SCIENCE, LIES, AND CONTROVERSY:

AN EPITAPH FOR THE LIE DETECTOR

David T. Lykken

University of Minnesota

Invited Address to the 1991 Convention of the American Psychological Association, Acknowledging The Award for Distinguished Contribution to Psychology in the Public Interest.

> We honor Washington because he could not tell a lie.
> Mine is a harder case: I can --- but I won't.
> - Mark Twain

In the late 1970s, the Board of Directors of the Society for Psychophysiological Research (SPR) appointed a committee to investigate the scientific status of methods of polygraphic interrogation. Bob Edelberg, the respected and impartial chairperson, was burdened with a committee consisting of two professional polygraphers and two committed critics; this had the predictable result that no position paper could be agreed upon.

In 1980, when I was president of SPR, I recommended to the then Board that they might try again, this time by appointing a committee of respected psychophysiologists who had not yet taken a position on the polygraph test, a committee that would use the advocates and critics as non-voting witnesses.

My view was that SPR's members, as a group, were the best qualified to evaluate the evidence and to offer expert opinion and advice on this socially important issue to those courts, legislatures, or members of the public needing and wanting scientific help. Especially since most of us had been educated largely at public expense, I felt that we all had an obligation, both individually and in our collectives, to contribute in a pro bono spirit whatever expertise we had managed to acquire.

The same argument had been made more than fifteen years earlier by the distinguished psychophysiologist, Richard Sternbach. In a long letter to Science, Sternbach concluded:

> "There is an apparent reluctance among many of us to discuss the moral issues involved [in lie detection].... I urge all my colleagues -- psychologists, psychiatrists, physiologists, and others doing research using the polygraph -- to inject their expert

> opinion into local and national debates on the use of this equipment. It is part of our social responsbility to do so, and the issues involve our area of competence."

Most psychophysiologists turned a deaf ear to Sternbach's plea and the SPR Board, in a similar way, recoiled at once from my suggestion, probably for similar reasons. Polygraphy had proven to be controversial; I myself was controversial, having written critically about polygraphy. They justified what they called their "reticence" (I had a different name for it) by explaining that the proper role of a scientific society excluded taking "advocacy positions." They were afraid to call a spade a spade and so they told me to shovel my suggestion.

The British Psychological Society, I'm glad to report, take a more mature view of the proper role of scientific societies and, some years later, appointed a Working Group to evaluate the use of polygraphic interrogation in criminal investigation and personnel screening. In 1986, the BPS committee published its appraisal. In 1988, the Chair of that Working Group, Anthony Gale, published an edited volume entitled, "The Polygraph Test: Lies, Truth and Science" containing chapters by his five colleagues on the committee supplemented by invited contributions from nine additional authors.

These included one by David Raskin, an academic proponent of polygraphic lie detection and another by Gordon Barland, Chief of Research at the U.S. Army's Polygraph School at Ft. McClellan, Alabama. Their chapters attempted to make a case for the polygraph lie test while the case against the technique was offered in a chapter by myself. Most of the other contributors had not previously been identified as participants in the lie detector controversy but it must be admitted that none of them found much to say in support of the procedure.

Polygraphic lie detection is a form of applied (I would say "mis-applied") psychophysiology and so it was appropriate that the Editor of SPR's journal, *Psychophysiology*, should solicit a review of Gale's book. The review, by Michael Dawson, also a past-president of SPR, duly appeared in 1990. It was a fair review and yet I felt moved to submit a comment in the form of a Letter to the Editor. My comment read, in part, as follows:

> "In his review, Mike Dawson regrets that most of the chapter authors were 'highly critical of polygraph testing' and that their criticisms 'are not offered in a way that would foster further research.' Such unequivocating negativity has contributed, in Dawson's view, to the high 'ratio of heated debate to illuminating light' that he thinks characterizes the literature on lie detection. I would point out that those who insist on light devoid of heat must restrict their intercourse to fireflies. Others, who can tolerate the warmer illumination that has characterized scientific discourse since Galileo, are invited to consider the following remarks."
>
> "In the history of science [I continued], there are no doubt examples of controversies in which, with the wisdom of hindsight, we can see that both sides were mistaken and that greater verisimilitude lay in a third, and sometimes an intermediate,

position. But, while it is true that there are always (at least) two sides to any dispute, it is also true that these often consist in a right side and a wrong one."

"If scientific criticism had always been 'constructive' in Dawson's sense, we might still be (politely) discussing the phlogiston theory of combustion, 'fostering further research' on the immaterial ether, and attempting to 'identify conditions under which errors are more or less likely to occur' in the diagnoses of phrenologists."

"The Working Group of the British Psychological Association... concluded after careful study of the matter that polygraphic lie detection is based upon implausible or false assumptions and that the validity claims of its proponents are unsupported by credible evidence. (British psychologists have always been less squeamish than Americans about scientific controversy. My theory is that residual vestiges of the frontier ethic lead Americans to expect disputes to culminate in punch-outs while the more civilized British gave up dueling much earlier.) Unless and until someone proposes a new method, based on assumptions that can be taken seriously, whereby deception might be directly detected with high accuracy, further research on lie detection will be a waste of scientific resources."

Soon after I submitted this 300-word letter, I received from the editor, Michael Coles, a veteran of that earlier SPR Board of Directors, a 700-word letter of rejection. Coles offered to consider a different letter, however, one devoted to supporting with appropriate historical references my alleged contention that "scientific progress should be characterized by heated debate." But I had not of course argued that "heated debate" is in itself desirable.

I had meant to say that there have often been times in the history of science when it became obvious at last that some once respected view was wrong, moribund, incapable of resuscitation either through "more research" or endless, polite discussion. On these occasions, I contend, it is both necessary and proper to acknowledge the death in plain language. In the case of once lively but now terminal conjectures, I advocate euthanasia as soon as brain death is evident.

One is reminded of the classic Monty Python pet-shop skit in which the manager refuses to acknowledge the uncomfortable but undeniable fact that the customer's parrot, recently purchased, is indeed dead. Scientific conjectures are sometimes wrong, once-heralded paradigms do occasionally prove to be barren, research or treatment techniques are sometimes fruitless, once popular methods of assessment have more than once turned out to lack useful validity. When scientific ideas die or are aborted, the demise should be acknowledged and the remains interred or cremated. Any heat or discomfort that these hygienic measures might entail is wholly incidental, regrettable but perhaps unavoidable -- and surely better than postponing the inevitable through another hot summer.

If the SPR Board had been less "reticent" -- and if those in authority in society had been willing to take scientific advice -- then Richard and Mary Smart, of Milford, Michigan, would not have been taken to jail in handcuffs, their three younger children placed in foster homes. Richard would

not have spent five years in prison, wrongly convicted of raping his 15 year old stepdaughter, whom I'll call Trisha. It is true that Trisha, a classic Cleckley psychopath, was a talented liar and that the jury had been impressed by the tape recording Trisha said she had made when her stepfather "raped" her, a tape with several minutes of uninterpretable grunts and squeals.

When Richard failed the lie detector, the police thought they knew the truth and they terminated their investigation, stopped checking on Trisha's story. Therefore, they failed to discover that Trisha had previously told a boy friend about her plan to get rid of her strict stepfather. The police failed to play the tape for Trisha's biological father who, when he heard it after Richard's conviction, recognized that Trisha had made that tape during one of his visits when he had been roughhousing with his children -- the grunts were his, not Richard's. This and other evidence eventually led the court to grant Richard a new trial, and led the prosecution to decide to drop the case.

After Richard was first arrested, Mary Smart tried to explain to the police that her daughter was an habitual liar; this led Trisha to embellish her story by adding that Mary also had sexually abused her. Mary was then arrested too but somehow managed to pass her polygraph test and was therefore released from custody. Because they were convinced of the polygraph's scientific credentials, the police now accepted that Trisha was lying about her mother. But, since Richard had failed his lie test, they continued to believe Trisha's charges against him.

The polygraph seems to be an objective, wonderfully convenient decision maker! It has the appearance of a scientific technique; how are the police to know that it is pseudo-science if the scientists won't tell them?

If the SPR Board had been less "reticent", a distinguished Secretary of State, George Shultz, might not have been forced to announce his intention to resign before he would submit to what Senator Sam Irvin called the "20th Century witchcraft" of a lie detector test.

The Pentagon might not have embarrassed itself -- not to mention General David Jones, Chairman of the Joint Chiefs of Staff, and sundry other officers and high officials, who had to submit to polygraph "fluttering" -- seeking the source of a leak of information to the press. The Pentagon's polygraphers did identify a lesser official as the source of the leaks and were about to close the coffin on his career when the reporter who printed the story submitted an affidavit affirming that they had the wrong man.

If the SPR Board had been less timorous, the United States Marine Corps might not have been dishonored by widely publicized accounts of Marine guards conducting midnight tours for KGB agents through the U.S. Embassy in Moscow.

An outraged Marine officer, Col. Michael Powell, defense counsel for one of the accused, explained to me that these were false stories, created in the fervid imaginations of Navy

polygraphers who discovered that these young Marines' palms sweated and hearts pounded when asked accusatory questions -- and continued to do so as the questions got more and more bizarre.

If the scientists had been more forthcoming, a mother in Yakima, Washington might never have been tried in the criminal court for sexually abusing her four year old son since the only "evidence" against her was the allegation by the new wife of the boy's father that the child's penis seemed irritated when he came to visit. The mother had accepted a police offer of a polygraph test "to prove her innocence" and she had undeniably shown more disturbance on the polygraph to the "Relevant" question: "During May of this year, did you take Tommy's penis in your mouth?" than she did to the so-called "Control" question: "Have you ever told a lie to get out of trouble?"

This is standard lie detection technique; if the subject's palms sweat, if her blood pressure changes and her breathing is more disturbed by the Relevant than by the Control questions, then deception is indicated. When the polygrapher recounted his many years of experience and told the jury that, in his professional opinion, this mother was lying in denying her guilt, he was merely saying what he had been taught to believe during that eight-week course in polygraph school in which he had been converted from an ordinary police sergeant into an almost infallible arbiter of guilt and innocence.

I would not want you to think that I am faulting the polygraphers. It is not as if they had deliberately invented some scam with which to victimize the credulous. The lie detector has been entrenched in American mythology since World War I. It is relied upon by the Department of Defense, by the federal security agencies, the FBI, by the highest levels of government. And, let us remember, that segment of the scientific community best qualified to evaluate this technique of applied psychophysiology has resolutely refused to say a collective word against it. The professional polygraphers therefore have been left to their own devices, their polygraph schools, their trade journal, and their personal experiences. And the information they get from all three of these sources indicates that, if they follow standard procedures, they will almost never produce a mistaken diagnosis!

Cases in which polygraph errors can be clearly demonstrated by subsequent evidence are much less common than the errors themselves and these cases are ignored or explained away by polygraph proponents as due to the incompetence of some other examiners. The police in Toronto insist, in a handout provided to criminal suspects, that the lie test has perfect specificity (see the next slide.)

> “YOUR RIGHTS WHEN ASKED TO TAKE A POLYGRAPH EXAMINATION.”
>
> “(The polygraph) merely records on a chart your bodily reactions to the questions you are being asked. It is up to the polygraphist to ‘read’ the information your body provides, and he does so with an extremely high degree of accuracy.”
>
> “We know of no verified instance of a competent polygraphist reporting a truthful person as untruthful.” --- Metropolitan Toronto Police Department

The inventor of the Control Question Test, the late John Reid, was more modest; he claimed only 99% accuracy. A psychological test capable of near-perfect validity would truly be a wonder to contemplate. One can understand why a polygrapher named Lynch, writing in the journal of the American Polygraph Association in 1975, concluded that:

> "Mankind has the opportunity to prove beyond reasonable doubt the veracity of his (sic) testimony. God gave us the polygraph."
>
> --- M. B. Lynch (1975) in *Polygraph.*

As these quotations attest, polygraph examiners themselves have almost total faith in the accuracy of their technique. This genuine conviction on the part of the examiners is important because it helps to account for the similar confidence shown by the polygrapher's clients, by the government agencies, police departments, and private businesses that rely on the polygraph in the United States. And yet the best research available shows that the lie test is deeply flawed, its accuracy in identifying innocent suspects about equal to the flip of a coin. This fact -- that examiners who have personally administered thousands of these inaccurate tests can continue to believe that they are almost never wrong -- therefore constitutes a paradox. In his work with the Canadian federal police, my colleague, Bill Iacono, traced the solution of this paradox to the polygraph-induced confession.

How Polygraph-induced Confessions Mislead Polygraphers.

It is standard practice for police polygraphers to interrogate a suspect who has failed the lie test. They tell him that the impartial, scientific polygraph has demonstrated his guilt, that no one now will believe his denials, and that his most sensible action at this point would be to confess and try to negotiate the best terms that he can.

This is strong stuff and what the examiner says to the suspect is especially convincing and effective because the examiner genuinely believes it himself. Police experience in the U.S. suggests that as many as 40% to 50% of interrogated suspects do actually confess in this situation. -- And these confessions provide virtually the only feedback of "ground truth" or criterion data that is ever available to a polygraph examiner.

If a suspect passes the polygraph test, he won't be interrogated because the examiner firmly believes that he's been truthful. Suspects who aren't interrogated don't confess, of course. This means that the only criterion data that are systematically sought -- and occasionally obtained -- are confessions by people who have failed the polygraph, confessions that are guaranteed to corroborate the tests that elicited those confessions. The examiner almost never discovers that a suspect he diagnosed as truthful was in fact deceptive because that bad news is excluded by his dependence on confessions for verification.

However, these periodic confessions provide a steady diet of good news that confirms the examiner's belief that the lie test is nearly infallible. Note that the examiner's client or employer also hears about these same confessions and is also protected from learning about most of the polygrapher's mistakes.

Sometimes a confession can verify, not only the test that produced it, but also a previous test that resulted in a diagnosis of 'truthful.' This can happen when there's more than one suspect in the same crime, so that the confession of one person reveals that the alternative suspect must be innocent. Once again, however, the examiner is usually protected from learning when he's made an error. If the suspect who was tested first is diagnosed as "deceptive", then the alternative suspect -- who might be the guilty one -- is seldom tested at all because the examiner believes that the case was solved by that first failed test. This means that only rarely does a confession prove that someone who has already failed his test is actually innocent.

Therefore, when a confession allows us to evaluate the accuracy of the test given to a person cleared by that confession, then once again the news will almost always be good news; that innocent suspect will be found to have passed his lie test -- because, if the first suspect hadn't passed the test, the second person would not have been tested and would not have confessed.

A Real Life Illustration.

Here's an example of how this process works in real life. In a recent (1990) issue of *Polygraph*, the trade journal of lie detection, a police examiner named Murray reports on a series of 552 lie tests that he administered to criminal suspects. He diagnosed 239 or about 43% of the total group to be deceptive. Murray proceeded to interrogate these 239 people and obtained confessions from 105 or nearly half of them. Murray assumed that these verified-deceptive lie tests were representative of all 239 failed tests but of course that is a mistake. All of the 105 lie tests that produced these 105 confessions were of course necessarily verified as accurate.

These confessions also cleared 18 of the 313 suspects who had previously been tested and classified as truthful. Once again, Murray assumed that these 18 verified tests were representative of all 313 lie tests that were passed but, once again, this was an invalid inference. As we have seen, once a prior suspect has failed his lie test, alternative suspects in the same case are seldom tested at all; therefore, these 18 successes were also the almost inevitable consequences of reliance on confessions as the only criterion.

THE MURRAY (1989) STUDY OF 552 CRIMINAL SUSPECTS

	CORRECT	ERRORS	UNVERIFIED
239 (43%) FAIL: ALL ARE INTERROGATED, 105 (44%) CONFESS.	105 (44%)	3 (1%)	131 (55%)
313 (57%) PASS: NONE ARE INTERROGATED, NONE CONFESS.	18 (6%)	ZERO	295 (94%)
TOTALS:	123 (22%)	3 (0.5%)	426 (77%)

Mr. Murray does report three cases in which he discovered that he had made a false-positive error. These were cases in which there were two possible suspects; the first person tested had failed his test but Murray was suspicious of the result and broke his own rule by going on to test the other suspect. In each of the three cases, the second person tested also failed, was interrogated, and confessed. In one case, for example, the first suspect was an old lag, an habitual criminal whom Murray had happened to test on two previous occasions for other crimes. Both prior times, this man had failed, had been interrogated, and confessed. On this third occasion, he again failed the lie test but this time he continued to maintain his innocence. For this reason, Murray tested the other suspect, obtained a confession, and discovered that the habitual criminal was innocent of this third crime and that his third lie test had been in error. Murray concluded, however, that he had made only these 3 errors in 552 lie tests, an accuracy of 99.4%.

It is important to see that Murray would have obtained much the same apparent confirmation if, instead of the polygraph, he had used for his lie test just the flip of a coin! About half of the coins would have come up 'heads' indicating deception (43% of them, if we use Murray's statistics.) About half of these purportedly deceptive subjects would have been guilty and many of the guilty ones, perhaps 105 of them, would have confessed following interrogation. Murray would be protected from learning, however, that most of the 134 persons who also came up heads but refused to confess were in fact innocent.

Once again, a few of these confessions would have cleared some -- perhaps 18 --of the 313 suspects whose tests came up 'tails' for truthful. Murray would never learn, however, that about half of the 313 people who passed his coin-flip lie test were in fact guilty. As the slide reveals, the findings that Murray was so proud to report are entirely compatible with the assumption that his lie detector diagnoses were only randomly related to the truth.

RESULTS WITH A COIN-FLIP LIE TEST

ASSUMES (as in Murray, 1989):

(1) 552 suspects test and 43% fail: All fails are interrogated, 44% confess.

(2) Passes are not interrogated; 18 passes are cleared by confessions of others.

(3) If one suspect fails, other suspects in the same crime are not tested. (Murray tested 3, all 3 were errors.)

CORRECT	ERRORS	UNVERIFIED
123 (22%)	ZERO	447 (78%)
	EXPECTED UNVERIFIED ERRORS:	276 (62%
	EXPECTED TOTAL ERRORS:	50%
	TOTAL VERIFIED ERRORS:	ZERO

Polygraphers are not scientists or statisticians. When 20 to 25% of their tests are verified by confession and they stumble upon errors as seldom as 3 times in 552, who can blame them for thinking they are nearly infallible? They are victims of their own deceptive art.

Since the Board of SPR decided to be "reticent" about its views on the lie detector and refused to initiate a position paper on this controversial and therefore alarming topic, I have decided to take this opportunity to write one myself. Always the optimist, I have put it in the form of an obituary. I have in mind a document that might be included in the catalog of the Smithsonian Institution when the last exemplar of a field polygraph is placed on exhibit along with a "voice stress analyzer", an electric belt for treating cancer and dyspepsia, and a divining rod for finding water. Here is how it might read.

Instrumental Lie Detection: An Obituary

The early hominids no doubt learned to lie soon after they first learned to speak. They did not, however, evolve a unique, involuntary response that signaled they were lying, because that would have been maladaptive. It may be significant that our language is replete with synonyms for lying but curiously sparse in alternative locutions for the act of speaking truth. It is easy to find a dozen synonyms for "gullible" but there is no word in English that precisely means "not gullible" or "skilled in detecting prevarication."

Perhaps because their talent for deception so far outpaced their abilities to detect deception, since the earliest times our ancestors have relied on magic for this purpose. Most cultures seem to have developed rituals and ordeals, usually invoking supernatural assistance, that were intended to identify mendacity or guilt.

In the 19th Century, a popular children's story told of a little boy named Pinocchio whose nose grew longer every time he told a lie. In the 20th Century, a psychologist at Harvard, one William Moulton Marston, announced that our species really has evolved a Pinocchio response, an involuntary physiological reaction that we all show when we are lying but not when we truthfully deny a false allegation. Soon another respected psychologist, Father Walter G. Summers of Fordham University, announced the discovery of a different but equally specific lie response.

Marston's lie sign was a change in systolic blood pressure; Summers's involved the change in skin conductance produced by palmar sweating. These reactions could be recorded on a simple polygraph. The American public became so enamored of the idea of a scientific lie detector -- what Marston himself referred to as "the end of man's 6000 year old quest" -- that, by mid-Century, one could hardly find a literate citizen from Maine to San Diego who had not heard of the "lie detector."

Yet, ironically, by 1950, even the polygraphers knew that both Marston and Summers had deceived themselves, that there is no specific lie response, no involuntary Pinocchio reaction that can be instrumentally detected. The polygraph was merely a crude sort of disturbance detector and polygraph examiners merely tried to determine whether their subjects were more disturbed by one type of question than by another type. Not even the handful of polygraphers who had training in psychophysiology could determine the source of the disturbance, whether the question had made the subject feel guilty or frightened or outraged.

But they had all convinced themselves that people who were more disturbed by what they termed "Control" questions than by the Relevant questions were ipso facto truthful in their answers to the latter. If a person showed relatively more disturbance to the Relevant questions, on the other hand, then her answers to those questions were classified as deceptive.

Here are the questions used in a polygraph test that sentenced an innocent man to life in prison for murder. Only the Relevant questions, referring to the incident under investigation, and the Control questions, referring to possible misdeeds in the suspect's prior life, played a role in the outcome. The basic assumption of this "Control Question Test" or CQT was that an innocent person, able to answer the Relevant questions truthfully, would be relatively more disturbed by the Control questions which, the examiner assumes, the suspect cannot truthfully or confidently deny. In other words, this man went to prison as a convicted murderer because the question: "Did you shoot Fred?" disturbed him more than the question: "Before age 26, did you ever think of hurting someone for revenge?"

A LIE TEST THAT HELPED CONVICT AN INNOCENT MAN OF MURDER

R = RELEVANT: C = "CONTROL"

Regarding the shooting of Fred Ery, do you intend to answer truthfully about that?	(R)
Before you were age 26, did you ever think of hurting someone to get revenge?	(C)
Did you shoot Fred.?	(R)
Before you were age 26, did you ever intentionally injure Any person with a weapon?	(C)
Did you shoot Fred Ery on March 25th?	(R)
Were you in Fred's carry-out on March 28th?	(R)
Between the ages of 16 and 26, did you ever intentionally injure any person with a weapon?	(C)

While in prison, this man, Floyd Fay, acquired a fine young attorney who, by dint of good fortune and detective work worthy of a Perry Mason, discovered the real killers, one of whom confessed, and got his client freed.

At least three other cases are known of men vindicated years after being convicted of murder largely on the strength of failed polygraph tests. Only the Omniscient knows how many other innocent victims of the polygraph still languish in our prisons.

There were a number of attempts to test experimentally the remarkable claims the polygraphers made about lie detector accuracy. Many of these validity studies were scientifically worthless and none could be said to be definitive. The next table provides a summary of the findings from four of the better studies. The aggregate validity with innocent suspects -- the specificity of the lie test -- was 53%, not significantly better than the chance expectancy of 50%. This bias against innocent suspects -- who have nearly a 50:50 chance of failing a lie detector test -- is to be expected given the implausible assumptions of the Control Question lie test.

FOUR STUDIES OF LIE TEST VALIDITY WITH CRIMINAL SUSPECTS

STUDY:	BARLAND & RASKIN (1976)	HORVATH (1977)	KLEINMUNTZ & SZUCKO (1984)	IACONO & PATRICK (1987)	TOTALS
SENSITIVITY: (GUILTY HITS)	98%	79%	76%	98%	88%
SPECIFICITY: (INNOCENT HITS)	45%	50%	64%	55%	53%
OVERALL ACCURACY:	72%	65%	70%	71%	71%

The aggregate accuracy in detecting deceptive suspects -- the sensitivity of the lie detector -- is shown in the table as 88%. This level of sensitivity could be useful in some applications but, alas, it turned out to be an over-estimate. In three of these four studies, the criterion of "ground truth" consisted of confessions obtained from suspects who had "failed" the tests when scored by the original examiners. The validity estimates in these studies came from later blind rescoring of the polygraph charts by different examiners who had no other knowledge of the suspects or of the evidence against them.

This reliance on confessions as a criterion means that the only suspects verified as guilty -- that is, all the guilty subjects used in these three studies -- were persons whose tests had already been scored as "deceptive" by the original examiner. Guilty suspects scored as truthful or inconclusive by the original examiner did not confess and so were not included. It is not surprising, therefore, that most of the subsequent rescorings of the tests produced by guilty suspects tended to agree with the scoring of the original examiners.

The 88% average "sensitivity" is not really a validity estimate after all; it is an estimate of inter-scorer reliability, of the probability that charts scored as "deceptive" or as "truthful" by the original examiners would be rescored the same way.

Prior to the federal Employee Polygraph Protection Act of 1988, polygraph testing decided the employability of some two million job applicants each year in the United States. Even after 1988 the lie detector continued to be relied upon in police work and by the federal government. In many jurisdictions, rape victims who could name their assailants had to pass polygraph tests before their charges were investigated. Since most truthful rape victims are emotionally responsive to questions relevant to their ordeal, few of them managed to "pass" the lie detector, thus substantially reducing the crowding of the criminal court calendar. On the other hand, persons accused of sexual abuse of children commonly failed polygraph tests and went to trial, thus congesting the courts once again.

Although specifically excluded from admissibility at trial in about half of the United States, juries in other states continued to be told by polygraphers of long experience that the defendant was a liar. This came about in cases where the evidence was weak and prosecutors offered to dismiss

the charges if defendants could pass the lie detector. In exchange, however, the defendant was required to stipulate in advance that an adverse result could be used against her at trial.

Although wags contended that a lie detector in Washington, D.C. was about as useless as a compass at the North Pole, the United States Government continued to be the most enthusiastic user of this technology. Methods of beating the polygraph were well known and their efficacy had been proven experimentally. The principle is straightforward; one simply augments one's reactions to the Control questions by covert self-stimulation, e.g., by biting one's tongue at the right times, thus improving the chances that the Control responses will be larger than the reactions to the Relevant questions and produce a passing score. The KGB was said to have a school for the specific purpose of training agents to beat the CIA's polygraph tests. Nevertheless, federal employees with high security clearances who had passed polygraph screening tests were not considered to require old-fashioned and expensive vetting.

It is interesting to note that the earliest of the four studies aggregated in that earlier table was reported in 1976, more than 50 years after the lie detector first came into use. How could it be that a pseudo-scientific technique, predicated on such implausible assumptions and unsupported by competent research findings, could have come to be so widely used and trusted in the United States? We have already seen one reason. Virtually the only validity data available to field examiners and to their clients was the grossly distorted evidence provided by polygraph-induced confessions.

But surely the scientific community knew, or should have known, that the lie detector was pseudo-science both in theory and in practice, that its accuracy was not much better than chance? Yes, Virginia, but you see the scientific community was "reticent." The lie detector issue was controversial and scientists dislike controversy, they feel themselves above it, some might even say they fear it. Moreover, investigation of the lie detector would be “applied” research and many scientists prefer to do what they call "pure", rather than applied research. The reason for this is that applied research is harder, since one must take problems as one finds them rather than addressing only those problems for which one thinks one has a solution.

And that is why, Virginia, the scientific community remained aloof from the hurly-burly of the lie detector -- and the years passed while innocent people continued to go to prison and villains continued to walk free -- until that extraordinary October day at the Annual Meetings of the Society for Psychophysiological Research when the entire Board of Directors was arrested for sexually abusing an under-age, psychopathic bellhop and they all failed their polygraph tests!

That's the end of my prospective epitaph for the polygraph. I hope that I can publish it soon.