



EUROPEAN

# POLYGRAPH

**PUBLISHED QUARTERLY**

Volume 11

2017

Number 3 (41)



Andrzej Frycz Modrzewski Krakow University



EUROPEAN

# POLYGRAPH

Journal of Andrzej Frycz Modrzewski  
Krakow University

*European Polygraph* is an international journal devoted to the publication of original investigations, observations, scholarly inquiries, and book reviews on the subject of polygraph examinations. These include jurisprudence, forensic sciences, psychology, forensic psychology, psychophysiology, psychopathology, and other aspects of polygraph examinations.

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**e-ISSN 2380-0550**  
**ISSN 1898-5238**

***European Polygraph* offers open access  
to all its issues:**

<http://www.polygraph.pl>  
<https://www.degruyter.com/view/j/ep>

**The original of *European Polygraph*  
is its electronic version.**



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# Articles





Milan Kormoš, PhD\*

Ministry of the Interior of the Slovak Republic  
Presidium of Police Force  
Institute of Forensic Science  
Department of Applied Psychophysiology  
Slovak Republic

## Polygraph Examinations in the Department of Special Psychology of the Ministry of the Interior of the Slovak Republic – a Retrospective View

Применение полиграфных исследований на Факультете специальной психологии Министерства внутренних дел Словацкой Республики. Ретроспективный взгляд

**Key words:** polygraph, using the polygraph, history of psychophysiological detection of deception at the Slovak Ministry of the Interior

The history of the polygraph usage in the Ministry of the Interior of the Slovak Republic started on 6 March 1998. Selected personnel of the ministry commenced a special educational and training programme to gain experience with the polygraph, with the prospect of using its results for the needs of individual units of the ministry. The programme was conducted under the guidance of long-time polygraph specialist from the US.

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The decision to include the polygraph into the arsenal of resources in the fight against antisocial activity was a logical result of current developments, as the public were confronted with an abrupt and permanent rise in crime rate. A near uncontrollable space developed under the influence of changing socioeconomic conditions, which led to an expansion of different illegal activities.

The main idea of the newly created specialised Department of Special Psychology (DSP) was to extend the toolbox of instruments used in the department for the investigation of criminal activity by employing machine psychophysiological detection of deception. The expected deliverables included general streamlining and shortening of the process of investigation.

After the completion of educational and training programme conducted by AIAAP (Acxiton International Academy of Applied Psychophysiology, Houston, Texas), the activity practically followed two courses: criminal investigation and screening. This fact is addressed in the first document on the activity of the Department of Special Psychology “Regulation of Interior Secretary of SR No. 57/1998” [1]. It defined the conditions for performing special psychophysiological tests, as well as specified the unit as an independent organisational body in the structure of the Ministry of the Interior. It furthermore described the areas of its activity, characterised the subject of investigation, and set the rules for the final statement in the form of investigation report.

The unit was quick to develop its activity and soon established itself in the structures of the ministry. The department also presented its activities to make experts and stakeholders aware of its operations. Professional presentations, including samples of expert activity, to selected subjects soon made the DSP use polygraph examinations to assist various subjects from outside the department and even from the private sector. Numerous units of civil service and corresponding military departments applied for examinations, to mention the Customs Service, Ministry of Finance, and the Ministry of Defence. Despite this, efforts were made to run examinations mainly for various units of the Ministry of Interior. As the DSP was the only such unit in Slovakia, it provided its services nationwide, as required by the ministry.

At that time the acquired expert knowledge and first practical experiences let the personnel of the DSP participate actively in the clarification of a case of particular concern, i.e. the contract killing of former secretary of industry and economy on 11 January 1999. The polygraph examination of the main suspect conducted at the time helped to create the “jigsaw picture” of the case.



Thus criminal projects became the main field of work for the DSP for a time. They belonged to almost all areas of law, embracing mainly the criminal cases with *corpora delicti*. The DSP personnel worked on a daily basis on cases classified as violent criminal acts against life and health, criminal acts against the family and young people, criminal acts against freedom and human dignity, criminal acts against property, economical criminal acts, and others. Their activity always focused on the psychophysiological detection of deception of suspects, culprits, the aggrieved, and witnesses. The results of polygraph examinations often became the magnetic needle on an imaginary compass, which navigated the whole process of investigation towards a faster clarification of the case. The findings of psychophysiological detection of deception were particularly valuable in the so called "insufficient evidence cases". They were often "the new wind into the sails" of the documentation and substantiation process.

Screening became the second, and independent, area of work for the department. The chief body of work centred on applicant selection for specialised departments in the Slovak Police Force, examination of credibility and reliability of police officers serving in such departments, examination of police officers from other units of the Ministry of the Interior, police officers delegated to personal reserves, and of selected civil employees of the Ministry of the Interior. The DSP personnel also performed polygraph examinations during selection procedures for positions in the vertical and horizontal migration of the ministry's personnel. In this case, the focus was verification of reliability of the subjects, detection of breach of service and/or state secret, leakage of service information, blackmail, cooperation with organised crime, probability of abuse of alcohol or other addictive substances. A particular part of the work was examination of police officers suspected of indulging in various forms of criminal activities.

The activity of the DSP was based on basic principles of performing psychophysiological detection of deception as defined by professional organisations, notably the APA (American Polygraph Association), AIAAP (Axciton International Academy of Applied Psychophysiology), and BAI (Behavioral Assessment Institute). DSP's legal background clearly defined the main policies for its activity, set up in standard work procedures. The respect for the principle of voluntary submission, being crucial in polygraph testing, became the basic legal aspect. Any person required by legal and/or internal rules had to agree to examination, which cannot be conducted without consent. The respect for the principle of voluntary submission is consequently the respect for the principles of the legal system. Besides that, every subject of polygraph examination was guaranteed a standardised procedure using standardised means. Each examination followed a certain, precisely defined procedure, established in a standard working procedure. An important aspect here was the expert's guarantee

supported by a prescribed practical preparation and completion of a prescribed number of supervised examinations.

The guarantee of steady professional development is not only the completion of the prescribed teaching and training programme but also permanent education of specialists. In the course of their work, the DSP specialists conducting polygraph examinations went through several professional training sessions and specialised programmes aimed at increasing their expert qualifications. In September 2005 an employee of the BAI Institute from Texas conducted a follow-up course in forensic psychophysiology. The same specialist offered his expert and practical experiences again in November 2012 as part of expert training for the specialists of the Ministry of Interior. A special teaching and training course by a specialist from the Lafayette Instrument Company added to the expertise of the DSP staff in 2013. The latest expert training for the employees was offered by a leading specialist from the Internal Polygraph School from Israel in 2016. Between these, specialists participated in additional expert courses, seminars, and conferences in Russia, Columbia, Ukraine, Belarus, and Poland. The expert experience and knowledge are exchanged within the so-called Triad, gathering specialist polygraphers from Poland, Czechia, and Slovakia, which is practiced in regular intervals in the successive countries.

In its nearly twenty years of activity, the unit conducting psychophysiological detection of deception has gone through several transformations. Moreover, its position in the organisational structure of the Ministry of the Interior has changed, and so did the legal background and the focus of the operation. Different problems concerning the scope of competences regarding test execution that occurred during the activity have been removed. There have been changes in the system of DSP's operation, its name has repeatedly changed, and in 2013 so did its address. The unit is currently a part of Criminalistics and Forensic Expertise Institution of the Presidium of the Police Force of the Slovak Republic operating under the name of the Department of Applied Psychophysiology. Its staff has increased from the original four employees to the current number of seven specialists plus one administration officer.

The current foundation regulating the activity of the DSP is the Order No. 172 of the Interior Secretary of the Slovak Republic from 29 November 2013 [2] on the development of personnel of designated units of the Ministry of the Interior and the Police Force. In the context of conducting polygraph testing, the document is especially focused on personal work. It manifests the endeavour of the services to improve the quality of personal work in the DSP and at the same time it documents the effort to eliminate uncertainties and specific problems, which have accrued with time. The document belongs to a uniform procedure for renewing the staff of designated departments in

the Police Force. It brings in new rules and a clear structure, clarifies the functioning of mechanisms, and defines the basic organisational structure of the DSP. The document furthermore defines the departments whose staff, whether members of the current force or relocated from other departments, are obliged to undergo polygraph examinations.

Let me emphasise the fact that the document deals with specific areas for specific departments. Each of these departments, in regard to its activity, has clearly stated areas of examination, which are identical for each examination of members and applicants in each department. Each police officer about to undergo a polygraph examination is in advance informed in writing (via e-mail) about the exact wording and scope of testing by a competent employee of the designated department. The basic information includes the time span between the examinations, which is generally 5 years, although may be shortened in particular cases, depending on the time of service in the Police Force.

In 2016 the personnel of the DSP (now operating as the Department of Applied Psychophysiology) conducted 579 polygraph examinations for screening purposes. Only 6 subjects refused to undergo the procedure, there were also 29 cases when the examination was not conducted for various subjective and objective reasons (e.g. the employee withdrew the original application for transfer, and for family and health reasons).

Polygraph testing has become a way for optimising personnel selection in the Slovak Ministry of the Interior. It is an instrument for choosing honest, reliable, and loyal employees and police officers to work in the structures of the Interior Department. Its preventive aspect has a significant impact on reducing illegal activities. It often offers information that cannot be obtained by other methods.

In the recent years the process of psychophysiological detection of deception has become a positive weapon in the arsenal used for fighting antisocial activities, and is used for detection, documentation, and clarification of illegal activity in the Ministry of the Interior of the Slovak Republic.

In the legal system, the outcome of polygraph examination is currently not considered a proof. For objectivity's sake, however, it must be mentioned that the Act No. 301/2005 of The Code of Criminal Procedure in the *Journal of Laws* [3] does not specify that the result of polygraph examination cannot be used as proof. In paragraph 119 section 2 it states that "Anything that can contribute to proper clarification of matter and that has been obtained from evidence according to this act or according to another act can serve as evidence". For this reason, there have been cases when parties to criminal proceedings have included the opinions from polygraph examinations in investigation files. The actual significance of the opinion (especially, in the context of

other existing facts), however, only depends on the individual assessment of the prosecutor in pre-trial or court.

The DSP specialists join the court proceedings when testifying in specific investigation cases about the details of performed polygraph examinations. They explain the principles of polygraph to the court, and inform in detail about the process, recorded results, and their evaluation. They also answer questions from the court, prosecutor, and/or the defence.

In some cases, it is the prosecutor or the court who demand the execution of a polygraph examination for investigation purposes. This is most popular in the case of “argument against the argument” with the parties offering contradictory testimonies. If this is the case, both parties are offered a polygraph examination, and one side, usually the suspect, as a rule refuses to submit to it, while the other receives a positive opinion from the examination. Such a procedure can contribute to simplification of the decision process at the court.

The history of polygraph testing is spanned between its supporters considering the polygraph an effective tool and the ones who consider this method untrustworthy, insufficiently reliable, and hardly scientific. The latter have tried to apply different means to challenge the results of examinations. Existence of the Department of Applied Psychophysiology for nearly twenty years, however, demonstrates the importance of the method. Polygraph testing has become a milestone for many areas of criminal investigation, providing a final argument for the supporters of the polygraph and demonstrating that different accusations levelled against it are unfounded.

As history shows, psychophysiological detection of deception is a valid tool for examining credibility and reliability in staffing policies of the Ministry of the Interior of the Slovak Republic. The results of polygraph testing often substantiate that the members of the Police Force perform their hard work in an honest, conscientious, and brave way.

In the many years of its existence the Department of Applied Psychophysiology has built its expert credibility. Qualifications, professionalism, and the high level of ethics make its personnel sought for international and domestic expert consultations.

Expert activities, presentation of the DSP in the media, publishing and teaching activity, appearances at different forums are some of the ways that its employees exploit to elucidate the process of polygraph examination not only to the nonprofessional public but especially to experts, to remove the aura of strangeness, incomprehension, and vagueness surrounding the procedure.

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Discussions, polemics







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## Redefining the Road for the Industry

Переопределение путей к индустрии практике

**Key words:** polygraph training, American Polygraph Association, polygraph industry

**Abstract:** The polygraph is an instrument that detects, monitors, and records physiological responses that are allegedly of psychological origin and attributed to deception. Hence the human mind and its complex psychology are the core of the detected physical responses. However, the polygraph industry has almost entirely overlooked psychological issues in its training and publishing. The industry focuses its attention and interest on various technical aspects of the test such as e.g. scoring, rather than concentrating on what is most important, i.e. the examinee's psychology, as it is responsible for almost the entire test result. The paper extensively explains the importance of examinee psychology and its influence on test outcome, points to the short-falls in training and publication activity of the industry, and discusses the result and impact of the industry's approach.

The entire practice of detection of deception relies on the fundamental assumption that the body produces physical responses when a human is lying i.e. we assume that, being a result of a psychological process, the cognitive decision to lie commences a chain of physical responses. Although the body (physiology) and the mind (psychology) are

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two different and separate entities, our personal experience has taught us that they are associated with each other. We all have experienced situations where a psychological stimulus triggers physical changes in our body e.g. we tend to blush when embarrassed and go pale when scared; lying is not any different. The problem is that the physical changes we experience when lying, e.g. an increase in heart rate and blood pressure are *not exclusive to lying* and are also triggered by other reasons including fear. So far scientists have found no physical response exclusive to lying, unless you count Pinocchio's nose. Naturally, the fact that lying lacks exclusive physical responses raises the question of how we know that the physical responses detected, monitored, and recorded by the polygraph can be attributed to lying and not to any other thought that crossed the examinee's mind while answering or to a disturbing emotion related to the question. The solution lies in the questioning techniques that can determine, with a high statistical probability, that the physical responses monitored and recorded by the polygraph during the test can be attributed to lying. In other words, it can be said that all the polygraph testing methods designed are sophisticated attempts to allow a high probability of correct distinction between truth-tellers and deceivers, despite the absence of a unique physiological sign of lying.

As a polygraph test involves psychophysiological measures, it is mandatory that the subject be physically fit and mentally focused at the time of the examination, for fear that cognitive dispersion and physical discomfort could affect and disrupt the parameters monitored by the polygraph, which may cause difficulty in interpreting the responses, and sometimes distorting the findings.

Although lying per se lacks unique and exclusive deception responses, experience has shown that there are many physical ones that the human body displays upon attempts to deceive. It is assumed that the emotions related to deception are the trigger that commences them. Emotions are people's subjective reactions to stimuli. Reactions carry a certain cognitive awareness, which is supposedly followed by changes of psychophysiological nature, and of verbal and nonverbal behaviour. Although fear of detection and its consequences are considered *the* main emotive contributor to the psychophysiological chain of responses detected by the polygraph, there are several other plausible emotion-related theories that explain the responses.

Whatever the causes of psychophysiological responses, there is no doubt that their source *lies in the psyche*. Nonetheless, the polygraph industry training and publications invest far too little interest in psychological issues as compared to such technical aspects as chart analysis and scoring, question formats.

## The significance of psychological issues vs data analysis

### *Psychological issues*

Examinees are instructed to give only “yes” and “no” answers in the test, but does such an answer represent a pure and clear denial or affirmation? Can the question not trigger, at least in some instances, a broader and/or more general association that may potentially contaminate the answer, which in return may produce false results?

One of the contributors to erratic and unclear charts, as well as to false results, are various contaminating factors of psychological nature. The effect of these contaminants was already acknowledged in the early days of polygraph. Trovillo (1938) pointed out that “a suspect may give a large response (...) not because he is guilty of robbing (...) but because he has robbed other (...) places.” [1] Later Backster labelled the phenomenon as the *outside-issue factor*, which in some instances bears a “Damping (or Super Damping) effect that may suppress the examinee’s reactivity to the relevant (in the case of a guilty examinee) or comparison (in the case of a truthful examinee) questions” [2], resulting in an inconclusive chart. Reid (1977) listed the following factors that may affect test results: lack of concern about the possibility of detection, extreme emotional tension or nervousness, over-anxiety to pass the test, anger, guilty feelings, involvement in other similar acts or offences, physical discomfort during the test, excessive interrogation prior to test, excessive number of test questions, prior test, adrenal exhaustion, rationalisation, and self-deceit [3].

For this reason alone, albeit other psychological factors and considerations also come into play, it is essential that each and every polygraph examiner receives an extended training and teaching in *all* the various psychological aspects of polygraph examination. No issue should be left out, and every aspect is as important as the other regardless of its significance. After all, some define a polygraph test as a particular psychological test, and they are right to do so. An in-depth instruction in psychological issues (best: extended and reiterated) will let the examiner have a better understanding of the examinee’s state of mind during the test, resulting in improved phrasing of the questions and an approach that will eventually lead to more accurate results.

### *Chart (data) analysis and scoring*

Although there is no doubt that a proper chart (data) analysis and scoring of the examinee’s physical responses is an essential aspect of the test, it should be kept in mind that the physical responses represented in polygraph charts are but a function of the examinee’s psychological state of mind while answering the test questions. The analysed responses are a products of various inputs including a proper pretest, well-constructed

relevant and especially comparison questions, the examiner's approach, and the testing proper. Computer programmers have a precise and realistic description of the real value of the analysed data stream, they often remark that data streams are highly GIGO prone; the acronym standing for Garbage In Garbage Out [4]. This is to say that the output can only be as accurate as the input and faulty input will not produce a correct output. Therefore outstanding proficiency, knowledge, and expertise in chart analysis and scoring is useless if the test is not conducted properly, because its contamination at input distorts the output.

Overlooking psychological issues, and focusing on chart analysis and scoring will produce reliable and expert chart analysts and decoders of *invalid tests*. The bottom line is that polygraphy will be labelled as having a very high *reliability* rate but a very low *validity*; not a very positive perspective to say the least.

## The industry's interest

The industry's current stance on each of these issues (psychology and scoring) can be deduced from the time dedicated to them in training, publishing space, and presentations in our annual seminars.

### ***Training***

The APA Board of Directors approved the following accreditation standards, effective since January 2015:

"The education and training program shall provide the minimum number of hours of classroom education and training in the following subjects and disciplines (...) Psychology (20 hours): The student will be able to explain the basic elements of human psychology and their applicability to the science of polygraph testing (...) Test Data Analysis (40 hours): The student will demonstrate a working knowledge of the physiological response patterns used in interpretation of polygraph data, in addition to an ability to identify data suitable and not suitable for analysis. Students will learn to analyze polygraph data using a validated scoring system, including the appropriate use of decision rules." [5]

Thus only 6.25% of the 320 hours of basic polygraph examiner training (+80 hours of practice) is dedicated to issues of psychological nature while 12.5% is dedicated to chart analysis. In other words, chart analysis is twice as important as psychology according to the APA BOD.

### ***Is it really so ...?***

Things are not getting any better... The APA Continuing Education Policy's only requirement is that "practicing examiners shall complete a minimum of 30 continuing education hours every two years in course work related to the field of polygraphy" [6]. This gives schools liberty to include any subject of their choice, going even to the worst extreme, advertised by one of accredited schools: "Advanced Polygraph Examiner's course is uniquely designed *where the students determine the curriculum* [emphasis by T. Amsel]. This course is designed to improve the ability of an examiner by expanding their knowledge on validated techniques and best practices."

Out of 67 different presentations at the 2016 and 2017 APA Annual Seminar and Workshop (participation in the event is recognised as continuing education) *only* four were dedicated to psychological issues, which accounts for approx. 6% – similar to the share of time dedicated in the basic training.

### ***Publications***

The *Journal of the American Polygraph Association* is an official APA publication with research reports, book reviews, legal issues, and the like. A digest of issues from the last five years (2012–17) revealed that only 4 of 88 articles (i.e. 4.5%) were dedicated to psychological aspects of polygraphy, while 16 (18.2%) were dedicated to various scoring methods.

Practical conclusion: use of diagnostic instruments

### ***Polygraph***

Although it is *required* to have an extensive training in psychology, and to include psychological issues in general and specific test-related issues in particular, the industry fails to concentrate on the issue that is most important in polygraphy, namely the human mind, but instead chooses to focus on technical issues. As a result, graduates of basic polygraph examiner training are no more than instrument operators with some knowledge of conducting tests and analysing the responses. They are *technicians* rather than qualified examiners with broad knowledge and extensive psychological education, even though the requirements in this profession are at least similar to what is expected from operators of medical instruments. Currently the industry produces mediocre technicians, some of whom become with time experienced technicians, yet only thanks to supervision and constant quality control, and even among this group ones who reach the required high level of expertise are very few.

### *Medicine*

Following a patient's complaint, medical doctors use an array of diagnostic tools to analyse its source. They include various medical diagnostic instruments such as X-ray, CT, and MRI. Initially, administration of a test with one of these involved a medical doctor who determines the type of device and test to be used in the specific case: a situation similar to the polygraph test phase, where, having received the case data, the examiner determines test technique, format, and questions. A medical technician who operates the device works along the same line as a polygraph examiner. Finally, a diagnostician (MD) who analyses the test results is like the polygraph examiner analysing the curves recorded on the charts.

Unlike in the case of tests using medical equipment, where three different professionals from two different disciplines and two sub-specialisations are involved, the polygraph examiner covers the whole process. A question arises here whether the examiner has received satisfactory training to do the task successfully? The answer is that the training is far from that. Medical doctors study for seven years and go through a prolonged specialisation internship. The average requirements for technicians learning to operate medical equipment include two full time academic years plus approximately six months of internship. What about polygraph examiners? Examiners, who analyse the case, set the questions, operate the instrument, and analyse the results learn all of it in a 10-week training without any internship.

In addition to the unsatisfactory training, for financial considerations, students with insufficient background education and inappropriate professional adaptability complete basic training and immediately start their business, turning their examinees into laboratory rats.

### Epilogue

Next time when you wonder why polygraphy and polygraph examiners are under appreciated, looked down upon by legalists, psychologists and academics, and suffer from such a bad reputation just reread this article.

In order to increase the level of professionalism among the examiners, industry leaders should re-evaluate candidate selection standards and the training syllabus. Candidate requirements should include minimal age, personal traits incl. good interpersonal communicative abilities, and an experience in interviewing should be considered an advantage. The training should be performed at a graduate degree level, with emphasis on psychology and include a final thesis based on research.

Following the graduation, the graduate should practice for at least a nine months (internship period) with a set minimal number of tests. In their later professional life, practitioners should attend continuing education seminars at least annually.

Only after recalculating our current route, do we as the industry stand a chance to ascend to a higher stage of professionalism.

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# Literature review





*J. Lepore, "On Evidence:  
Proving Frye as a Matter of Law,  
Science, and History",  
The Yale Law Journal 2015, 124,  
1092-1158,  
and J. Lepore, "The Secret History  
of Wonder Woman", Knopf, Borzoi  
NY 2014.*

Seeing the two titles juxtaposed above, you probably wonder at the connection between the 1923 US Supreme Court Frye precedence and *Wonder Woman*: this summer's blockbuster film that set new box office records, and a story based on a comics by the same name. The link between the two is Dr William Moulton Marston, one of the early pioneers of polygraph. During the First World War Marston made tests on German prisoners of war, using a conventional blood pressure cuff, a sphygmomanometer, and a stethoscope to take systolic blood pressure readings of a suspect during questioning for the purpose of detecting deception. Later in 1923 Marston examined James Alphonso Frye, the test that set the precedence of polygraph inadmissibility in courts that lasted for 70 years. William Marston was also the author of *Wonder Woman* comics in 1941.

Jill Lepore, the author of the two publications is a professor of American history at Harvard University. Judging by the thorough historical research, it seems that William Marston has fascinated the author, and there is every reason for that.

While in *The Yale Law Journal*, Lepore described and analysed the effect of law on history as follows:

This Essay is a cautionary tale about what the law does to history. It uses a landmark ruling about whether scientific evidence is admissible in court to illustrate how the law renders historical evidence invisible. *Frye v. United States* established one of the most influential rules of evidence in the history of American law. On the matter of expert testimony, few cases are more cited than *Frye*. In a 669-word opinion, the D.C. Circuit Court of Appeals established the *Frye* test, which held sway for seven decades, remains the standard in many states, and continues to influence federal law. “Frye,” like “Miranda,” has the rare distinction of being a case name that has become a verb. To be “Frye’d” is to have your expert’s testimony deemed inadmissible. In *Frye*, the expert in question was a Harvard-trained lawyer and psychologist named William Moulton Marston. Marston’s name is not mentioned in the court’s opinion, nor does it generally appear in textbook discussions of *Frye*, in the case law that has followed in its wake, or in the considerable legal scholarship on the subject. Marston is missing from *Frye* because the law of evidence, case law, the case method, and the conventions of legal scholarship – together, and relentlessly – hide facts. It might be said that to be Marston’d is to have your name stripped from the record. Relying on extensive archival research and on the narrative conventions of biography, this Essay reconstructs Marston’s crucial role in *Frye* to establish facts that have been left out of the record and to argue that their absence is responsible for the many ways in which *Frye* has been both narrowly and broadly misunderstood.

In “The Secret History of Wonder Woman” the same Lepore lets readers take a peek into Marston’s life. By uncovering Marston’s private documents and photographs and interviewing family members, the connection between the Wonder Woman – the iconic feminist superhero who used her Lasso of Truth (also known as the Magic Lasso and the Lasso of Hestia) to extract truth from people – and polygraphy all of a sudden becomes logical.

Marston was born in Massachusetts in 1893. He studied at Harvard and received his bachelor degree in psychology in 1915. His undergraduate thesis, *Systolic Blood Pressure Symptoms of Deception*, was published in *Journal of Experimental Psychology*. He continued to study law and earned his law degree in 1918 and his doctoral degree in 1921. His dissertation focused on emotions and detection of deception, as measured by changes in blood pressure. He was also interested in sex, sexual difference, and sexual adjustment. His research work on *Sex Characteristics of Systolic Blood Pressure Behavior* was also published in *Journal of Experimental Psychology*.

His pro-feminist approach started while Marston was an undergraduate student at Harvard, and was influenced by early suffragists and feminists. Later he fell in love with the niece of the most influential feminist of the early 20th century, a woman who opened an abortion clinic in New York in 1920.

Upon receiving his doctoral degree, Marston commenced an academic career at the American University. With his wife, he conducted a series of experiments concluding that women are more reliable jurors than men. Later Marston was fired from his post of the Chairman of the Department of Psychology at the American University, after he was indicted and arrested for fraud in connection with a business venture he was involved in. (All the charges were later dropped.) In 1925 he taught at Tufts University, where he fell in love with one of his students and was expelled on grounds of unethical behaviour. He moved to Columbia University, where he continued the affair with the same student, who moved with him from Tufts to Columbia. Later the student moved to live with Marston and his wife under the same roof. They lived with their four children (two with each woman), making Marston legally a monogamist and practically a bigamist.

Marston's method of lie detection, based on blood pressure readings, never took off as a detection of deception practice but he has harnessed it to detect the emotions of film viewers, and named it the Love Meter. In an experiment conducted in front of full Manhattan's Embassy Theater in 1928, he monitored the responses of women watching the silent film *Flesh and the Devil*, starring Greta Garbo. Marston claimed that his study proved that brunettes were easier to arouse sexually than blondes, and that blondes react to more "superficial things".

Marston was also attracted to and involved in the growing film industry. As a student he wrote a screenplay that won a national competition. He also conducted experiments with his Love Meter, monitoring the emotional responses of people watching movies. In late 1928 Marston was hired by Universal Studios to pre-screen movies for emotional content, making him a pioneer of audience testing and studio self-censorship. After one year, Marston was replaced at Universal by Leonard Keeler who pre-screened and edited their horror blockbuster *Frankenstein* in 1931. Later Marston was hired to do a similar task by Charlie Gaines, the publisher of Superman comics first published in 1938, followed by Batman a year later. His involvement in the comics industry was the testing ground for his creation of Wonder Woman in 1941.

Marston's love of limelight took another turn in 1938, when he starred in an advertisement published in *Saturday Evening Post* and *Life* magazine. It showed shaving men

claiming that Gillette Razor Blades are the best. They were strapped to Marston's "lie detector" and Marston was the one to substantiate the veracity of their claim.

Marston died of cancer in 1947 (at 54), and his two spouses continued to live together for many years until their death.

While J. Edgar Hoover, Director of the FBI, tagged Marston as "a phony", reading Lepore's book you cannot ignore Marston's unique and colourful personality. Yet the mystery surrounding Marston's motivations – Was it fame hunting? Social justice? Greed? Scientific curiosity? Sexual impulses? Or perhaps all of the above?– remains unresolved.

Tuvya T. Amsel



*Jan Widacki,  
Historia badań poligraficznych  
[literally “History of polygraph  
examinations”,  
Oficyna Wydawnicza  
Krakowskiej Akademii  
im. Andrzeja Frycza  
Modrzewskiego, Kraków 2017,  
197 pp.]*

Jan Widacki's study compensates for a serious deficiency in the history of publications on polygraph examination as research papers only present a small section of polygraph history. The author does more than just to concentrate on questions of polygraph examination standards and device modifications. He recognises the contribution of many scientists to the current state of polygraph examinations. Most importantly, he presents the progress of polygraph techniques as a part of a broader process of the evolution of the methodology of empirical research in general. It is worth noting that Widacki is among pioneers in the field of experimental research on the accuracy of polygraph examinations.

I believe that the author achieves all his goals. He presents the development of polygraph examination standards, and his approach is very comprehensive. The description of the progress is explained precisely against the background of evolution of other sciences. It concerns disciplines that provided crucial fundamental blocks for polygraph techniques. The greatest roles are assigned to psychology, physiology, and medicine (the actual emotional reaction is portrayed as a highly interrelated structure). The mechanism of the scientific progress was presented in a very universal way. The current polygraph examination standards are presented as the result of work and ideas of many past scientists. Widacki's study draws attention to potential hazards to the quality of polygraph examination, when the practice is pursued in isolation from conclusions from empirical research.

The author furthermore compiled a list of relevant sophisticated devices and experiments and summarised their descriptions and use in a highly comprehensible report, supporting his essay with remarkable diagrams and pictures. Researcher activity is presented within the context of its time and place. Specific details help to recreate the whole experiments and cases in the reader's mind.

Chapter I presents a definition of lie and the oldest descriptions of lie detection. Examples of such attempts are found among others in the Vedas, Old Testament and works of ancient writers. It was based on observations of human behaviour and physiological changes visible without equipment.

The Chapter II transports the reader to the 19th century. Experimental psychology and physiology improved the quality of lie detection as the contemporary researchers prepared the ground for instrumental lie detection. Apart from Angelo Mosso, Cesare Lombroso, and Vittorio Benussi, the author mentions the achievements of such unjustly forgotten researchers as Karl von Vierordt (constructor of the sphygmograph), Karl Ludwig (kymograph), and Etienne-Jules Marey (pneumograph). Widacki reminds that a whole range of researchers (Emil du Bois-Reymond, Romain Vigouroux, Charles Féré, and Ivan Tarchanoff) examined the electric activity of the skin. Findings of Polish researchers (Władysław Heinrich, Edward Abramowski, Józef Mayer, Adolf Abraham Beck, and Napoleon Cybulski) are described in the same chapter. Napoleon Cybulski in particular contributed greatly to the development of physiology and neuropsychology. The researcher gave indirect explanations for the phenomena that accompany lie and emotions. The author notes that when Hugo Münsterberg "expressed the belief that lie detection is based on detecting emotions that accompany deception science had already had a fair understanding of the physiological mechanism of emotions, and technical potential for observation, registration and measurements of physiological correlates of emotions at its disposal". He



also reminded of a lesser-known fact was Leon Zbyszewski used name “polygraph” in relation to kymograph in 1914.

In the following chapter, the author presents first attempts at lie detection based on scientific empirical generalisations. Cesare Lombroso, Angelo Mosso, Vittorio Benussi, Ernst Seelig, Otto Lowenstein, and William Moulton Marston are mentioned among the followers of instrumental methods, and others methods are represented by the Word Association Test.

In Chapter IV readers are made familiar with the people who started using instrumental methods of lie deception. They include William Moulton Marston, John Augustus Larson, Leonhard Keeler, and Fred E. Inbau. The author presents Marston’s use of blood pressure measurements to detect deception in criminal cases and in a case of prisoners of war suspected of espionage. John Augustus Larson is portrayed as a creator of a formalised methodology, which included combining two kymographs for a pneumograph and sphygmograph to draw their curves. Readers are reminded that Larson’s polygraph was considered one of 325 greatest inventions in the history of humanity by *The Encyclopedia Britannica Almanac*. Descriptions of early polygraph examinations conducted by the inventor can still be found. The author proceeds to describe the achievements of Leonhard Keeler, who started production of polygraphs and made the polygraph popular in America. A polygraph of his design recorded the data on blood pressure changes and pulse, with later additions including a psychogalvanometer. Leonhard Keeler started polygrapher training for police forces, the army, and private business. He worked out a polygraph examination technique known as Keeler technique. Yet it was mostly thanks to Fred E. Inbau that scientists were able to acquire control of development of polygraph examination techniques.

In Chapter V, Widacki describes American polygraph examinations shortly after the Second World War. John E. Reid and his significantly modified technique of the examinations (introducing new kind of “control questions”) hold a special place in the chapter. Drawing on Reid’s achievements, Widacki emphasizes aptly the importance of standardisation of polygraph examinations as only significant standardisation allows to keep control under quality (like in other forensic science methods). David Lykken’s technique is presented in a very reliable way. Widacki also quotes several examples of Polish court cases to support the statement that perpetrators are often under stress while committing the crime and may not remember detail, even if they saw it.

Chapter VI concerns another important step in the development of polygraph examinations, namely, Cleve Backster’s modification of the control questions tests that

added a new type of control questions and divided the test questions into zones. The standardisation of polygraph examination developed and included a stage of interpretation of physiological reactions, and Cleve Backster introduced the numerical method for assessing reactions: the process of interpreting physiological changes became transparent.

Chapter VII describes the development of polygraph examinations in Poland. It is worth noting that problems with e.g. ensuring quality and comparability of results of polygraph examination have been present in other countries at various times. The author reflects on expert qualifications and creation of quality control systems in Poland, pointing to the importance of centres of academic research in this area.

Throughout the book, Widacki follow paths of forensic sciences that have for many years led to important discoveries, and is often the first to do so. He also successfully brings many eminent researchers, who deserve remembering, out from the dark recesses of history. Their number also includes Polish scientists. Their findings have helped to develop polygraph examinations. In the book, they are restored to their due place, including the unique discoverers who operated in very difficult conditions while Poland was partitioned.

People with an interest in forensic sciences have received another very important scientific work from Jan Widacki. A highly balanced work, with well defined and justified propositions. It can certainly help the reader learn, in a very comprehensive and systematic way, about the development of polygraph examination techniques in the world.

Marek Leśniak

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For example (in references):

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