferred).
>
> > Do you intend to answer the security questions truthfully?
> >
> > Regarding the security questions, do you intend to answer truthfully?

Note that the rationale for the sacrifice relevant question that the polygrapher provides to the subject is false and misleading. The question is not intended to "ensure that you intend to be truthful to the security questions," and is not scored at all.

Note also that in this particular case, the polygraph examiner asks the subject if he intends to answer the *security* questions truthfully

rather than if he intends to answer *all* questions truthfully. This is because in the directed-lie "Test" for Espionage and Sabotage, the subject will be instructed to answer the "control" questions untruthfully, as we shall see below (p. 85).

"Control" Questions

These questions are more general, and come in two distinct varieties: "probable-lie" and "directed-lie." The probable-lie format is by far the most common and is used in both pre-employment polygraph screening and in criminal interrogations. Virtually all federal, state, and local law enforcement agencies that rely on polygraph screening use the probable-lie format, while the directed-lie format is used by the Departments of Defense and Energy for polygraph screening. In addition, some private polygraphers employ a mix of probable-lie and directed-lie "control" questions.

As noted in Chapter 1, the "control" questions in "control" question "tests" do not provide any kind of "control" within the scientific meaning of the word. Although polygraph researchers are increasingly using the more descriptive term, "comparison questions," they are still commonly called "control questions" in polygraph circles. We will use both terms interchangeably.

Probable-Lie "Control" Questions

In a probable-lie "Control" Question "Test," the polygrapher will tell you that you must answer all questions truthfully, but he actually assumes that you will be deceptive when answering the "control" questions. He will deceive you about that expectation.

The OTA report (*Scientific Validity of Polygraph Testing,* 1983) explains at p. 20:

> The polygraph examiner does not tell the subject that there is a distinction between the two types of questions (control and relevant). Control questions are described as intending to determine if the subject is the "type of person" who would commit a crime

> such as the one being investigated.… The examiner stresses that the subject must be able to answer the questions completely with a simple "yes" or "no" answer, that the polygraph will record any confusion, misgivings, or doubts, and that the subject should discuss any troublesome questions with the examiner.… Thus, the situation is set up such that the subject is persuaded that the examiner wants the truth. In reality, however, the examiner wants the subject to experience considerable doubt about his or her truthfulness or even to be intentionally deceptive.…

"Control" questions tend to be broad and sweeping, spanning a long period of time. Common "control" questions include:

- Have you ever lied to a loved one?
- Have you ever taken something that does not belong to you?"
- Since the age of 18, have you ever considered hitting someone in anger?

Since most everyone can answer "yes" to all of these questions, the typical examinee will admit to one or two minor transgressions. The polygrapher will then move to contain these admissions, in order to leave you with the uneasy feeling that you haven't told all. The polygrapher accomplishes this by trying to convince you that any further admissions on these questions will call your character and integrity into question, and that you would end up failing the "test" before it even begins.

Following limited admissions, the "control" questions often end up structured as, "*Other than what you told me,* have you ever lied to a loved one?" The theory is that when you answer the question "no," you must still be withholding something, or at least feel uneasy about not remembering some incident from long ago. The polygrapher treats your response to this question as though it were a lie.

The polygrapher assumes that if your physiological responses as measured by the polygraph are stronger when answering a relevant question (*e.g.* "Have you violated this agency's guidelines concerning

the use of illegal drugs?") than when answering the "control" questions (*e.g.* "Have you ever lied to a loved one?"), then you must have been deceptive in answering the relevant question. If your physiological responses while answering the "control" questions are greater, then you must be telling the truth in answering the relevant question. And if your physiological responses while answering the relevant and "control" questions are about the same, then the outcome will be deemed inconclusive. If these assumptions seem overly simplistic to you, you're right. As we stated at the beginning of Chapter 1, polygraphy is not science: it is codified conjecture masquerading as science.

Perversely, it is the conscientious examinee who, at the polygraph examiner's behest, "discuss[es] any troublesome questions with the examiner" and then answers the "control" questions truthfully (and as a result exhibits weaker physiological responses to them than to accusatory relevant questions like, "Are you a spy?") that is most likely to be found deceptive! As Honts (1991) notes:

> …Lykken…has persuasively argued that the individual who tries to be truthful during a pre-employment polygraph examination and who, at the examiner's urging, bares all of his or her past wrongdoing, is the very individual who is most likely to be rejected by the preemployment screening process, whereas the individual who makes minor admissions and then dishonestly maintains his or her innocence is more likely to be given the benefit of the doubt and passed through.… (p. 98)

This bias against the most honest individuals applies to all probable-lie "control" question "tests"—whether pre-employment or otherwise. Ironically, in every polygraph examination, at least one person truly is deceptive: *the polygraph examiner!*

Recognizing "control" questions may be made easier because the polygraph examiner will often emphasize them as he explains the questions he will be asking you. For example, if one of your "control" questions is going to be "Have you ever lied to loved ones?" your polygrapher may very well give you a short sermon on the virtues

of honesty (ironic, isn't it?) and expound about how experience has shown that the same people who would lie to a loved one turn out to be the very same kind of people who would commit the crime that is under investigation or the behavior that is being screened for.

In a probable-lie "test," such as the one in our example where you are suspected of leaking a memo, or where you are an applicant for employment with the FBI or U.S. Secret Service, you may well encounter "control" questions such as:

1. Have you ever lied to a supervisor?
2. Have you ever lied to loved ones?
3. Have you ever lied to parents, teachers, or the police?
4. Have you ever lied to get out of trouble?
5. Did you ever reveal anything told to you in confidence?
6. Did you ever cheat in school?
7. Did you ever cheat in college?
8. Did you ever betray the trust of a friend or relative?
9. Did you ever steal anything from an employer? (Note, however, that any question about stealing *money* from an employer is a *relevant,* not a control question!)
10. Do you sometimes intentionally mislead or deceive your friends?
11. Are you a really honest person?
12. Are you absolutely trustworthy?
13. Do you think you are smarter than most people?
14. Are you an untrustworthy person?
15. Are you a dishonest person?

And if you consume alcoholic beverages and drive a car, you may well be asked:

16. Have you ever driven while under the influence of alcohol?

This may seem like a relevant question, but it's not. Your polygrapher assumes that anyone who drinks and has a driver's license must

have difficulty to honestly say he's never driven while under the influence of alcohol.

Other "control" questions commonly used in probable-lie "control" question "tests" that may at first seem like relevant questions are:

17. Is there anything in your background that you are afraid that our investigator might find out?
18. Have you ever done anything that would embarrass you if your parents found out?
19. Have you ever done anything you would be embarrassed to tell me about?

In addition, if, like most people, you initially admit to having told some white lies, your polygrapher may rephrase the question as:

20. Have you ever lied about anything *serious?*

Don't be fooled. It's still a control question. Your polygrapher expects that your denial will *still* be a lie, or that you will at least feel anxiety over whether your denial is completely truthful. Similarly, if your polygrapher rephrases, "Did you ever cheat in school?" to "Did you ever cheat in college?" it's still a "control" question.

Directed-Lie "Control" Questions

Directed-lie "control" questions differ from probable-lie "control" questions in that the subject is not misled into believing that the directed-lie question must be answered truthfully. Instead, the subject is instructed to "lie" in response to the directed-lie "control" question, which is introduced as a "diagnostic" question. (As we mentioned earlier [p. 81], directed-lie "control" questions are used primarily by the Departments of Defense and Energy for polygraph screening.) Here are DoDPI's textbook instructions on how polygraph examiners are to explain directed-lie "control" questions to subjects (Dollins, 1997):

Explain and review the directed lie comparison questions. Use the following explanation as a guideline.

> I am now going to discuss the second type of question, the diagnostic questions. As I explained earlier, when you lie your body responds and I will be able to see the response, just as I did during the demonstration. If, however, you were given a test and I saw no responses to any of the questions, it would look like you were telling the truth. For various reasons (sick, tired, using some medication) some people lose their capability to respond. Consequently, I must ask some questions that demonstrate you continue to have the capability to respond when you are lying and that you do not respond when you are telling the truth.
>
> First I will review those questions used to determine if you are capable of responding when you lie. I already know the answer to these questions because we all have done these things at one time or another. When I ask the question I want you to think of an occasion when you did this--don't tell me about it, just think of a specific time. Then lie to me and say no.
>
> Before each question preface it with--we have all (e.g. violated traffic laws)--you have haven't you (they should answer yes)--of course. Now think of a specific incident (don't tell me). When I ask you 'Did you ever violate a traffic law' I want you to lie to me and say "NO." When I ask you this question on the test--I want you to think of that incident when you lie to me.

Although directed-lie "control" questions are less devious than probable-lie "controls," the explanation provided to the subject is nonetheless false and misleading:

1. "…[W]hen you lie your body responds and I will be able to see the response, just as I did during the demonstration."

   Your body may or may not produce physiological responses measurable by the polygraph when you lie.

2. "For various reasons (sick, tired, using some medication) some people lose their capability to respond."

   If you were to "lose [your] capability to respond" physiologically, you would have such severe health problems as would preclude you from sitting for a polygraph exam. If you are physically capable of sitting down for a polygraph "test," your body is "capable" of responding physiologically.

3. "…I will review those questions used to determine if you are capable of responding when you lie."

   When you answer a question falsely as instructed, you are not "lying." Any responses measured by the polygraph when you answer the directed-lie "control" questions have nothing to do with deception.

The true purpose behind the "directed-lie" questions is to cause you to feel anxiety about whether you are providing appropriate physiological responses while answering these "control" questions. The polygrapher assumes that if you are truthful in your answers to the relevant questions, then your anxiety while answering the directed-lie "control" questions will result in stronger physiological responses than when you answer the relevant questions.

Professor Honts (1994) has described the rationale behind the Directed-Lie "Control Test" (DLCT) thus:

> …The rationale of the DLCT is similar to that of the CQT ["probable-lie" "Control" Question "Test"] except that the comparison question, the one expected to elicit response from the innocent, is a known lie. For example, the examiner may ask, "Have you ever told a lie, even one time in your life?" The subject initially answers "yes," but is then directed to answer "no" during the examination. In the DLCT, truthful and deceptive subjects are expected to respond differentially to the relevant and directed-lie questions.
>
> The directed-lie control questions are prepared in the following manner. A subject is told that it is important for comparison

> purposes that he or she answer some of the questions on the test deceptively. The examiner also tells the subject that it is critical that he or she respond appropriately when lying. However, the nature of appropriate responding is not defined for the subject. Finally, the subject is told that if he or she does not react appropriately to the directed-lie questions, the examination will be inconclusive and will have to be repeated at another time. In this case, differential reactivity is expected because the innocent subject's attention has been focused on the directed-lie questions by the examiner's instructions and by concern over responding appropriately. The DLCT is evaluated in the same manner as the CQT.

As with probable-lie "control" question "tests," the polygrapher assumes that if your physiological responses when answering a relevant question are greater than when answering the directed-lie "control" questions, then you must have been deceptive in answering the relevant question. If your physiological responses while answering the "control" questions are greater, then you must be telling the truth in answering the relevant question. And if your physiological responses while answering the relevant and "control" questions are about the same, then the outcome will be deemed inconclusive. Again, this is codified conjecture, not science.

You may wish to ponder which would cause you the greatest physiological response: a) falsely denying having ever told a lie in your entire life, as instructed by your polygrapher or b) truthfully denying having had contact with a foreign intelligence service, knowing that your trustworthiness is being assessed based on the pseudoscience of polygraphy.

The directed-lie polygraph screening format adopted by the Department of Defense in 1993 and the Department of Energy in 1999 is called the "Test for Espionage and Sabotage" (TES). The directed-lie "control" questions used in the TES—which questions you will be instructed to answer falsely—may include:

1. Did you ever take any government (company) supplies for your personal use?
2. Did you ever violate a traffic (fishing, hunting, boating) law?
3. Did you ever say something derogatory about another person behind their back?
4. Did you ever violate a software copyright law?
5. Did you ever say something that you later regretted?
6. Did you ever lie to a previous supervisor about anything?
7. Did you ever borrow anything and forget to return it?
8. Did you ever lie to a co-worker about anything at all?
9. Did you ever say anything in anger that you later regretted?
10. Did you ever brag about yourself to impress others?

Hypothetical "Control" Questions

A third kind of "control" question is the "hypothetical control" question that is intended to produce a reaction in truthful subjects by causing them to ponder how they would handle a hypothetical situation. This kind of "control" question has been used especially in pre-employment screening. Examples include, "In the future, would you steal something from (name of employer) if you had the chance?" and, "Would you lie to even one of these questions if you thought you could get away with it?" (Wygant, 1980)

Concealed "Control" Questions

A fourth kind of "control" question is the "concealed" control question, which is found in a polygraph technique known as the DoDPI General Question "Test" (GQT), which is no longer taught by DoDPI. This format outwardly appears to consist of relevant and irrelevant questions only, but near the beginning, the polygrapher asks, "Do you intend to lie to any of the questions on this test?" and near the end, the polygrapher asks, "Have you lied to me in any way since we have been talking today?" The polygrapher uses these "concealed"

control questions as a basis of comparison with the relevant questions. (Matte, 1996)

Irrelevant Questions

Irrelevant questions are concerned with nothing of importance. In both probable-lie and directed-lie "tests," the subject is instructed to answer these questions truthfully. DoDPI teaches polygraphers to explain irrelevant questions thus (Dollins, 1997):

> …Explain and review the irrelevant questions. Use the following explanation example as a guideline.
>
> > The final diagnostic questions you may hear are ones you will answer truthfully so that I can see how you are responding when you tell the truth. It will be obvious that you are telling the truth.…

The rationale provided to the subject is a lie. The purpose of the irrelevant questions is not so that your polygrapher "can see how you are responding when you tell the truth." In both probable- and directed-lie "control" question "tests," the irrelevant questions are not scored at all!

Irrelevant questions commonly appear at the beginning of a polygraph question series (usually the first two questions) to soak up the initial stress of the polygraph interrogation. As with the sacrifice relevant question, polygraphers expect that even truthful subjects may react to the first questions in a series merely because they are first. Irrelevant questions are also used as buffers between various scored questions (that is, relevant and "control" questions).

Common irrelevant questions include:

1. Are you now in (name of the state in which you are located)?
2. Is today (today's date)?
3. Do you sometimes drink water?
4. Are you sometimes called (your name)?

Symptomatic Questions

Another kind of question you may encounter is what polygraphers call "symptomatic" questions. Such questions are normally worded along the lines of, "Are you completely convinced that I will not ask you a question during this chart that has not already been reviewed?" or, "Is there something else you are afraid I will ask you a question about even though I told you I would not?" Some polygraphers believe that an inconclusive outcome may result when a subject is more worried about some outside issue being raised than about any of the relevant or "control" questions. If a polygrapher scores a chart as inconclusive but notes a reaction to a symptomatic question, he may again reassure the subject that no questions about outside issues will be asked and run a new chart. (Capps et al., 1993)

The "In-Test" (Polygraph) Phase

The examiner fits a blood pressure cuff around your arm (he may alternatively attach a transducer set to your thumb), metal contacts on your ring and index fingers, and pneumograph tubes around your torso and abdomen. He will ask a series of usually about ten questions and instruct you to keep your eyes open, remain still, and answer "yes" or "no" to each question. Your polygrapher will ask the questions at intervals of about 30 seconds, and will probably repeat the question series two or three times. In between question series repetitions, your polygrapher may leave the room for about 15 minutes to "examine the charts" (and to let you sit and stew about your fate), then return to interrogate you about why you may have been "responding" to a certain question before he proceeds to the next series. By the way, when the examiner leaves the room, don't assume that you are alone. You may well be under observation from behind a two-way mirror, which may be disguised as a picture or even a fish tank. (If your polygrapher assures you that there is no one behind the mirror, you may rest assured that someone most

probably is.) Alternatively, the room may contain a hidden video camera. One polygrapher (Anonymous, n.d. b) writes:

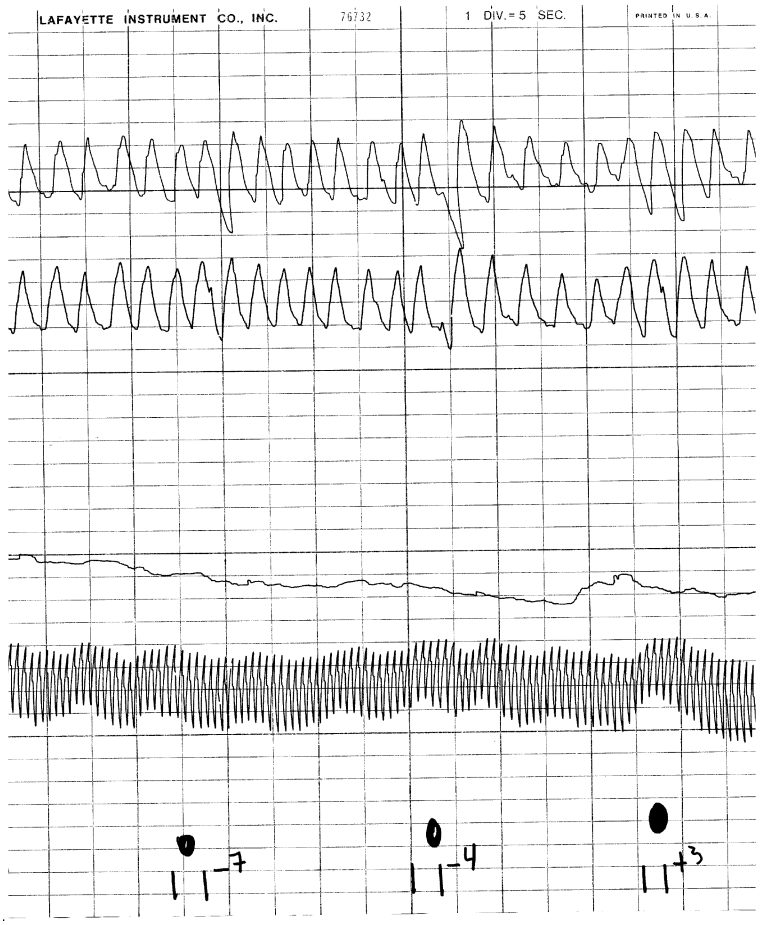
> At one location the [police] department video tapes all polygraph interviews. The tests are given on location at the department. A tiny camera is hidden in a speaker hole of a radio sitting on a desk. All actions are monitored by an administrator at the time of the interview, and the video tapes are also forwarded to the background investigator.

Depending on the number of issues being investigated, you may be asked more than one series of questions. For example, the FBI and U.S. Secret Service probable-lie pre-employment polygraph "tests" as well as the Department of Defense directed-lie polygraph screening "test" include two distinct series of questions.

Chart Scoring

The illustration on p. 93 shows a portion of a typical polygraph chart recording. From top to bottom, the tracings on the chart represent 1) thoracic breathing, 2) abdominal breathing, 3) electrodermal activity (galvanic skin response), and 4) cardio activity (relative blood volume and heart rate).

The vertical lines on the graph paper are spaced half an inch apart and represent five seconds in time. (Charts are rolled at the rate of six inches per minute.) The pairs of short vertical lines hand drawn at the bottom of the chart (which resemble the Arabic numeral "11") represent the beginning and ending of the asking of a question. When the polygrapher begins asking a question, he places the first vertical stroke at the bottom of the chart. When he is finished asking the question, he places the second vertical stroke. A minus sign (-) indicates that the subject answered the question "no" and a plus sign (+) indicates that the subject replied "yes."



Portion of a polygraph chart, recorded on an analog (non-computerized) polygraph instrument.

Polygraph charts are scored by comparing reactions to relevant questions to reactions to control questions. The Department of Defense Polygraph Institute recognizes total of 22 scorable reactions:

Respiratory reactions

1. Respiration rate decrease
2. Respiration rate increase
3. Respiration inhalation/exhalation ratio change
4. Respiration amplitude increase
5. Respiration amplitude decrease/suppression
6. Progressive increase followed by a decrease
7. Progressive increase and return to homeostasis
8. Progressive decrease and return to homeostasis
9. Respiration baseline change (temporary)
10. Respiration baseline loss (permanent)
11. Apnea - holding (inhalation)
12. Apnea - blocking (exhalation)

Electrodermal reactions

1. Amplitude change
2. Complex response
3. Response duration and return

Cardio Reactions

1. Baseline increase and decrease
2. Baseline increase
3. Amplitude increase
4. Amplitude decrease
5. Amplitude decrease
6. Rate increase
7. Rate decrease

These reactions are illustrated in the DoDPI document "Test Data Analysis" which is available on the AntiPolygraph.org website. This

document also describes the DoDPI seven-position scoring scale. In this system of numerical scoring, reactions to each relevant question are compared with reactions to an adjacent "control" question.[10] A relevant/"control" pair is known as a "spot." When a reaction to one question is subtly greater than the corresponding reaction to the other question in the spot, a value of "1" is assigned. If the reaction to one question is obviously greater, then a value of "2" is assigned. If the reaction to one question is dramatically greater, then a value of "3" is assigned. And if both reactions are equal, then a value of "0" is assigned. When the reaction to a "control" question is greater, a positive (+) value is assigned to the numerical score, and when the reaction to a relevant question is greater, a negative (-) value is assigned.

Scores for reactions to the two pneumograph tracings are combined by taking the average. For example, if the upper tracing (thoracic breathing) is scored as +1 and the lower tracing (abdominal breathing) is scored as -1, then the combined score is 0. If both upper and lower pneumograph tracings are scored as +1, then the combined score would remain +1.

The combined pneumograph score is then added to the values assigned to the electrodermal and cardiovascular tracings to yield a spot score. Each spot receives a score, and the spot scores from each chart are added together to yield a spot total for each spot. The sum of all spot totals yields the grand total.

Different formats have different cutoff scores for determinations of "deception indicated" (DI), "no deception indicated" (NDI), or "inconclusive" (INC). But in general, it is advantageous to have a

[10]Reactions that can be attributed to some cause other than the asking of a question (for example, the subject sneezed, coughed, took a deep breath, or moved) are termed "artifacts" and are not scored.

positive score for each spot total, and the higher the grand total, the better.[11]

The "Post-Test" Interrogation

If the polygrapher suspects you of deception (and sometimes not), he or she will confront you with the polygraph charts and seek to obtain a confession from you. Interrogation techniques vary, but typically, the polygrapher will ask you to explain why you reacted strongly to a particular question. If you have truly responded strongly to a relevant question, no explanation short of a confession or damaging admission is likely to suffice. If the examiner is just bluffing, your truthful denials will be adequate, the examiner's doubts notwithstanding.

In trying to obtain an admission, your polygrapher may try the following approaches (Janniro, 1991):

- They didn't bring me here to ignore my report. The test confirms that you haven't been completely truthful. Your situation will only get worse if we don't get this cleared up.
- The only thing that will help you now is to be completely truthful. When a person hides something or lies they usually regret it later on when the truth comes out… like it will in this situation.
- We've all been in situations when we withheld something or told a lie about something that didn't seem too bad. But then, we had to tell another lie and another lie and another until the whole story fell apart.

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[11]It is beyond the purview of this book to provide a detailed tutorial on polygraph chart scoring. For further reading, see the American Polygraph Association (APA) quarterly publication, *Polygraph,* Vol. 28 (1999), No. 1. This special issue is devoted to chart interpretation. In addition, for discussion of the notations used on polygraph charts, see Jimmy Swinford's article, "Tech Talk: Polygraph Chart Markings" in the *APA Newsletter,* Vol. 32 (1999), No. 5.

- It is no longer an issue as to whether you did this or not. The only things left to discuss are why and how you got involved in this matter. In fact it is really an insult to my intelligence for you to tell me that you have been completely truthful here today.
- I promised that I would be honest with you here today [!] and you promised me the same thing. You and I both know that you haven't been truthful now. I could respect you more if you just told me that you don't know how to deal with this… that you don't want to confess.
- If you were to show me a picture of someone close to you, I could never persuade you that it was someone else. These charts are like a picture of truth or deception and we can't change them no matter what we say.
- A lie is like a cancer inside of you that eats away at you and never goes away until it is taken out. Then the body can get well.

The examples above are from the DoDPI "Interview and Interrogation" handbook, which is available on AntiPolygraph.org and will make interesting reading for anyone facing polygraphic interrogation.

The late Raymond J. Weir, Jr., former head of the NSA polygraph program and past president of the American Polygraph Association, has described a favorite NSA "post-test" interrogation approach (Weir, 1974):

> We have a standard interrogation procedure where the examiner looks at the charts, looks at the subject, shakes his head, and says sadly, "I'd like to believe you, Mr. Jones. You do sound sincere to me. But how can I believe you, when you don't believe yourself? You can lie to me, and I don't know you well enough to tell. But you can't lie to yourself—and that's what I'm getting on these charts." (pp. 154–55)

Veteran polygrapher Leonard H. Harrelson, president of the Keeler Polygraph Institute in Chicago since 1955, offers a particularly outra-

geous ploy in describing what he terms the "unexpected" or "shock" approach (Harrelson, 1998):

> …the imagination and the role-playing ability of the examiner is given free reign. This approach would include such tactics as suddenly shutting off the instrument in the middle of a test, removing the attachments from the subject and requesting that he get down on his knees to join you in praying for his soul and courage to tell the truth. This approach, if used with sincerity and conviction, can carry a tremendous psychological impact on certain subject types. (p. 105)

It should be noted that both Weir and Harrelson openly admit that truth vs. deception cannot be determined from the analysis of polygraph charts. In the above-cited article, Weir writes:

> I have…heard experienced examiners get mousetrapped into a discussion as to whether there is some mysterious difference between the reactions created by lies and those from strong emotions, such as fear or anger. All I know is that I know of no way to make this distinction, merely from chart patterns. (p. 124)

And in the previously-cited book Harrelson concedes:

> Polygrams [polygraph charts] are polygrams. They measure and record physiological reactions. And they do so very well, but one cannot look at a polygram and say, "That is a lie." It may be a reaction, but no one can say that it is a lie. An examiner may interpret a reaction to be a lie, but in actual practice, the examiner is also observing the subject, listening to verbal explanations, and making a judgment about the person's truthfulness. Some examiners are simply better at this than others.
>
> Because of their experience in talking with people and their success in obtaining confessions, polygraph examiners may come to feel confident about making a determination of truth or deception based on their charts. Indeed, if a person is reacting, it is the examiner's job to determine why and to obtain a confession if they believe that deception is the cause of the reactions. But without a confession, polygrams are still just polygrams. (p. 158)

Other Polygraph Formats

While we have discussed the "Control" Question "Test" in both its probable- and directed-lie versions, we should also mention some less common polygraph formats.

Peak of Tension (POT) or Guilty Knowledge Test

This kind of polygraph examination depends on the polygrapher having knowledge of details of a crime that a suspect should also know only if he is guilty. For example, in the case of an assassination, a suspect could be asked: if you were the trigger man, you should know what kind of ammunition was used. Was it:

a) a NATO-standard 5.56mm round?
b) a 7.62 x 39mm round?
c) a .22 long rifle round?
d) a 30-06 round?
e) a 9mm semi-jacketed hollow point round?

It is expected that the guilty subject will physiologically respond when asked about the ammunition he used in the assassination. Professor Lykken describes the Guilty Knowledge Test, which is based on sounder theoretical principles than the "Control" Question "Test," in chapters 20 and 21 of *A Tremor in the Blood.*

Searching Peak of Tension (SPOT) "Test"

When certain information would be known only to a guilty subject but not to an innocent subject or the polygrapher, then a polygrapher might resort to a Searching Peak of Tension "test." A government employee suspected of espionage might be asked:

Did you commit an act of espionage for Russia?
Did you commit an act of espionage for China?
Did you commit an act of espionage for Israel?

Did you commit an act of espionage for France?

Did you commit an act of espionage for North Korea?

If your responses among the questions are relatively equal, the examiner will probably regard you as truthful. If one question elicited a noticeably stronger response, the examiner will suspect that you lied when answering that question.

Relevant/Irrelevant "Test"

In this polygraph technique, the polygrapher asks the subject a series of relevant questions (e.g., "Did you ever use an illegal drug?") interspersed with irrelevant questions (e.g., "Are the lights on in this room?"). The polygrapher asks the questions multiple times in different order over multiple polygraph charts and may phrase them differently. As with the "Control" Question "Test," the irrelevant questions are not scored. Instead, the polygrapher examines the polygraph charts looking for "consistent, specific, and significant" reactions to a particular relevant question. (Polygraphers have a mnemonic expression for such reactions: "con-spec-nificant.") For example, if a subject consistently shows strong physiological reactions when asked, "Did you ever use an illegal drug?" no matter what the order of the questions or how this question is phrased, deception will be inferred, and a post-test interrogation will follow. (Weir, 1976)

If a subject shows no reaction to any question in a series, the polygrapher may add a probable-lie "control" question to the end of the series to satisfy himself that the subject is "capable" of reacting. (Weir, 1974) Another sort of "control" question that may be used is for the polygrapher to begin the question series by announcing, "The test is about to begin" and end it by stating, "The test is now over." The mere announcement of the beginning or end of the "test" is expected to produce a physiological response to which responses to the relevant questions may be compared. (Harrelson)

In addition, a "breakdown test" (a type of peak of tension test) may follow if a subject shows a "con-spec-nificant" reaction to a relevant question. For example, the subject who shows a "con-spec-nificant" reaction to the question, "Did you ever use an illegal drug?" may be asked questions like the following in a "breakdown test": "In connection with the question on illegal drugs, does anything disturb you about the following things?:

Marijuana?
Cocaine?
Heroin?
LSD?
Methamphetamine?"

Again, the question order is mixed and repeated. If the subject shows a "con-spec-nificant" reaction to any one particular item in the list, then the polygrapher infers that this is an area of concern to the subject and follows up with an interrogation along those lines. (Weir, 1974)

Apart from examination of the polygraph charts, the polygrapher may also use his subjective impressions in making a determination of truth or deception.

The R/I "test" is one of the oldest polygraph techniques. Like the "Control" Question "Test," it is also thoroughly discredited, and there is absolutely no peer-reviewed research supporting its validity. Professor David T. Lykken devotes Chapter 7 of *A Tremor in the Blood: Uses and Abuses of the Lie Detector* to the R/I technique. He notes two assumptions on which the R/I "test" depends, the second of which is, as he terms it, "wildly implausible":

> ASSUMPTION 1. *A guilty subject whose relevant answers are lies will be more aroused by the relevant than by the irrelevant questions and this difference will be revealed by his responses on the polygraph.*

> ASSUMPTION 2. *An innocent subject who is answering truthfully will not be disturbed by the relevant questions and will show no more reaction to them than to the irrelevant questions.*

It is appropriate to cite here in full Professor Lykken's discussion of the validity of this technique:

> **Validity of the R/I Test**
>
> So much for theory and common sense; what is the evidence? It is astonishing to discover that, in 70 years of use prior to 1997, the only published studies assessing R/I test accuracy using "blind" evaluations of charts obtained from criminal suspects were one described by Larson[12] in 1938 and another by Horvath,[13] in 1968. Larson asked nine judges to read the charts obtained from 62 suspects. Only 1 of the 62 suspects had actually lied and yet the number scored as deceptive by the nine judges ranged from 5 to 30. This amount of disagreement among the nine judges indicates poor reliability. The average judge scored about one-third of the

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[12]Endnote in original: "J.A. Larson, The lie detector polygraph: Its history and development, *Journal of the Michigan State Medical Society*, 1938, *37,* 893–897. A number of studies have been reported in which a large group of suspects were tested by the R/I method in relation to the same crime. In every instance except for the cited study by Larson, the persons who scored the charts were aware that not more than one person could reasonably be guilty and therefore the scorers could have achieved very high "accuracy" just by calling everyone truthful. Thus, Bitterman and Marcuse tested 81 residents of a college dormitory where $100 had been stolen from a student's room.. Finding that 7 of 81 students "failed" the R/I test the first time around, Bitterman and Marcuse retested these 7 and finally concluded that all of them were innocent (M.E. Bitterman and F.L. Marcuse, Cardiovascular responses of innocent persons in criminal investigations, *American Journal of Psychology*, 1947, *60,* 407–412). The only useful evidence of lie test accuracy is obtained when the chart evaluator reads each chart independently with no outside reason for expecting either a truthful or a deceptive answer."

[13]Endnote in original: "F. Horvath, The utility of control questions and the effects of two control question types in field polygraph techniques, *Journal of Police Science and Administration,* 1968, *16,* 357–379."

> innocent suspects as deceptive, which means that two-thirds of these innocents failed to give large reactions to the relevant questions and were scored as truthful, just as Assumption 2 demands. One might have thought that Assumption 2 would nearly always be wrong and that most subjects would fail the R/I test whether innocent or guilty. That is in fact what Horvath reported; all of his innocent suspects were erroneously classified as deceptive by the R/I test, whereas Larson's earlier study reported only 33% false positives. We should not put too much faith in the exact percentage of errors found but we can say that, just as common sense would predict, a high proportion of innocent subjects will "fail" the R/I test. Quite recently the Raskin group of lie detector advocates published the results of a mock crime laboratory study[14] in which the R/I method classified all 15 of the "guilty" suspects as deceptive but at the expense of identifying only 3 of the 15 "innocent" subjects as truthful.

Although the R/I "test" has largely been supplanted by the "Control" Questions "Test," the Department of Defense Polygraph Institute still teaches it, and the U.S. Government appears to be actively relying on this most dubious of polygraph techniques for national security purposes. For example, in October 2001, DoDPI taught a two-week course on the R/I screening "test" in Chantilly, Virginia, home to the National Reconnaissance Office.

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[14]Endnote in original: "S.W. Horowitz, J.C. Kircher, C.R. Honts, and D.C. Raskin, The role of comparison questions in physiological detection of deception, *Psychophysiology,* 1997, *34,* 108–115.."

CHAPTER FOUR

Polygraph Countermeasures

Tis No Deceit to Deceive the Deceiver

—title of a play by Henry Chettle, 1598

Dr. Gordon H. Barland, who worked as a DoDPI researcher for more than a decade before his recent retirement, has defined countermeasures as "deliberate techniques that deceptive subjects use in an attempt to appear non-deceptive when physiological responses are being monitored during a PDD [psychophysiological detection of deception] examination."[15]

We will adopt a broader definition than Dr. Barland, and define polygraph countermeasures as simply "deliberate techniques that may be used to 'pass' a polygraph interrogation." While deceptive persons may choose to employ countermeasures in order to appear non-deceptive, truthful persons may also choose to use them to protect themselves against a false positive outcome.

In this chapter, we will discuss three basic methods for protecting yourself against a false positive outcome:

1. refusal to submit to polygraph interrogation;
2. complete honesty;
3. polygraph countermeasures.

Just Say No

The surest approach to avoid a false positive outcome is to refuse to submit to polygraph interrogation. However, this approach may have serious adverse consequences. If you refuse to submit to a

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[15]Barland, Gordon H. Unpublished manuscript. Department of Defense Polygraph Institute, 1994. Cited in London & Krapohl, 1999.

polygraph screening interrogation, you may be denied employment, and if already employed, you may lose your job.

If, however, you stand accused of a crime, "just say no!" You should not submit to *any* polygraph "test." Instead, you should get a lawyer. If for some reason your lawyer advises you to submit to a police polygraph interrogation, ask him to read this book. Just like a majority of the public at large, many lawyers are simply ignorant of the true nature of the polygraph process. If, after reading this book, your lawyer *still* advises you to submit to a polygraph "test," *fire your lawyer!* You have little to gain by submitting to a polygraph interrogation and much to lose: if you "pass," the police may well continue to suspect you regardless; if you "fail," it will only confirm their suspicions, and news of your "failure" may well be leaked to the local media to smear you. As John A. Larson, a pioneer of polygraphic lie detection lamented:

> I originally hoped that instrumental lie detection would become a legitimate part of professional police science. It is little more than a racket. The lie detector, as used in many places, is nothing more than a psychological third-degree aimed at extorting confessions as the old physical beatings were. At times I'm sorry I ever had any part in its development.[16]

Top-flight defense attorneys *never* let their clients submit to a polygraph "test" conducted by the police or any other authority. In the few cases where clients are polygraphed (most notably high profile cases where the client is being tried in the media), the attorney makes arrangements to hire a private polygrapher. The "test" is conducted in private, and the results, which are protected by attorney-client privilege, are released only if the client "passes." This was the protocol used by the attorneys for O.J. Simpson, John and Patsy Ramsey, and Gary Condit. The Ramseys and Condit

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[16]Cited in J.H. Skolnick, "Scientific Theory and Scientific Evidence: An Analysis of Lie Detection," *The Yale Law Journal*, Vol. 70 (1961), pp. 694, 728. Cited in Lykken (1998) at pp. 28–29.

"passed," and their results were therefore made public. Mr. Simpson apparently fared worse, and his results were never made public. (After word got out that Mr. Simpson had been polygraphed by a private examiner, the official explanation was that he was hooked up to the polygraph to see how it works, but that no actual "test" was conducted.)

In refusing to submit to polygraphic interrogation, you may additionally use the "complete honesty" approach described below.

Complete Honesty

A second approach is to be completely honest with your polygrapher. Tell him that you know the lie behind the lie detector. Explain to him that you understand that the true purpose of the "stim test" is to dupe you into believing in the validity of polygraphic lie detection. Tell him that you understand the trickery behind "control" question "tests"—whether probable- or directed-lie. Explain that you understand the difference between "control," relevant, and irrelevant questions and that you have studied and know how to employ polygraph countermeasures. Give him a printout of this book to prove it in a way that he will not be able to later deny. Explain to him that you are not a suitable candidate for polygraphic interrogation, and request that your polygraph "testing" be waived.

One of the authors of this book knows of a Department of Defense employee whose polygraph screening was waived when he explained to his polygrapher that he understood how polygraph "tests" work and that he had received training in how to defeat them.

But beware! While the Wizard of Oz may have meekly admitted to being a humbug once the curtain was drawn aside and his humbuggery laid bare, your polygrapher might not be so accommodating. One graduate of DoDPI has cautioned that if a subject were to follow this "complete honesty" approach, the polygrapher would probably go ahead with the polygraph interrogation anyhow and arbitrarily accuse the subject of having employed countermeasures.

Maureen Lenihan is a case in point. She worked as a research assistant with the federal Commission on Protecting and Reducing Government Secrecy, also known as the "Moynihan Commission."[17] She later applied for employment with the CIA. She explained to her CIA polygrapher that she had researched polygraphy while working with the Commission. The polygrapher proceeded with the interrogation anyhow, and later accused her of having employed countermeasures. (Weiner, 1999)

When one of the authors of this book specifically asked the president of the American Polygraph Association, Mr. Milton O. "Skip" Webb, Jr., how an APA member should proceed if a subject were to reveal that he/she has read *The Lie Behind the Lie Detector* and understands the psychological manipulations involved in both the "stim test" and the "control" questions, Mr. Webb declined to provide an explanation.[18]

In a discussion on the AntiPolygraph.org message board,[19] the same coauthor asked Dr. Barland:

> What would you say to the earnest employee or applicant for employment who wants a straightforward answer to this simple question: what will the polygrapher do if I admit to him/her that I understand "the lie behind the lie detector?"

In reply, Dr. Barland stated that he "would have no qualms about conducting an examination," adding that his personal outlook is, "when in doubt, give it a try and see what happens." He indicated

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[17]The Commission's report is available on-line at:

`http://www.fas.org/sgp/library/moynihan/index.html`

[18]See George W. Maschke's e-mail exchange with Mr. Webb, which is available on-line at:

`http://antipolygraph.org/read.shtml#informed-subjects`

[19]See the message thread, "Countermeasure considerations for the innocent" on the Polygraph Procedure forum of the AntiPolygraph.org message board.

that in such a situation, it would make good sense to switch to a technique such as the Relevant/Irrelevant "test," which he believes is less susceptible to countermeasures. But when asked on what scientific basis he expected to be able to distinguish truth from deception using this thoroughly discredited technique, Dr. Barland declined to answer.

We believe that the ethically preferable choice for those facing polygraphic interrogation is to either refuse to submit or to use the "complete honesty" approach (or both). If everyone who reads this book were to do so, it would force the agencies that are using polygraphy against their employees and prospective employees—as well as the elected representatives who have sanctioned it—to confront the plain truth that the lie behind the lie detector has been exposed. It would quickly spell the end for polygraphy. But we are also aware that these two choices carry with them a high "first-mover disadvantage" and may entail serious adverse consequences for those with the moral courage to adopt them.

We believe that it is not unethical for truthful persons—faced with a government that routinely lies to and deceives its employees and prospective employees through the polygraph screening process—to employ polygraph countermeasures to protect themselves against a false positive outcome.

Polygraph Countermeasures: How to Pass a Polygraph "Test"

(First, if you haven't read Chapter 3, go back to page 70 and read it carefully.)

The key to "passing" a polygraph "test"—that is, to producing a "truthful" chart—is to produce stronger physiological responses when answering the "control" questions than when answering the relevant questions.

We Americans have a thriving folklore about how to beat a polygraph "test." You may have heard that you can pass by taking drugs

such as meprobamate, by rubbing antiperspirant on your fingertips, or through meditation or hypnosis, or by wiggling your toes, or flexing your arms, or coughing. Forget these. They are prescriptions for failure.

Perhaps the most widely-known countermeasure is the old tack-in-the-shoe. While this countermeasure (if properly applied) can be effective, polygraphers have developed counter-countermeasures for it (the simplest being to simply make the subject remove his shoes).

Read on to learn how to pass your polygraph interrogation.

Two Types of Countermeasures

There are two basic types of polygraph countermeasures: behavioral and chart-recording manipulation. Behavioral countermeasures are those things that you can do to appear honest and truthful to your polygrapher, while chart-recording manipulations are those countermeasures that will actually affect the physiological responses measured by the polygraph instrument. We will discuss both types, beginning with behavioral countermeasures.

Make No Admissions

Rule number one is to make no admissions! While the lie detector cannot detect lies (it only records physiological responses), any admissions you make will be duly noted by your polygrapher. Admissions that may seem minor to you can be spun out of all proportion by your polygrapher. He sees admissions as trophies. Don't give him any.

The only exceptions to this rule are that, during the "pre-test" interview, you may make minor admissions regarding the "control" questions only, such as stealing candy when you were a child, or lying to your parents, or taking pens home from work. But go no further.

In addition, if you are submitting to a directed-lie "control" question "test" such as the TES format used by the Departments of Defense and Energy, you should not stubbornly deny having ever committed one of the common human failings used in the directed-lie "control" questions such as violating a traffic law, or having told a lie, even once in your life, etc. (See p. 89 for a list of common directed-lie "control" questions.)

…And Sign No Statements

A common tactic used by polygraphers is to request the subject to write out and sign a statement listing the admissions they have supposedly made. It may not be in your interest to sign any such statement. Suppose, for example, you admit during your "pre-test" interview, or in the pre-polygraph questionnaire that some law enforcement agencies require applicants to fill out, that you smoked marijuana three times while you were in high school. Your polygrapher asks, "Can you really be sure that it was only three times? Any doubt in your mind will show up on the polygraph. Would it be fair to say that you used marijuana less than ten times? Yes? Then very well, why don't you write that down here and sign."

When you sign that statement saying that you used marijuana "less than ten times" instead of the three times that you said earlier, you've just given your polygrapher a signed "confession" that he can use to portray you as having been dishonest when you claimed to have used marijuana only three times.

Polygraph "Tests" are Interrogations

Your polygraph "test" is actually an interrogation. Even if you have not been accused of anything specific but instead face polygraph screening, you must never forget that your polygraph "test" is actually an interrogation.

Some security officials are fond of the quip, "In God we trust—all others we polygraph." Don't *you* make the mistake of trusting your

polygrapher. Some will be friendly, others confrontational. Some will regard you as a criminal suspect, while others will expect you to pass (especially when large numbers of employees are screened). Other polygraphers will have decided to fail you before the polygraph interrogation even begins.

Your polygrapher may very well be polite, pleasant-mannered, and congenial, but he is also a trained interrogator who understands that he may at first catch more flies with honey than with vinegar. He is not your friend. He is not there to "help" you. Be on your guard at all times.

Recognizing Common Interrogation Tactics

Your polygrapher is a trained interrogator. Polygraph schools devote a substantial portion of their curricula to teaching students techniques for duping examinees into making damaging admissions. And many polygraph examiners are already experienced criminal investigators well before they are sent to polygraph school. This is almost always the case when the polygrapher is a law enforcement officer. In some agencies, polygraph examiners may be evaluated based on the number of admissions or confessions they receive (which gives them a strong incentive to get some kind of statement from you that can be characterized as such). This was once—and may still be—the case with FBI polygraphers.

Perhaps the most common (and most effective) interrogation technique employed by polygraph examiners involves projecting a false sense of empathy for you and your situation. The examiner's goal when using this approach is to get you to believe that he is there to help you. (He isn't.) When employing this approach, the examiner is likely to downplay the seriousness of the behavior you are being asked about or accused of. For example, the examiner may tell you that his agency is "not looking for Boy Scouts." He may even claim that he engaged in the very same activity that he is asking you about or accusing you of and was still hired. Don't fall for it.

One of the gravest mistakes one can possibly make is to believe that your polygrapher is the one exception and that he is there not to interrogate, but rather to help you along in the application process. The polygrapher may indeed be a "nice" guy. You may even become friends with him if you are eventually hired. Nonetheless, this does not change the fact that he is an interrogator, and his job is to get you to make disqualifying admissions.

During the "post-test" phase, the polygrapher may alternatively take an adversarial approach. He may instruct you to move your chair so that your back is to the corner. He may then accuse you of being deceptive in a hostile and aggressive manner. He may invade your personal space and posture himself in a threatening manner. This is a favorite tactic of U.S. Secret Service polygraphers. Keep your cool and deny the polygrapher's allegations in a forceful but respectful manner.

The aggressive and empathetic approaches are often combined by the polygrapher/interrogator. Commonly known as the "good cop/bad cop" routine, in the context of a polygraph interrogation, the polygrapher/interrogator adopts one approach and immediately makes a 180-degree turn toward the other.

Another common interrogation technique is known as the "egotistical approach." Here, the polygrapher's goal is to play upon your pride. He may bring up your academic achievements, language skills, or other attributes that make you an attractive candidate for the position. The goal here is to make you feel that you are no ordinary applicant and that the agency will bend over backward to hire you. After doing this, he is likely to return to the empathy approach, downplaying the seriousness of the behavior in question and asking you to admit to it so he can "go to bat" for you against the supervisors at headquarters. (Janniro, 1991, pp. 38-39)

To get a good sense of the "themes" that may be spun by polygraphers in an attempt obtain admissions, see pages 83–91 of the DoDPI

"Interview and Interrogation" handbook, which is available for download on AntiPolygraph.org.[20]

Your goal during any interrogation is to avoid making damaging admissions or statements that may lead the polygrapher on to unwelcome lines of questioning.

Make a Good First Impression

Your polygrapher's subjective opinion of you may influence the outcome of your polygraph interrogation. Look your best. Make sure you have a conservative haircut; dress professionally, polish your shoes. If you're a woman, wear make-up, but not too much.

Be friendly. Smile. Keep good eye contact with your polygrapher, but don't stare. Your polygrapher may interpret avoidance of eye contact as a sign of deception. Don't mumble. Answer questions directly—with confidence and without hesitation—but be natural. You don't want to appear like Data in "Star Trek: The Next Generation."

Arrive Early to Avoid Being Late

The last thing you want to do is to arrive late for your polygraph interrogation. Your polygrapher may interpret your late arrival as a subconscious attempt to avoid the polygraph—heightening his suspicion of you even before he asks his first question. If the drive to the polygraph site will be in rush hour traffic or take more than an hour, you might want to get a hotel room near the "test" site the night before.

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[20]This document may be downloaded as a 5.2 mb PDF file at:

`http://antipolygraph.org/documents/dodpi-interrogation.pdf`

A Warning to U.S. Secret Service Applicants

If you are seeking employment with the U.S. Secret Service, your pre-employment polygraph "test" will probably begin in the morning and continue into the afternoon with no break for lunch. This seems to be a deliberate psychological tactic designed to wear down applicants. Make sure to get a good breakfast.

Remember, You Are Being Watched

Be aware that from the moment you arrive for your polygraph interrogation, your polygrapher will be observing you. He will size you up based not only on what you say, but also on your appearance and demeanor. When you arrive early, you don't want to be seen fidgeting in the waiting room, which, like the interrogation room itself, may be equipped with a two-way mirror or a concealed video camera. Bring something to read.

What you bring to read is also important, because it, too, will make a subtle impression on your polygrapher. Bring something like a professional journal, a magazine like *The Economist, Scientific American,* or the *New York Review of Books,* or a bestselling novel or professional book. Just make sure it's something highbrow. Don't bring a trashy dime novel or tabloid newspaper. And by all means, don't bring anything remotely related to polygraphy! In addition, you might not want to bring one of the publications listed above—polygraphers who read this book might now become suspicious if you do. You want something that will subtly make a favorable impression on your polygrapher. (Clifton, 1991)

As an alternative to bringing something to read, you may wish to bring a briefcase with paperwork to work on while you wait.

The "Pre-Test" Interview

Be polite and cordial. Answer your polygrapher's questions directly, but remember to make no damaging admissions! In response to

the "control" questions, you may admit to some minor childhood misdeeds. But in response to the relevant questions, you should make no admissions whatsoever. Any minor admissions you make regarding the relevant questions may be spun out of all proportion by your polygrapher.

Keep your answers short. Answer any yes/no questions with a simple "yes" or "no." Avoid replies such as "yes, basically" or "not really." Such evasive answers will make you appear deceptive to your polygrapher. Don't be chatty or palsy-walsy with your polygrapher. If you are overly talkative and ingratiating, your polygrapher may interpret this as a sign of anxiety—and hence deception. Moreover, he may use superfluous information you provide to fabricate an admission.

How Polygraphers May Expect Truthful Subjects to Behave

According to two luminaries of the polygraph field, John E. Reid and Richard O. Arther (Reid & Arther, 1953), the following behavioral traits are typical of truthful subjects:

> Because everyone given a lie-detector examination is suspected of some wrongdoing, innocent subjects are usually very glad to be given an opportunity to prove their innocence. Often they have requested it so that no suspicion will be directed towards them. This belief that the innocent have in the accuracy of the lie-detector, and that they will be exonerated, is usually shown by their attitude. This attitude is one of genuine confidence in both the machine and the examiner. Because of this confidence they regard the examination as an experience they will want to relate to their family and friends.
>
> Innocent subjects may refer to their nervousness, but after the assurance of the examiner that nervousness makes no difference, they are usually convinced and make no further reference to it. Innocent subjects are often at ease, light-hearted, and talkative. However, they are very sincere and their straight-forwardness is displayed when they discuss the case during the interview.

> Their attitude is later manifested by their giving complete cooperation during the test....However, while being cooperative and sincere, innocent subjects are not overly polite or solicitous.

In a separate article, Reid (1982) goes on to describe how a truthful polygraph subject would hypothetically answer "No" in response to the question, "Did you steal the $500?":

> The subject who answers "NO" and is direct and unequivocal - almost angry and very crisp is telling the truth.
>
> The subject who says "NO" in a very final way is telling the truth.
>
> The subject who says "NO" indicating disbelief is telling the truth.
>
> The subject who says "NO" indicating you must be kidding is telling the truth and,
>
> The subject who says "NO" in a challenging way, like "I should say not" is telling the truth.

How Polygraphers May Expect Deceptive Subjects to Behave

Reid and Arther (1953) hold that guilty subjects will often try to postpone their polygraph examinations and tend to be late for their appointments or fail to appear at all. They further opine:

> Once in the examining room the guilty person often looks very worried and is highly nervous. This nervousness is manifested in a variety of ways, e.g., acting aggressive, having a bitter attitude, appearing to be in a shocked condition, experiencing mental blocks, being evasive, having an extremely dry mouth, continually sighing or yawning, refusing to look the examiner in the eye, and moving about. Sometimes he is too friendly or too polite.
>
> Guilty subjects repeatedly feel it necessary to explain before the examination why their responses might mislead the examiner into believing that they are lying. Hence, they complain of being nervous, and if that does not seem to impress the examiner, they further emphasize their "nervous condition" or mention a physical defect which they may or may not actually have. Also, they frequently feel it necessary to assure the examiner that they are very

> religious, hoping the examiner will dismiss them as innocent because of their alleged righteousness.
>
> Guilty subjects sometimes claim that the apparatus is causing them physical pain. They do this for at least one of several reasons. First, they hope that the examiner will turn off the instrument, remove the apparatus, apologize for the pain that was caused, and report to the investigators that this subject cannot be examined because of his great pain sensitivity. Second, its [*sic*] provides them with an excuse for not sitting still and thereby preventing the examiner form obtaining a suitable recording. Third, they are hoping that the examiner, when interpreting the record, will wrongly decide that their guilty responses are pain and report them innocent.
>
> ...
>
> Since the entire lie-detector situation is unpleasant to most guilty subjects, they usually want to leave the examining room as soon as possible. Therefore, they inquire after the first test as to how they came out, ask if the examination is not over yet, complain that the examination is taking much too long, seek a speedy release by alleging that they have another appointment, or refuse to continue with the examination. When leaving they often quickly shake the examiner's hand and hurry out of the laboratory.

Regarding how a deceptive subject would hypothetically answer "No," in response to the question, "Did you steal the $500?" Reid (1982) writes:

> The subject [who] says:
>
> "NO" - crosses his legs and shifts in the chair is lying.
>
> "NO" - looks in a different direction, down and up, or sideways is lying.
>
> "NO" - closes his eyes is actually seeking to escape and is lying [sic, trying?] to hide.
>
> "NO" - shakes his head NO and tried to place more emphasis on NO to be more convincing.
>
> "NO" - answers late is lying. Actually the delay is caused by the debate in his mind, "Shall I say YES, I better say NO."

"NO" - questions. A breathless sort of way is lying but is offering a "NO" as "try that on for size" is lying.

"NO" - hesitates and appears to be thinking is actually hiding behind an alleged seriousness is lying.

"NO" - studies, sort of false deliberation is lying.

"NO" - apologizes in saying "NO" is lying.

"NO" - plead is lying.

"NO" - qualifies the NO by the inflection of the voice is lying.

"NO" - has an empty or washed-out look, but this is a last ditch effort to "get out from under" actually is lying.

"NO" - pauses and looks like the question was not directed to him even though he and the questioner are the only ones in the room and the question is directed to him. He almost appears to be in an hypnotic state. He is lying.

"NO" - studied eyes is lying.

Mind Games

Your polygrapher/interrogator may play little games with you to establish his dominance. Upon entering the polygraph room, you should find that it is skillfully orchestrated for interviewing and interrogation. The room will be sparsely furnished, with a table for the polygraph instrument, a chair for the polygrapher, a chair for you to sit in while connected to the polygraph instrument, and, quite possibly, a third chair for you to sit in during the "pre-test" phase. Your chair for the "pre-test" interview will in all likelihood be stationary, while your polygrapher's chair will probably be wheeled for his ease of movement, placing you at a psychological disadvantage.

Upon entering the room, you may find that the chair you are to sit in is facing the wrong direction or in the wrong location. By directing you to move the chair, your polygrapher may subtly demonstrate that *he* is in control.

Your polygrapher may instruct you to remove your coat and hand it to him, whereupon he will remove it from the room. He does this to make you feel as though you are being psychologically "stripped." And by taking your coat out of the room, he wants you to feel that he now controls a piece of you.

You may also be made to wait for your polygraph interrogation in an uncomfortably overheated waiting room.[21]

Do not be intimidated by your polygrapher's little mind games. Play along. Let your polygrapher think that he is in control.

"So What Do You Know About Polygraph Testing?"

At some point during the "pre-test" interview, your polygrapher will ask you what you know about polygraphy. Don't get into an argument with him about the validity of this voodoo science! Polygraphy is his profession, and if you question it, he will take offense (and be more likely to conclude that you are deceptive).

If you've been polygraphed before, you can mention it. But don't tell your polygrapher that you've read this book or that you've done research on the Internet and visited such websites as AntiPolygraph.org and StopPolygraph.com! If you admit to having researched polygraphy, your polygrapher will become suspicious. His next questions may well be, "Why have you educated yourself so much about the polygraph? Do you have something to fear from it?" Instead, provide a general answer to his question about what you know about polygraphy, such as:

- I heard on T.V. that they're almost always accurate when used by a skilled examiner. Is that right?
- A friend of mine in law enforcement said not to worry, just go in and tell the truth, and you'll have no problem!

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[21]Anecdotal evidence suggests that this is a favored practice of the Philadelphia Police Department.

- I understand that polygraphs are a lot more accurate than those voice stress analyzers. (Polygraphers generally hold the competing voodoo science of Computerized Voice Stress Analysis [CVSA] in utter contempt.)
- I read in the paper that the polygraph has been constantly improving with time and that the latest computerized polygraphs are very reliable.
- When I was in grade school, a polygraph examiner came and gave a demonstration to my class and showed us how the test is done using my teacher as a volunteer. She lied about a card she had picked from a deck, and the polygraph examiner caught her lie and was even able to figure out exactly which card she had picked!
- I heard it caught O.J. in a lie! (Virtually no one in the polygraph community believes O.J. Simpson to be innocent of the murder of his ex-wife, Nicole.)

All of these answers show confidence in the validity of polygraphy and are just the kind of thing your polygrapher wants to hear. Whatever answer you give, don't memorize and repeat the above examples word-for-word. Polygraphers will be reading this book, too, and if something you say exactly matches something in this book, your polygrapher might notice! You may wish to combine elements from any of the above examples with your own experience, or think of new examples on your own. And you can always fall back on ignorance: "I really don't understand how polygraph tests work."

Tips for Identifying "Control" Questions

During the "pre-test" phase, your polygrapher will review with you the questions that he'll be asking during the "in-test" phase. You need to pay close attention and be able to distinguish between relevant, irrelevant, and, most importantly, "control" questions.

Note that in directed-lie formats such as the TES, your polygrapher will identify the "control" questions for you: they are the ones which he will instruct you to answer falsely. When we speak of identifying "control" questions below, we'll be referring to probable-lie "control" questions.

In order to become adept at identifying "control" questions, however, you need to understand the rationale behind them. (We discussed "control" questions at some length in Chapter 3 at pages 81–89.) Simply memorizing lists of common "control" questions will not do.

Note: *If you receive a lengthy background questionnaire from an agency with which you are applying for employment, do not attempt to characterize each question on the list as a potential polygraph question. Questions asked during the "in-test" phase (that is, while you're attached to the polygraph instrument) often differ greatly from those provided on background questionnaires, and you will be better off studying question types here.*

As explained in Chapter 3, probable-lie "control" questions are concerned with behavior that the polygrapher secretly assumes most people in society—even those who will be selected for hiring or granted a high level security clearance, etc.—will not be able to deny with 100% truthfulness. Ask yourself the following question when interpreting each of the examiner's questions as strictly as possible: "Will the polygrapher assume that even a very honest person would have a hard time answering this question 100% truthfully?"

Take for example the question, "Did you ever cheat in school?" You may not have broken into faculty offices to steal an exam. But most people have at some point glanced at another student's paper during an exam or copied a friend's homework. At the very least, the great majority of students have likely written segments in research papers that should have been better cited. Thus, this is a control question.

Consider next the question, "Have you ever stolen anything?" Interpreted strictly, this question includes the theft of pens, pencils, a sip of soda before you top off your self-serve drink at the local fast food restaurant, etc. Once again, since almost everyone has done such things, polygraphers will assume that your denial is less than completely truthful. Hence, this a control question.

Contrast this with the following question: "Have you ever stolen anything worth over $200/$500, etc.?" For this question to be a "control" question, the polygrapher and the agency employing him would have to assume that all applicants or employees screened have stolen something worth this substantial amount. This is simply not a reasonable expectation. The polygrapher would not assume that everyone—including those who will be or have already been hired—has pilfered objects of such high value. In actuality, nearly everyone (except out-and-out criminals) will have an easy time answering this one truthfully without even thinking about it. Thus, this does not fit the mold of a "control" question. It is a relevant question.

Naturally, you may wonder, "What is the dollar cut-off amount?" This depends on what the agency's policy is regarding acceptable thefts. You must consider whether or not the agency believes that even the great majority of the people it would be willing to hire (as well as current employees) have engaged in this behavior (no matter how despicable the polygrapher may attempt to convince you he considers it to be). We recommend that you assume that any pre-employment screening question that includes a minimum dollar amount (that is, "Have you ever stolen anything worth more than __ dollars?") is relevant.

Note: *Another common theft-related question in pre-employment polygraph screening is, "Have you ever stolen money from an employer?" Although agencies assume that all applicants have helped themselves to small things (office supplies, etc.), they do not assume that applicants*

they wish to hire have helped themselves to the cash drawer. The question is a relevant one.

Ambiguity in "Control" Questions

One of the hallmarks of "control" questions is ambiguity. Their scope tends not to be clearly defined. Relevant questions, by contrast, tend to be quite specific and leave little room for doubt.

Take, for instance, the common "control" question, "Have you ever told a lie?" Strictly speaking, this question includes all lies, even those you told as a young child, or regarding your opinion of someone's new hairstyle, and so forth.

If the examinee keeps answering "yes" to this question during the "pre-test" interview and admitting to having told little white lies, the polygrapher may modify the question to, "Have you ever lied about anything *serious?*" Note that the question is still ambiguous because just what is meant by "serious" has not been defined for the examinee. It remains a "control" question.

Let us consider the question, "Have you ever committed a crime for which you have not been caught?" Here, the scope of the term "crime" is not clearly defined. Technically speaking, jaywalking, public urination, underage drinking, and unauthorized downloading of copyrighted music from the Internet are crimes. This is a "control" question.

However, this question can be transformed from a "control" to a relevant question with a simple change in wording. "Have you ever committed an undetected *serious* crime?" is a standard relevant question asked by U.S. Secret Service polygraphers in pre-employment screening. During the "pre-test" interview, the examiner carefully explains exactly what crimes the Secret Service considers to be "serious" for the purposes of this question. This list includes murder, robbery, rape, arson, grand larceny, etc. The examiner may note that the question does not include the possession and use of false identification for purposes of underage alcohol consumption, but

that it does include the sale of such counterfeit documents. It is not expected that most applicants have committed a serious undetected crime, and the question is not ambiguous. It is a relevant question.

"Read" the Polygrapher

The polygrapher's demeanor often provides helpful insight into the nature of each question. Remember, upon introducing "control" questions, the polygrapher will usually attempt to steer you into a denial. For example, he might tell you that his agency has absolutely no tolerance for academic dishonesty before asking, "Did *you* ever cheat in school?"

A common tactic used during the "pre-test" phase to manipulate the subject into a denial goes as follows:

The polygrapher introduces the control question, for example,"Have you ever told a lie?"

The examinee responds affirmatively and explains some minor instance.

The polygrapher rewords the question to, "Besides what you have told me, have you ever told a lie?"

The examinee responds affirmatively yet again and makes another minor admission.

After a few cycles of this, the polygrapher launches into a little speech on the importance of honesty and explain what a dim view his agency takes to lying. He then asks the leading question, "You haven't lied about anything else now, *have you?*"

Another tip for "reading" your polygrapher is this: if you ask for clarification regarding what is meant by a question, does he provide a helpful explanation? If he sidesteps your question with an evasive answer like, "It means whatever you think it means," then it is a good bet that the question is a "control" question.

Has the question been prefaced with a modifier? Since most subjects normally make some minor admissions to the "control" questions

during the pre-test interview, they are frequently rephrased with a modifier like "other than what you have told me."

Don't fall into the trap, however, of thinking that every question that is modified in this manner is a "control" question. For example, suppose you are being polygraphed for employment with an agency whose stated policy is that marijuana use up to 15 times is acceptable but that any usage in excess thereof is an automatic disqualifier. If you admit having used marijuana six times, one of your *relevant* questions may well be, "Besides what you told me, have you ever used any illegal drugs?" The key point here is that while modifiers such as "besides" often accompany a "control" question, the mere presence of such a modifier does not guarantee that a question is a "control" question.

Want to Get Anything Off Your Chest? No!

After he has reviewed with you the questions he'll be asking during the "in-test" phase, your polygrapher will give you the "opportunity" to get anything off your chest that may be "bothering" you. Don't fall for it. Make no admissions.

Chart-Recording Manipulations

We will discuss here manipulations to affect the breathing and cardio channels of the polygraph instrument. These manipulations may also affect the electrodermal channel.

Breathing Countermeasures

Your polygrapher will attach the polygraph's electrodes to your ring and index fingers, the inflatable pressure cuff to your arm (or perhaps a transducer set to your thumb instead), and place one pneumograph tube around your chest and the other around your abdomen. From the moment the pneumograph tubes go on, you need to be concerned about your breathing. Many people are falsely

accused of attempting to "beat the box" because they (in the polygrapher's opinion) breathe too deeply or too slowly or both.

Your polygrapher will be happy if your breathing rate is between about 15 and 30 breaths (in and out) per minute, or 2–4 seconds each. Pick a breathing rate within this range that is comfortable for you and take relatively shallow—not deep—breaths. Each breath should be about the same length. Practice until it becomes second nature.

You should maintain this baseline breathing pattern until the pneumograph tubes are removed from your chest and abdomen. Don't relax and change your breathing pattern as soon as the last question has been asked! The polygraph is still recording your breathing, and your polygrapher may let the instrument continue recording your physiological responses for a minute or so after asking his last question in order to see if your breathing pattern changes. He may interpret any change after the last question is asked as an indication that you were employing countermeasures.

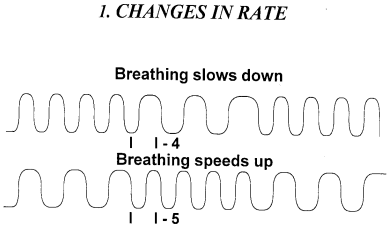
Your polygrapher will ask his series of questions, with a pause of about 20–30 seconds between questions. You will have already mentally categorized the questions he reviewed with you as "control," relevant, or irrelevant during the "pre-test" interview. There will be no surprises. *If you cannot decide whether a question is a "control" question, then you should err on the side of caution and assume that it is relevant.*

As soon as you recognize that the question your polygrapher is asking is a "control" question, or, alternatively, immediately after answering the question, change your baseline breathing pattern to produce one of the twelve pneumograph reactions that DoDPI considers to be significant in chart scoring: The change should last about 5–20 seconds, ending before the asking of the next question.

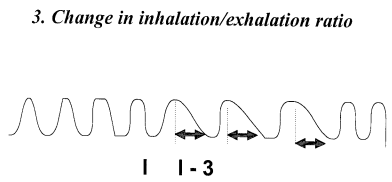
Note: *None of these manipulations call for deep breathing, that is, filling your lungs to full or nearly full capacity. Such deep breathing is*

likely to be interpreted by your polygrapher as an attempted countermeasure.

The first two scorable reactions, a respiration rate decrease or increase, may be produced by simply breathing more slowly or more rapidly, as illustrated in the following DoDPI graphic[22]:



The third scorable reaction, a change in inhalation/exhalation ratio, may be effected by exhaling either more slowly or more rapidly than inhaling. The DoDPI graphic below illustrates slowed exhalation as compared with inhalation:



The fourth scorable reaction, an increase in amplitude, is effected by taking deeper (but not deep) and then progressively shallower breaths before returning to one's baseline breathing pattern:

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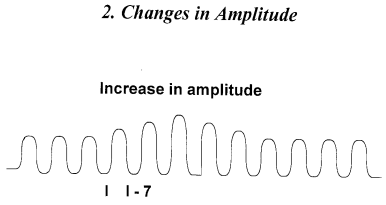
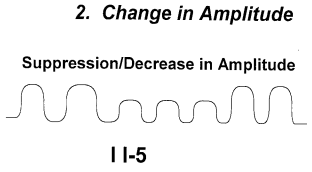
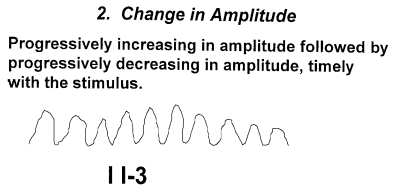
[22]All illustrations of respiratory reactions presented here are taken from the DoDPI document, "Test Data Analysis."



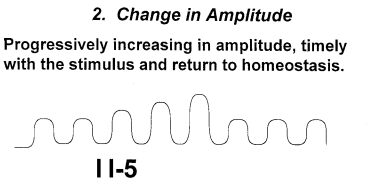
The fifth scorable reaction, a decrease in amplitude (also known as suppression), may be produced by taking shallower breaths and then returning to one's baseline breathing pattern, as illustrated below:



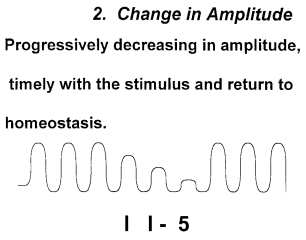
The sixth scorable reaction is for all intents and purposes the same as the fourth, and may similarly be effected by taking deeper (but again, not deep) and then progressively shallower breaths before returning to one's baseline breathing pattern:



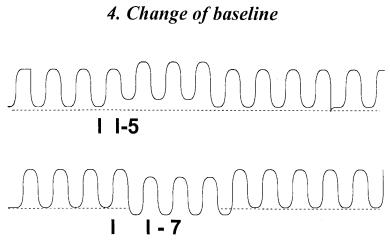
The seventh scorable reaction is also like the fourth and sixth, except that the return to one's baseline breathing pattern need not be gradual:



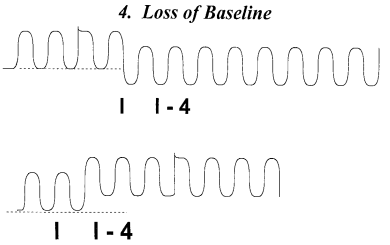
The eighth scorable reaction is similar to the fifth, except that breathing becomes shallower gradually before returning to one's baseline breathing pattern:



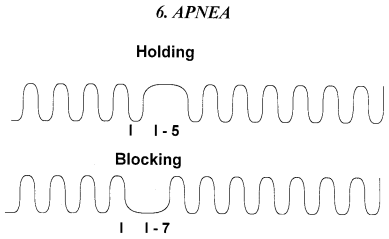
The ninth scorable reaction is a temporary change of baseline breathing pattern. A temporary rise can be created by inhaling more deeply and then continuing your baseline breathing pattern while retaining an extra volume of air in your lungs. Exhale the extra volume of air to return to your original baseline. Similarly, a temporary drop in baseline can be produced by breathing out more heavily and then continuing your baseline breathing pattern with a reduced volume of air in your lungs. Breathe in the lost volume of air to return to your original baseline. The following illustration shows both a rise and a drop in baseline:



The tenth scorable reaction is a permanent loss of baseline. It may be produced in the same manner as described for the ninth scorable reaction, with the exception that one does not return to one's original baseline, but assumes a new one:



The eleventh scorable reaction is called "holding," and is effected by holding one's breath after breathing in. Although DoDPI considers this to be a scorable reaction, polygrapher James Allen Matte cautions that holding is usually voluntary and should be taken by the polygrapher as a suspected countermeasure if it occurs during the asking of a "control" question (Matte 1996, p. 374) Thus, it would be safer to avoid holding in favor of the twelfth scorable reaction, blocking, which is achieved by holding one's breath *after* breathing out:



Cardio Countermeasures

In addition to the breathing countermeasures described above, you can enhance your cardio (heart rate and blood pressure) response to the "control" questions with the following, additional countermeasures. These countermeasures may also produce an associated electrodermal response:

1. Constrict your anal sphincter muscle (anal pucker). (Lykken, 1998; Williams, 1996) Begin either as soon as you recognize a question as a "control" question, or right after answering the "control" question, and continue for 8–20 seconds, but no longer than the beginning of the next question. The effort should be pronounced but sub-maximal—a little goes a long way. Make sure that it is only your anal sphincter that you contract. Be sure not to tighten your legs at the same time—there may be a strain gauge placed under the front legs of your chair. (Such strain gauges are included with many late-model computerized polygraphs, and are intended to alert the polygrapher to such countermeasures as the tack in the shoe, or pressing one's toes to the floor. Those countermeasures are to be avoided.) Be sure not to flex your buttocks—some polygraph chairs may be equipped with sensors in the seat cushion. Be sure to constrict only the internal anal sphincter muscle. By sitting on your hand while you practice this coun-

termeasure, you will be able to feel whether you are flexing other, external muscles.

2. Bite down slowly on the side of your tongue. (Honts *et al.,* 1985, 1994) Bite down hard enough to produce moderate pain, but don't cut your tongue. Again, begin either as soon as you recognize a question as a "control" question, or right after answering the "control" question, and continue for 8–20 seconds, but no longer than the beginning of the next question. If you start biting as soon as you recognize the "control" question, you will of course pause long enough to answer the question, and then resume the tongue bite. Be subtle, your polygrapher mustn't notice. You can practice this "pain countermeasure" in front of a mirror.
3. Think exciting thoughts, (e.g., falling off a cliff, an encounter with a rattlesnake, being raped at knifepoint—use your imagination). You want to think of something that will make your heart race and cause an increase in blood pressure. Thoughts that require focused attention, such as quickly determining the square root of 223 in your head, etc., are also effective. Again, begin either as soon as you recognize a "control" question, or right after answering the "control" question, and continue for 8–20 seconds, but no longer than the beginning of the next question.

Countermeasures and the "Stim Test"

Don't try to mystify your polygrapher by producing a reaction to a card or number other than the one you actually picked or wrote during the "stim test" (see pp. 73–75). Instead, by employing the breathing and cardio countermeasures you've learned to augment your physiological responses as you answer the question about the number or card *you actually picked,* you can make your polygrapher think that you really *are* a "screamer," and he won't be surprised when you react strongly to the "control" questions.

Practice Makes Perfect

You should practice both the breathing and cardio countermeasures until you can employ them at will and with confidence. It would be wise to re-read Chapters 3 and 4 of this book several times.

What About the Relevant Questions?

You may naturally be upset at being asked accusatory questions such as "Did you leak that memo?" or "Have you committed an act of espionage against the United States?" Don't worry. Just maintain your baseline breathing pattern. Your mind should be more at ease knowing that you—and not your polygrapher—are in control. Even if you produce a slight response when asked the accusatory relevant questions, you will have artificially produced stronger responses while answering the "control" questions.

Countermeasures and the Relevant/Irrelevant "Test"

If you encounter a Relevant/Irrelevant "test" (see pp. 100–103) instead of the much more common "Control" Question "Test," don't worry! Because the polygrapher typically places more reliance on his subjective impression of the subject's honesty with this technique, the behavioral countermeasures discussed earlier in this chapter will be of inreased importance, and combined with a lack of any substantive admissions on your part, may well be enough to get you through the "test."

In addition, recall that with this technique polygapraphers look for "consistent, specific, and significant" responses to a particular relevant question over multiple charts. You can prevent such a pattern from occurring by simply producing responses to two differing groups of two relevant questions within the different chart presentations.

It's Not Over Till It's Over

Remember to continue your baseline breathing pattern until the pneumograph tubes are removed from your chest and abdomen.

If you have correctly identified the "control" questions and applied the countermeasures described above, you should have produced a strongly "truthful" chart.

To Explain or Not to Explain Responses to Relevant Questions

At some point in the "in-test" phase, your polygrapher may turn off the polygraph instrument, sit down in front of you, tell you that a question is troubling you, and ask you if there is anything you would like to get off your chest before a repeat polygraph chart is done. This is a commonly-used bluff. Don't fall for it.

If you have agreed against our advice to submit to a polygraph interrogation in a criminal investigation, then under no circumstances should you try to explain why you might have reacted to a question. Remember that any minor admissions you make at this point are likely to be blown out of proportion. Maintain your truthfulness politely, but firmly. "I told you the truth, nothing is bothering me about that question."

If, however, you have submitted to a pre-employment or post-employment polygraph screening interrogation, then you should have some explanation prepared in advance that cannot be turned into a damaging admission, just in case your polygrapher tells you that one of the relevant questions really seems to bother you. If you refuse to offer any explanation at all as to why you might have reacted to a certain relevant question, then your polygrapher might interpret it as stonewalling and use his discretion to render an adverse opinion. Thus, you should appear concerned and puzzled as you offer a pre-planned explanation. Some examples of explanations that cannot be twisted into damaging admissions include:

- "All I can think of is that I've always felt guilty when I'm accused of something. When I was a kid, if my Dad asked me if I had done something bad or a teacher accused me of copying someone else's homework, even if I hadn't, I'd get upset, and I just knew I looked guilty to them."
- "The only thing that comes to mind is that I'm in the middle of reading a Tom Clancy novel which involves espionage/drug dealing." (If you use an explanation like this, be prepared to name the book, and be sure you're familiar with the story, just in case.)
- "I recently heard that an old childhood friend of mine died of a drug overdose. I hadn't seen him in years. I never would have imagined that he would grow up to become a drug abuser. I couldn't help thinking of him when you asked me the question about drug use."

You want to make certain that your "throw-away" explanation does not invite further interrogation. For example, if the last explanation in the above list referred simply to "a friend" rather than to "an old childhood friend" whom you hadn't seen in years, it might invite interrogation about the kind of people with whom you associate.

Don't memorize and repeat any of the above explanations word for word! Again, polygraphers are reading this book, too, and if you recite any of the explanations provided here verbatim, your polygrapher may catch on. Instead, have a couple explanations based on your own life experience handy before you go into your polygraph interrogation. If all goes well, you'll never have to offer your explanations as to why you might have reacted to a relevant question.

If, however, your polygrapher remains unsatisfied after you have offered your explanation as to why you might have reacted to one of the relevant questions, then you should offer no further explanation. "I told you the truth. I can't think of any other reason why I might have reacted when you asked that question."

Don't Stay for a "Post-Test" Interrogation

After you've gone through all the question repetitions, your polygrapher may attempt to subject you to a "post-test" interrogation. He may tell you that your charts show deception (even if, based on polygraph doctrine, they don't), and that he can't help you unless you admit to whatever it is that was bothering you. Again, don't fall for this bluff. Your polygrapher is not there to "help" you. The sole purpose of the "post-test" interrogation is to obtain a confession or damaging admission. If your polygrapher attempts a "post-test" interrogation, it is a good sign that you have already "failed."

You have nothing to gain by remaining for this interrogation. Politely, but firmly, terminate the interrogation, and leave. "I told you the truth, but you say I'm lying. I don't understand. I have nothing more to say to you. Good day."

In terminating the interrogation, be sure to avoid the following mistake, which Reid (1982) held was the surest behavioral sign of deception:

> The most significant behavior symptom that is indicative of guilt is after a subject has been accused as guilty during an interrogation and denies his implication, but while being dismissed turns to the examiner, shakes his hand and says, "sorry to have cause you so much trouble?"

Can't Polygraphers Detect Countermeasures?

Although polygraphers frequently claim that any experienced examiner can easily detect countermeasure attempts, peer-reviewed research suggests that they cannot detect the kinds of countermeasures described in this book at better than chance levels of accuracy. (Honts et al. 1985, 1994) Indeed, in its 30-year history, *Polygraph,* the quarterly publication of the American Polygraph Association, has not published a single article explaining how polygraphers can detect such countermeasures! In January 2002, Dr. Drew C. Richardson, the FBI's recently retired senior scientific expert on polygra-

phy, reiterated a challenge to the polygraph community to prove its claimed ability to detect polygraph countermeasures. At the time of writing (February 2002) Dr. Richardson's challenge has not been answered.[23]

What If I'm Accused of Employing Countermeasures?

The countermeasures we've discussed produce physiological responses that are indistinguishable from those that polygraphers believe to be associated with truth-telling concerning the relevant issues. But if the polygrapher (or his boss) was already suspicious of you before the polygraph interrogation, he may remain suspicious even after you produce a "truthful" chart. He may accuse you of having employed countermeasures, even though he can't prove it.

This situation may be more likely if you have "failed" a polygraph interrogation in the past. Perhaps you are reading this book because you told the truth but "failed," and you want to make sure that you are not a false positive a second time. Your polygrapher will be biased against you based on the earlier polygraph chart reading, and may well be suspicious when you pass your second polygraph interrogation with flying colors.

Your polygrapher might try the following bluff in an attempt to get you to admit to employing countermeasures. He'll turn off the polygraph, disconnect the pneumograph tubes, arm cuff, and electrodes, pull up a chair knee-to-knee with you, look you dead in the eye, and in a calm voice declare, "I know what you're doing."(London & Krapohl, 1999) Alternatively, your polygrapher may appear angry or offended as he delivers his bluff. Don't fall for it!

If your polygrapher attempts this bluff with you, you should appear to be confused, "I don't understand. I told you the truth. What's the problem?" Remember the first rule we discussed at the beginning of this chapter: make no admissions! And the most damaging ad-

[23]The number of days this challenge has gone without takers is updated daily on the AntiPolygraph.org home page.

mission you could possibly make (in your polygrapher's mind) is that you employed countermeasures.

An Anecdote

During the Department of Energy's public hearings on polygraph policy (U.S. Department of Energy, 1999b), Dr. Gordon H. Barland, who before his retirement was in charge of countermeasures training at DoDPI, attempted to convince his audience of scientists and engineers that nowadays, polygraphers are able to detect countermeasures such as those we've discussed in this book:

> We now are training our examiners how to detect people who are trying to manipulate their results, and we have learned a lot about how people go about doing that.
>
> Earlier this year we published a case where Doug Williams[24] had given information to a person on how to beat the polygraph, but he was not successful.[25]

But Dr. Barland forgot to mention that the person "was not successful" because he *admitted* to having employed polygraph countermeasures! Had he not made this admission, he would have "passed."

DoDPI itself uses Doug Williams' manual, "How to Sting the Polygraph" in its countermeasures training. (Mr. Williams has granted DoDPI permission to make copies free of charge.) No one at DoDPI has come up with a reliable method for detecting these countermeasures, and Dr. Barland's misleading statement before an audience of top-notch atomic scientists and engineers is testimony to the polygraph community's consternation over polygraph countermeasures.

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[24]Doug Williams is a former police polygrapher who has been teaching people how to produce "truthful" polygraph charts for more than twenty years. The method he teaches in his tutorial, "How to Sting the Polygraph" (Williams, 1996) is consistent with what you've read in this book.

[25]London & Krapohl, 1999.

If DoDPI had indeed developed a reliable method for detecting polygraph countermeasures, one would expect that instead of discouraging countermeasure attempts, DoDPI would keep mum and give special scrutiny to those caught employing countermeasures. Instead, Dr. Barland tried to scare his audience with misleading information.

Keep Notes!

As soon as your polygraph interrogation is over, take detailed notes for your personal records. You might take a portable tape recorder with you for this purpose and leave it in your car, briefcase, or purse. Often, you will not be told whether you passed or failed before you leave. If you have employed the methods described in this book, you should have handily passed. But you may have made a mistake. Or your polygrapher may have decided even before asking his first question that you are not going to pass. In the event you are later told you failed or that your results were inconclusive, your contemporaneous notes will be of great importance.

CHAPTER FIVE

Grievance Procedures

Congress shall make no law respecting an establishment of religion or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peacefully to assemble, and to petition the Government for a redress of grievances.

—United States Constitution, Amendment I

…when we assumed the soldier we did not lay aside the citizen.

—George Washington

Speak truth to power.

—Old Jewish tradition

IF YOU have read this book prior to your polygraph interrogation, you should not need to contest your polygraph results. However, if your first exposure to this book comes after you have already submitted to and "failed" a polygraph "test," read this section carefully. If your polygrapher accuses you of being deceptive, there are several steps you can take to maximize the utility of what little protest process currently exists.

Start Keeping Records

Immediately after your polygraph interrogation ends, start to compile a detailed "Memorandum for Record." You may initially make handwritten notes or use a tape recorder, but you are better off copying these to a word processor file if you have a computer: it's easier to add to and edit this way. Start off with the place you took the exam, the examiner's name, the date, and the questions you were asked. Write down every detail you can remember about the polygraph "test"—no matter how insignificant it may seem at the time. Begin with the questions you were asked, and which ones the polygrapher

accused you of being deceptive on. Also, be sure to include any derogatory comments made by the examiner, questionable and/or abusive tactics, etc. Be sure to start this memo the day of the exam—not the next morning when you may have forgotten details. Keep this document nearby so that you can add to it during the following days when you may recall details that slipped your mind. Having an accurate record will be crucial to almost anything you do in attempting to clear your name.

Write a Letter of Protest

The next step is to send a letter to the Director of the agency for which you took the exam maintaining your innocence and requesting a "re-test." This letter, like *any* further correspondence you may have with the agency *must* be sent out by *certified mail, return receipt requested*. These provisions amount to substantial proof that your letter was sent and received. Many agencies, especially federal ones, tend not to respond to letters from applicants who have failed the polygraph. Write again if you do not receive a timely reply.

The following are the names and addresses of the directors of the three federal agencies most known for rejections based on polygraph exams, and are current as of February 2002:

Drug Enforcement Agency

MR. ASA HUTCHINSON
ADMINISTRATOR
DRUG ENFORCEMENT AGENCY
700 ARMY NAVY DRIVE
ARLINGTON VA 22202

Federal Bureau of Investigation

MR. ROBERT S. MUELLER III
DIRECTOR
FEDERAL BUREAU OF INVESTIGATION
J. EDGAR HOOVER BUILDING
935 PENNSYLVANIA AVENUE, NW
WASHINGTON DC 20535-0001

United States Secret Service

MR. BRIAN L. STAFFORD
DIRECTOR
US SECRET SERVICE
950 H STREET NW
WASHINGTON DC 20001

Report Abusive Behavior

If your polygrapher exhibits abusive behavior or inappropriate language, file a report with the appropriate office. For example, in the case of the FBI, you can file a report with the Bureau's Office of Professional Responsibility (OPR) or with the Office of the Inspector General at the Department of Justice, addresses for which are provided below. These venues are particularly powerful because these groups must investigate—they may not simply dismiss a complaint out of hand.

OFFICE OF PROFESSIONAL RESPONSIBILITY
FBI HEADQUARTERS
J. EDGAR HOOVER BUILDING, ROOM 11861
925 PENNSYLVANIA AVENUE NW
WASHINGTON DC 20535
(202) 324-3370

US DEPARTMENT OF JUSTICE
OFFICE OF THE INSPECTOR GENERAL
950 PENNSYLVANIA AVENUE NW, SUITE 4706
WASHINGTON DC 20530-0001

File a Privacy Act Request

If your polygraph exam was for a position with the federal government, it is wise to request any records that the agency you took the exam for is keeping under your name. These records may now contain erroneous information (such as exaggerated or even fabricated admissions) that it is in your interest to learn about and attempt to correct. It is important that you fight the urge to avoid thinking about what has happened and *file your request promptly*. If you delay, the agency may later claim that the charts, supporting documentation, and any audio- or videotape (everything, that is, save for the polygrapher's opinion that you were deceptive) has been destroyed as a routine matter.

The Privacy Act of 1974 (5 U.S.C. 552a) provides that any person has the right to request access to federal agency records or information about him- or herself. All agencies of the United States Government are required to disclose records upon receiving a written request for them, except for those records that are exempted by statute. More information regarding the Privacy Act may be found on the Department of Justice website at:

`http://www.usdoj.gov/04foia/04_7_1.html`

Keep in mind that the Privacy Act applies only to federal agencies. If your polygraph was with a state or local agency, check your local laws. Each state has its own public access laws that should be consulted.

Privacy Act requests must be in writing (once again, send everything certified mail, return receipt). See Appendix C for a sample Privacy Act request. Although the Freedom of Information Act (all Privacy

Act requests are automatically handled as Freedom of Information Act requests, also) mandates that a government agency must make a determination on a request within 20 working days of receipt (which may be extended by an additional 10 working days), many agencies routinely fail to comply with the requirements of the FOIA. Agencies frequently take months or even years to make a determination on requests for materials regarding polygraph examinations. Sometimes, agencies never respond at all. You may wish to request the help of your congressman or senator if you fail to receive the requested information after the statutory period lapses. Indeed, you may receive a more prompt response if you submit your Privacy Act request through an attorney, or through one of your elected representatives, to begin with. These requests are known to be taken far more seriously than requests from "ordinary" citizens.

Here are some general guidelines for Privacy Act requests, based on information from the U.S. Secret Service web site:

1. a request for records shall be made in writing, signed by the person making the request, and stating that it is made pursuant to the Privacy Act, 5 U.S.C. 552a;
2. the request must be addressed to the component that maintains the record. Both the envelope and the request itself should be clearly marked "Privacy Act Request";
3. the request must reasonably describe the records;
4. the request must set forth an address where the person making the request wants to be notified about whether or not the request will be granted;
5. the request must state whether the requester wishes to inspect the records or desires to have a copy made and furnished without first inspecting them;

Below are the addresses for Privacy Act requests to the three federal agencies best known for rejecting applicants based on false positive polygraph results and the Department of Energy. Web links for further information are also included. This information is current as of February 2002.

Department of Energy

http://www.hr.doe.gov/es/foia.htm

Requests for DOE records should be sent to:

FOIA OFFICER
US DEPARTMENT OF ENERGY
1000 INDEPENDENCE AVENUE SW
WASHINGTON DC 20585

Drug Enforcement Agency

http://www.usdoj.gov/04foia/index.html

Requests for DEA records should be sent to:

KATHERINE L. MYRICK, CHIEF
FREEDOM OF INFORMATION OPERATIONS UNIT
DRUG ENFORCEMENT ADMINISTRATION
DEPARTMENT OF JUSTICE
700 ARMY NAVY DRIVE
ARLINGTON VA 22202
(202) 307-7596

Federal Bureau of Investigation

http://www.usdoj.gov/04foia/index.html

Requests for FBI records should be sent to:

JOHN M. KELSO, JR., CHIEF
FOIPA SECTION
FEDERAL BUREAU OF INVESTIGATION
935 PENNSYLVANIA AVENUE, NW
DEPARTMENT OF JUSTICE
WASHINGTON DC 20535-0001
(202) 324-5520

United States Secret Service

`http://www.treas.gov/usss/foia.html`

Requests for Secret Service records should be sent to:

U.S. SECRET SERVICE
FREEDOM OF INFORMATION ACT REQUEST
950 H STREET, NW
SUITE 3000
WASHINGTON DC 20001

Keep in mind…

Describing the Records: Describe your records as broadly as possible to prevent the agency from withholding something because you were too specific in your descriptions. A good idea is to request any and all information about yourself including but not limited to:

1. Your application for employment with the agency;
2. Oral interview evaluation notes and ranking;
3. Polygraph charts and audio/video tapes (if the examination was taped);
4. Polygraph examiner written reports and evaluations;
5. All other documentation regarding your application;
6. All information maintained in [the agency's] files about you;
7. All information that [the agency] may have entered into a database about you, regardless of whether or not that database is directly maintained by [the agency].

See Appendix C for a sample Privacy Act request letter.

Notarization: your request *does not* need to be notarized if you include a declaration under penalty of perjury that the details of your request are true and correct.

Write Your Elected Representatives

Write your congressman and senators, explaining what happened and how you were treated. Inform them of the AntiPolygraph.org and StopPolygraph.com web sites. Urge them to introduce legislation removing the governmental exemption to the 1988 Employee Polygraph Protection Act. To find the mailing addresses for your representatives, go to:

`http://www.house.gov`

`http://www.senate.gov`

Also, write Senator Patrick J. Leahy and the members of the Senate Committee on the Judiciary. Senator Leahy is the chairman of this committee, which is responsible for the oversight of federal law enforcement agencies.

Contact information for members of this key committee may be found at:

`http://www.senate.gov/~judiciary/members.htm`

In addition, write to your state legislators, and urge them to ban polygraph screening at the state level. The Minnesota polygraph statute provided in Appendix D a good model for other states to follow.

Investigate Legal Action

Currently, little recourse is available to false positive victims of pre-employment polygraph exams. Governmental agencies are exempt from the 1988 Employee Polygraph Protection Act (EPPA). Few, if any, laws regulate polygraphers and their conduct. However, as of February 2002, a noteworthy legal challenge to pre-employment polygraph screening is pending.

On 15 March 2000, noted Washington, DC attorney Mark S. Zaid filed a lawsuit against the DEA, FBI, and Secret Service in Federal District Court on behalf of applicants who were rejected solely on

the basis of polygraph results. (Zaid, 2000) This lawsuit is based on 5th amendment grounds, arguing that the applicants were denied due process. For further information about the lawsuit, contact Mr. Zaid at <ZaidMS@aol.com>.

Post Your Experience on the Internet

Exercise your 1st Amendment right to free speech by publicly exposing polygraph waste, fraud, and abuse. Post an account of your experience on-line at AntiPolygraph.org or StopPolygraph.com. Your silence only plays into the hands of those who have abused you. The webmasters of these non-profit sites are polygraph victims themselves, and are eager to post the accounts of others who have been wronged because of our government's reliance on unreliable polygraphy. They are willing to post your story anonymously if you so desire.

Afterword

The whole process smacks of 20th century witchcraft…

—Senator Sam J. Ervin, Jr.

In the preceding chapters, you have seen that polygraphy is not science, that it instead depends on trickery, that it is biased against the truthful, and that deceptive persons can and have easily defeated it through countermeasures. Our reliance on unreliable polygraphy is a danger to our national security.

What is to be done about this danger? The answer is simple: *polygraphy must be abolished.* Although Congress banned most compulsory polygraph "testing" in the private sector through the Employee Polygraph Protection Act (EPPA) in 1988, our Government's own polygraphers continue to operate with impunity.

On the state level, Minnesota's antipolygraph law (Appendix D) is an excellent model for other states to follow. This legislation prevents *any* employer (including state and local government entities) from even *requesting* that an employee or candidate for employment submit to *any* "test" purported to determine truth or deception (this covers the polygraph, CVSA, and any new "lie detection" methods that may crop up). Even if an employee requests such a "test," the employer must inform him/her that the "test" is voluntary. Moreover, the law establishes *criminal* as well as civil penalties for those who violate it.

On the federal level, the 1988 EPPA contains a fatal flaw: a carte blanche exemption for Government. Congress must enact a new EPPA *with no exemptions.*

Our legislators should not stop at preventing future harm. They must also act to repair the harm that has already been done. Agencies that have relied on pseudoscientific polygraphy must be compelled to expunge from Government records all derogatory "information" developed through polygraphy.

Candidates for employment whose applications were terminated as a result of polygraph "testing" should have their applications reinstated. To safeguard both our nation and the reputations of its citizens, we must rely upon real background investigations—not the voodoo science of polygraphy.

Let us leave this 20th century witchcraft in the 20th century. *Polygraphy must be abolished.* ❁

APPENDIX A

Modified General Question "Test"

The Modified General Question "Test" (MGQT) is a common probable-lie "Control" Question "Test" format. The examiner compares your reactions to the "control" or comparison questions with your reactions to the relevant questions. Irrelevant questions serve as buffers and are not scored. Norman Ansley, former chief of the NSA's polygraph unit, in an article published in the American Polygraph Association quarterly, *Polygraph,* (Ansley, 1998a) publicly disclosed the precise question sequence of both FBI's and DoDPI's versions of the MGQT.

Those who may wish to employ countermeasures to protect themselves against a false positive outcome should be aware that knowing the question order is no substitute for knowing how to recognize the different types of questions (relevant, irrelevant, and "control") on the fly.

MODIFIED GENERAL QUESTION TECHNIQUE (MGQT)
Federal Bureau of Investigation, 1985

1. Irrelevant
2. Irrelevant
3. Relevant (Did you participate …)
4. Irrelevant
5. Relevant (Did you …)
6. Comparison question
7. Irrelevant
8. Evidence connecting relevant (Is that you in the photograph?)
9. Relevant (Are you lying to me about anything …)
10. Comparison question

Mixed series for third chart is: 4-1-9-6-2-3-10-5-6-8-10.

MODIFIED GENERAL QUESTION TECHNIQUE SUMMARY
(MGQT TEST)
DoD Polygraph Institute, 1989

1. Irrelevant
2. Irrelevant
3. Relevant (plan, help, participate)
4. Irrelevant
5. Relevant (Did you …)
6. Comparison question
7. Irrelevant
8. Evidence connecting relevant
9. Relevant (Do you know who, knowledge …)
10. Comparison question

Mixed series for third chart: 4-1-5-6-3-10-9-6-8-10.

The CIA also uses the MGQT. London & Krapohl (1999) describe the pre-employment polygraph interrogation of a high-priority applicant for an "undisclosed" federal agency, known to be the CIA. The polygraph format used is identified in the article as the MGQT. The article provides charts for the 1st and 2nd question series, the order of which is:

1. Irrelevant
2. Irrelevant
3. Relevant
4. Irrelevant
5. Relevant
6. Comparison
7. Irrelevant
8. Relevant
9. Comparison

Note that in all three variations of the MGQT (FBI, DoDPI, and CIA), each "control" or comparison question immediately follows a relevant question.

APPENDIX B

Zone Comparison "Test"

The Zone Comparison "Test" (ZCT), alternatively known as the Zone of Comparison "Test" (ZOC), is the polygraph technique most commonly used for polygraph interrogations concerning a single issue, and it is used especially in criminal investigations. For example, in a polygraph dragnet to find out who leaked information to the press, a variant of the ZCT would likely be used.

As noted in Appendix A with regard to the Modified General Question Test, those planning to use countermeasures to protect themselves against a false positive outcome need to be able to recognize the different types of questions (relevant, irrelevant, and "control" on the fly rather than attempting to memorize the orders in which questions may be asked.

The following information about the Department of Defense Polygraph Institute ZCT is taken from former NSA polygraph program director Norman Ansley's article, "The Zone Comparison Test" (Ansley, 1998b).

Zone Comparison Test Question Sequence
Department of Defense Polygraph Institute 1991

1. Irrelevant. Are the lights on in this room? Yes.
2. Sacrifice Relevant. Regarding that stolen money, do you intend to answer truthfully each question about that? Yes.
3. Symptomatic. Are you completely convinced that I will not ask you a question on this test that has not already been reviewed? Yes.
4. Control. Prior to 1990, did you ever steal from someone who trusted you? No.
5. Strong relevant. Did you steal any of that money? No.
   6.Control. Prior to coming to Alabama, did you ever steal anything? No.
7. Relevant. Did you steal any of that money from the footlocker? No.

8. Symptomatic. Is there something else you are afraid I will ask you a question about, even though I have told you I would not? No.
9. Control. Prior to this year, did you ever steal anything from an employer? No.
10. Weak Relevant. Do you know where any of that stolen money is now? No.

SKY - Optional

11. Suspect. Do you suspect anyone in particular of stealing any of that money? No.
12. Knowledge. Do you know for sure who stole any of that money? No.
13. You. Did you steal any of that money? No.

Information on the following two varieties of the ZCT is taken from chapter 11 of James Allen Matte's *Forensic Psychophysiology Using the Polygraph.*

DoDPI Bi-Spot Zone Comparison Test Structure

1. Irrelevant. Is today Monday?
2. Sacrifice Relevant. Regarding the incident you reported, do you intend to answer truthfully each question about that?
3. Symptomatic. Are you completely convinced that I will not ask you a question on this test that has not already been reviewed?
4. Non-Current Exclusive Control. Prior to 1993, did you ever lie to anyone in a position of authority?
5. Relevant. Did you lie about that man forcing you to have sexual intercourse with him?
6. Non-Current Exclusive Control. Prior to this year, did you ever lie about something you are ashamed of?
7. Relevant. Did you lie about that man forcing you to have sexual intercourse with him in his apartment?
8. Non-Current Exclusive Control. Prior to 1990, did you ever lie to get out of trouble?
9. Symptomatic. Is there something else you are afraid I will ask you a question about, even though I have told you I would not?

Utah Zone Comparison Technique

1. Irrelevant
2. Sacrifice Relevant
3. Symptomatic
4. Control
5. Relevant
6. Control
7. Relevant
8. Irrelevant
9. Control
10. Relevant

Matte notes regarding the Utah technique that "at all times relevant test questions responses at each (R) position are compared only with the responses to the previous control question position."

APPENDIX C

Sample Privacy Act Request Letter

[name]
[address]
[telephone number]

Privacy Act Request
[agency name]
[agency address]

Dear Sir or Madam:

Under the Privacy Act (5 USC 552a), I hereby request any and all information about me including but not limited to:

1. My application for employment with the [agency name];
2. Oral interview evaluation notes and ranking;
3. Polygraph charts and audio tapes;
4. Polygraph examiner written reports and evaluations;
5. All other documentation regarding my application;
6. All information maintained in [agency name] files about me;
7. All information that [agency name] may have entered into a database about me, regardless of whether or not that database is directly maintained by [agency name].

My Social Security number is [social security number].

I declare under penalty of perjury that the foregoing is true and correct. Executed on [date].

Sincerely,

[signature]
[name]

APPENDIX D

Minnesota Polygraph Statute

Chapter 181 Section 75 of the Current Minnesota Statutes (1999 edition) should serve as a model for other states:

> 181.75 Polygraph tests of employees or prospective employees prohibited.
>
> Subdivision 1. Prohibition, penalty. No employer or agent thereof shall directly or indirectly solicit or require a polygraph, voice stress analysis, or any test purporting to test the honesty of any employee or prospective employee. No person shall sell to or interpret for an employer or the employer's agent a test that the person knows has been solicited or required by an employer or agent to test the honesty of an employee or prospective employee. An employer or agent or any person knowingly selling, administering, or interpreting tests in violation of this section is guilty of a misdemeanor. If an employee requests a polygraph test any employer or agent administering the test shall inform the employee that taking the test is voluntary.
>
> Subd. 2. Investigations. The department of labor and industry shall investigate suspected violations of this section. The department may refer any evidence available concerning violations of this section to the county attorney of the appropriate county, who may with or without such reference, institute the appropriate criminal proceedings under this section.
>
> Subd. 3. Injunctive relief. In addition to the penalties provided by law for violation of this section, specifically and generally, whether or not injunctive relief is otherwise provided by law, the courts of this state are vested with jurisdiction to prevent and restrain violations of this section and to require the payment of civil penalties. Whenever it shall appear to the satisfaction of the attorney general that this section has been or is being violated, the attorney general shall be entitled, on behalf of the state, to sue for and have injunctive relief in any court of competent jurisdiction against any such violation or threatened violation without abridging other penalties provided by law.

Subd. 4. Individual remedies. In addition to the remedies otherwise provided by law, any person injured by a violation of this section may bring a civil action to recover any and all damages recoverable at law, together with costs and disbursements, including costs of investigation and reasonable attorney's fees, and receive other equitable relief as determined by the court. The court may, as appropriate, enter a consent judgment or decree without a finding of illegality.

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Anonymous (n.d. a) "The Truth about the Polygraph." Unpublished paper. n.d.

The author is a psychophysiologist who requests that his name be withheld.

Anonymous (n.d. b) "How to Succeed at Pre Employment Polygraph Examinations." A 14-page Adobe Acrobat (PDF) file. Available for sale on-line at:

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Although published anonymously, information provided via the PolygraphPass.com website at the time of purchase suggests that the author of this document is California polygrapher Sherri Dean, and although the document is undated, information stored in the PDF file indicates that it was created on 17 March 2001. This document discusses behavioral countermeasures only.

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> From both a scientific and an applied psychophysiological point of view, the related but different ideas of using physiological measures to differentiate and detect deception are of considerable potential interest. This paper's primary concern is with psychophysiological detection, and it is mainly focussed on the North American "Control" Question "Test" (CQT). The treatment is disinterested in the sense that there is an insistence on employing fundamental terms in a logically consistent way. Following a detailed description of the CQT, and an analysis of it and related psychophysiological deception procedures, it is suggested that, by and large, the North American research psychophysiological community has failed to measure up to the standards of disinterestedness with respect to the psychophysiological detection of deception. Instead it has adopted an *uninterested* perspective, which has allowed the *interested* community of professionals who employ the CQT to hood-wink both themselves and others (including the American Psychological Association) that the CQT is a controversial, but scientifically-based, test for detecting deception. As the most cognate organization, the international psychophysiological research community needs to take a more active and disinterested role in this salient purported application of psychophysiology—the detection of deception.

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> Effects of physical countermeasures on the accuracy of the control question test (CQT) were assessed in two laboratory mock-crime experiments. In Experiment 1, 21 male and 27 female college students were divided into four groups, three of which enacted a mock crime. Two of these guilty groups were trained in the use of a countermeasure, either biting the tongue (pain countermeasure) or pressing the toes against the floor (muscle countermeasure) during the control question zones of the CQT. All countermeasure subjects were given extensive information about the nature of the CQT. No significant effects for countermeasures were found. Experiment 2 assessed the effects of additional training and the concurrent use of both countermeasures with 31 female and 26 male college students who were divided into three groups, two of which enacted a mock crime. Countermeasures subjects produced 47% false negatives as compared to 0% false negatives for Guilty Control subjects. False negative outcomes occurred when subjects were able to produce physiological responses that were larger to control questions than to relevant questions. These results should be qualified by the possibility that the countermeasure task would be considerably more difficult if the relevant questions dealt with a real crime in an actual investigation. Countermeasure detectors, counter-countermeasures, and the implications of these results for the probative value of the CQT are discussed.

In the first experiment, subjects received a maximum of only 15 minutes of training. In the second experiment, a maximum of 30 minutes of training was provided, though subjects "were encouraged to practice their countermeasures at home." Readers of *The Lie Behind the Lie Detector* will have significantly greater time and motivation to prepare themselves.

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> Most of the private-sector uses of the polygraph in the United States were eliminated by the Employee Polygraph Protection Act of 1988. However, polygraph use by the federal government continues to grow unabated. The government uses polygraph tests in criminal investigations and in national security screening. All uses are controversial, but the screening uses are particularly so. In national security screening, polygraph tests are used both in the hiring process and with current employees. Polygraph tests used in the hiring process are without empirical support. Polygraphers' claims of high utility on the basis of development of information during interrogations are suspect because information they develop has never been shown to be predictive of future behavior. Research and analyses conducted on the Department of Defense's Counterintelligence Scope Polygraph (CSP) Screening Program indicate that the polygraph tests used in that program are unable to discriminate truthtellers from deceivers. It appears that the CSP polygraph examinations correctly classify only about 2% of the guilty subjects. Effective countermeasures exacerbate this problem and may render the CSP Screening Program completely ineffective at detecting deception. Politically unpleasant changes that must involve calling a substantial number of innocent subjects deceptive are necessary if national security screening polygraphs are to be applied effectively.

The entire article is available on-line in Adobe Acrobat (PDF) format (1 MB) at:

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> Effects of countermeasures on the control-question polygraph tests were examined in an experiment with 120 Ss recruited from the general community. Ss were given polygraph tests by an examiner who used field techniques. Twenty Ss were innocent, and of the 100 guilty Ss, 80 were trained in the use of either a physical countermeasure (biting the tongue or pressing the toes to the floor) or a mental countermeasure (counting backward by 7) to be applied while control questions were being presented during their examinations. The mental and physical countermeasures were equally effective: Each enabled approximately 50% of the Ss to defeat the polygraph test. The strongest countermeasure effects were observed in the cardiovascular measures. Moreover, the countermeasures were difficult to detect either instrumentally or through observation.

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On-line Resources

American Polygraph Association

Back issues of the APA quarterly *Polygraph* and other APA publications may be ordered from this site:

http://www.polygraph.org

AntiPolygraph.org

AntiPolygraph.org, the publisher of this book, is dedicated to abolishing polygraphy. Find out how you can help. Updated versions of *The Lie Behind the Lie Detector* will be made available here:

http://antipolygraph.org

Federation of American Scientists Polygraph Resource Page

Provides government documents as well as commentary on polygraphy:

http://www.fas.org/sgp/othergov/polygraph/index.html

Polygraph for Screening

This web page maintained by Professor Charles R. Honts of Boise State University provides studies on polygraph screening in Adobe Acrobat (PDF) format:

http://truth.boisestate.edu/raredocuments/screening.html

The Polygraph Place

A website run by polygraphers for polygraphers. Includes a message board, but that board is censored. Posts that openly reject the validity of polygraphy are deleted:

http://www.polygraphplace.com

Society of Professional Scientists and Engineers

Provides links to documents regarding the Department of Energy's polygraph screening program:

`http://www.spse.org`

StopPolygraph.com

Provides documentation of polygraph abuse, especially by the U.S. Secret Service. Updated versions of *The Lie Behind the Lie Detector* will also be made available here:

`http://www.stoppolygraph.com`

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