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Polygraph Examination in Poland. History, Law, Experimental Research, and Practice

Тестирование на полиграфе в Польше.

История, право, экспериментальные исследования и практика

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1. Prehistory of polygraph examinations in Poland

We can speak of the prehistory of polygraph examinations in Poland, referring to the origin and development of experimental psychology, based on physiology. Its starting date is agreed to be connected with the works of Wilhelm Wundt (1832–1920).

It was in his days that scientists learned to register and measure various psychological functions accompanying psychological phenomena, especially emotions.

Still in the 19th century, a German born in Gdańsk, and later the creator of psychological laboratory at the Harvard University, Hugo Münsterberg (1863–1916), a student of Wundt by the way, realised that certain physiological changes that accompany lie

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(deception) are actually symptoms of the emotions accompanying lie.[1]

In the last years of the 19th century, three independent centres for research in psychology (including experimental psychology) developed in Polish cities: Warsaw, Lvov, and Kraków. The last had support from the powerful local centre of physiology developed and managed by Professor Napoleon Cybulski, "father" of contemporary Polish physiology.

Napoleon Cybulski (1854–1919) was a student, and later assistant to Professor Ivan Tarchanov (Tarchanoff, Tarkhanishvili) at the Military Academy of Medicine and Surgery in St Petersburg.



Fig. 1. Napoleon Cybulski



Fig. 2. Ivan Tarchanov

By the way, Tarchanov was a co-discoverer of the galvanic skin response (GSR), today one of the fundamental variables registered by the polygraph. Of interest, Tarchanov died in 1908, near Kraków, where he purchased a house and intended to settle.

In the last years of the 19th century, scientists knew how to record heartbeat, blood pressure and breathing functions, and observe the changes of the galvanic skin response. Thus, they had at their disposal everything that was necessary to develop a contemporary polygraph, that is a machine that simultaneously registers the heartbeat, blood pressure, breathing functions, and the GSR. Devices used for the purpose were described in course books of physiology.

A precise description of such a device can for instance be found in Napoleon Cybulski's course book in physiology published in 1891.



Fig. 3. Tarchanov's house near Kraków

The flow of physiological changes accompanying emotions was recorded with a device called "kymograph".

A kymograph recording simultaneously more than one variable was called a polygraph already at that time.

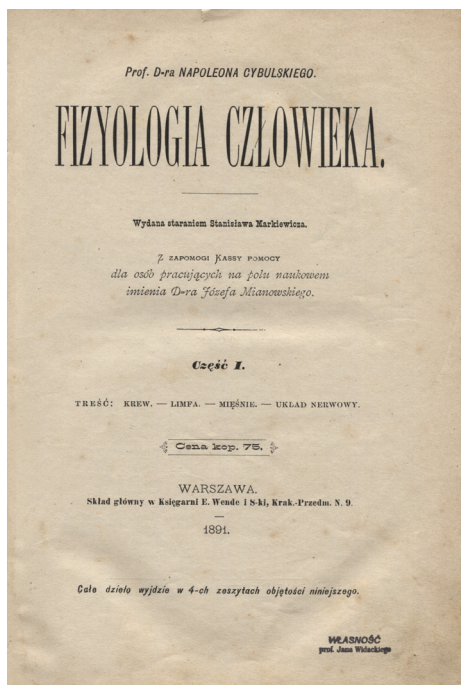


Fig. 4. Title page of *Fizyologia człowieka*, course book by Napoleon Cybulski

2. Between the two world wars (1918–39)

In the period between the two world wars, Polish expert literature, both on psychology and law, described American polygraphs as well as German experiments of Löwenstein and Seelig.[2] However, no attempts were made to use these methods (techniques) for practical purposes. In the 1930s the Institute for Psychological Hygiene even purchased a polygraph in the US (Darrow's photopolygraph), yet the device was never used for the detection of deception, but only for studying the emotional potential of children.

3. After the Second World War (until 1976)

After 1945, Polish expert literature ranging from psychology, via law studies, to criminalistics, presented the polygraph in negative light only. Moreover, the views were expressed in the language of the time. Thus, the polygraph, more often referred to as “lie detector” was found a “bourgeois” – or even more precisely “imperialistic” – tool of dubious value used mostly for the spreading of the atmosphere of terror in bourgeois investigation procedures.

The situation changed early in the 1960s, when Professor Paweł Horoszowski, at the time head of the Department of Criminalistics at the University of Warsaw left for a scholarship to the US, where he purchased a Stoelting polygraph. Save for the Darrow's photopolygraph decades earlier, it was the first contemporary polygraph device in Poland.

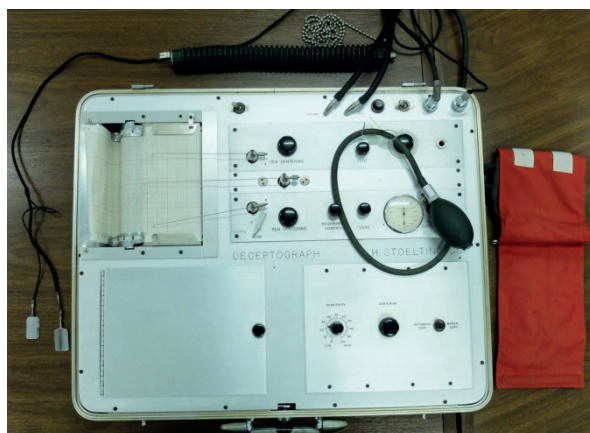


Fig. 5. Professor Horoszowski's polygraph, currently in the collection of the Department of Criminalistics at the Nicolaus Copernicus University in Toruń

It is worth noting that Professor Horoszowski underwent no training in polygraph examination in the US, and there are reasons to believe that he only browsed the literature. He did not run any experiments while still in the US and having returned to Poland. Nonetheless, immediately on his return he proposed polygraph examinations in two real criminal cases. The first polygraph examination in a criminal case in Poland, and perhaps also in this part of Europe, was performed by Professor Horoszowski on 27 June 1963, in a homicide case run by the Regional Prosecutor in Olsztyn (case number: II Ds. 25/63).

Method of examination by Horoszowski have been repeatedly critical mentioned in literature.[3] There is another more important factor: a precedent was made. The polygraph was used for the first time to provide evidence during investigation. This triggered extremely important consequences. First of all, it had the Supreme Court make a statement (Supreme Court did not prohibit the polygraph examination in criminal cases) and take a stance on the potential use of polygraph in a criminal case. Secondly, the first use of a polygraph in a criminal case resulted in a lively discussion in legal and forensic sciences literature. Whatever the judgement of its value can be, it is a fact that the result was founded on a great deal of emotions rather than expertise, nonetheless it objectively expanded the knowledge of the polygraph, polygraph examinations, their essence and diagnostic value, and polygraph practice in other countries.

In the very last years of the 1960s, the Polish military intelligence and counterintelligence began to obtain information about polygraphs being used by the American secret services both in the US and in the US military bases in Western Europe. The subjects were the people who were recruited to cooperate as well as persons accused of espionage.

In such circumstances, the Polish Internal Military Services (Wojskowa Służba Wewnętrzna – WSW) operating as the military police and counterintelligence at the same time, purchased a Keeler polygraph (model 6306) in the US.

It was intended only to be used for examining people suspected of cooperating with the intelligence of Western states and training own agents. The latter were to be accused with the examination should Americans subject them to it.

In practice, the polygraph began to be used in cases run by military prosecution, also in petty crime cases. Its most frequent application was in missing weapons cases in military bases or barracks. Moreover, military experts began to conduct individual polygraph examinations, catering for the needs of cases run by civilian prosecutors, mostly in homicide cases. This was for example the case with military experts performing

polygraph examinations in the investigation of the infamous case of a serial sex killer, Zdzisław Marchwicki, nicknamed the Zagłębie Vampire.



Fig. 6. Keeler polygraph 6306

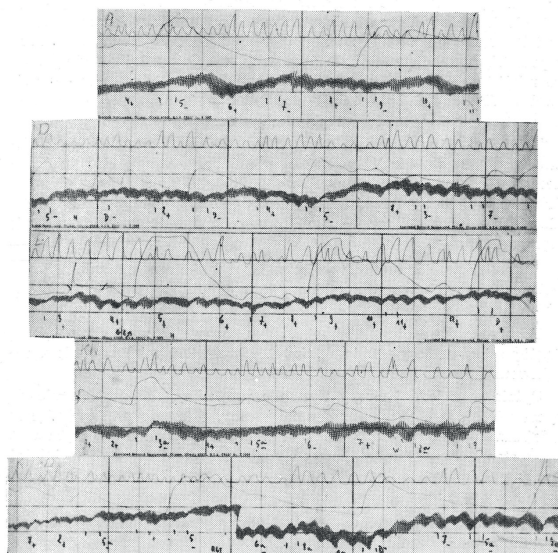
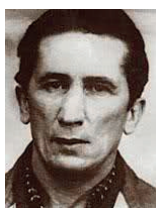


Fig. 11. Zdzisław Marchwicki and the curves from his polygraph examinations

It should be added that the Ministry of the Interior, which included Department I – Intelligence and Department II – Counterintelligence purchase a Keeler polygraph (model 6308) early in the 1970s, however, the ministry experts did not perform any polygraph examinations for the needs of criminal investigations at the time.

Until 1977, these were only the experts of the WSW who performed polygraph examinations in court cases in Poland. After 1977 such examinations were also performed at the Department of Criminalistics of the Silesian University in Katowice, and at the Department of Criminalistics of the Nicolaus Copernicus University in Toruń, and, to a smaller scale, at the Department of Criminalistics of the University of Wrocław.

4. After 1976

The year 1976 marked two seemingly unrelated events. The sentence of the Supreme Court recognised that polygraph can be used for evidence purposes, and defined the results of such examination as “accessory evidence”. This position of the Supreme Court opened the door to a more general use of the polygraph in criminal investigations, as accounted in greater detail below. The other event was the purchase of a Lafayette polygraph, very modern for its time, by the Department of Criminalistics of the Jagiellonian University, who embarked on experimental activity. It is worth realising that no experiments had been conducted in Poland to that time. After I moved from the Jagiellonian University in Kraków to the Silesian University in Katowice, the polygraph followed my transfer, and so did the experimental studies. The Department of Criminalistics of Silesian University established contact with American specialists: Dr. Gordon Barland of the Utah University, Dr. Clarence Romig of the Illinois State University, and Professor Frank Horvath of the Michigan State University. It is interesting, both Barland and Horvath visited Poland after 1990, for invitation of the Polish government as.... CIA officers or experts.

Experiences were exchanged, and the first joint publications were released, [4] and Polish authors began to publish in the US [5] with one of the joint studies being published in the prestigious *Journal of Forensic Sciences*. [6] (Scientific research will be discussed in greater detail further.)

Since 1977 the Department of Criminalistics of the Silesian University began running polygraph examinations as evidence primarily in homicide cases. Only in 1977–78, more than 350 people were examined at the University in authentic court cases. [7] That number would grow to well over 1000 by the end of the 1980s.



Fig. 12. Dr Gordon Barland and his wife in Department of Criminalistics of the University of Silesia in Katowice (Poland)

In the late 1970s and early 1980s a series of sexually-motivated killings of women were reported in Silesia. As their perpetrator could not be found, a decision was made to subject nearly 800 people, whom the police considered theoretical perpetrators of the murders to screening. The cohort drafted for the purpose consisted of people suspected of various sexual deviations, previously sentenced for sex crimes, seen in the vicinity of crime scenes, etc. By the way, from today's point of view, you could have plenty of reservations about the way of profiling the people for that polygraph screening exercise. Yet it has to be remembered that we refer to the late 1970s and early 1980s, that is a time before the division into "organised" and "disorganised" models of sexual homicide became known. It was only developed in the US a number of years later.[8] However, it is a fact that polygraph examination for screening purpose on such a scale (with over 800 subjects!) was the first and as yet the only such exercise in Poland.

No perpetrator of the serial murders was discovered among the subjects of the screening exercise. However, the perpetrator profiled in a different manner and was soon identified as Joachim Knychala. After a polygraph examination, he admitted to the murders he was charged with. Knychala also admitted to attempted homicides and also one case for which another, innocent person had previously been sentenced.



Fig. 13. Joachim Knychala

The polygraph examination of Joachim Knychala and apprehending him as the perpetrator of the serial killings (he was finally convicted for five murders and seven attempted murders) was the most spectacular success of polygraph examinations early in the 1980s.

5. Polygraph examinations in Poland after the systemic change of 1989

5.1. Introduction

After the system transformation of 1989–90 polygraph examinations became more widespread in Poland.

First of all, the police set up units for polygraph examinations. They were also developed from scratch in all special services. Even before Poland's accession to NATO, contacts with both US and Israeli counterparts had been established. These usually relied on foreign instructors training Polish expert polygraphers, but also included exchange of experience, and importantly lifting the embargo on polygraph devices and certain expert literature on polygraph examinations. A handful of Polish experts and scientists were also admitted to the American Polygraph Association.

Currently, polygraph examinations are performed in Poland for the needs of criminal proceedings, for the internal needs of police and special services, and also in the private sector.

5.2. Polygraph examinations for criminal investigations

The current legal foundation for polygraph examinations in criminal investigation are Art. 192a and Art. 199a of the Code of Criminal Procedure.[9] The first allows polygraph examination for screening purposes at an early stage of an investigation. Screen-

ing can be conducted with respect to people whose status has not yet been ascertained in a trial, therefore they are not yet formally accused (defendants), and/or witnesses. The result of the examination may, although it does not have to, be used as evidence at a later stage investigation.

In turn, Art. 199a of the Code allows polygraph examination of both defendants (accused) and witnesses as evidence.

Examinations referred to in the Code are performed both by experts from the Polish Police and private expert witnesses. In all cases, the informed consent of the subject is required to conduct an examination.

Polygraph examinations, as proved by studies and available statistics, are performed fairly infrequently in Polish criminal trials, chiefly in the most difficult and grave cases, obviously including those of murder. In the recent years, from 200 to 300 of such examinations have been performed in criminal cases in Poland. Comparing that number to the total number of investigations conducted – over a hundred thousand – one polygraph examination is performed on average in 3000 procedures. The Supreme Court and Courts of Appeal have frequently presented their opinions concerning to polygraph examinations for the purposes of criminal procedures.

Use of polygraph examinations in criminal cases in 2005–2011

Year	Number of initiated criminal cases	Number of cases using polygraph
2005	1,235,239	8
2006	1,156,031	22
2007	1,014,695	50
2008	968,620	126
2009	994,959	80
2010	964,616	87
2011	981,460	158
		531

For the first time the Supreme Court took a stance in the aforementioned statement from 1964 (sentence of 11 November 1964, ref. No. III K 177/64). However, at the time the Supreme Court did not provide a clear opinion whether polygraph examination is permitted as evidence in a trial. In result, its sentence was quoted both by the supporters of admissibility of polygraph examinations and those who believe such examinations to be impermissible in criminal cases.

An important verdict of the Supreme Court came in 1976 (sentence from 25 September 1976, ref. No. II KR 171/76). The court recognised polygraph examinations permissible in criminal investigations, and the evidence they provide as “accessory evidence” that as such “cannot lay the grounds for specific decisions”. The problem was that the Supreme Court never explained what it meant by “accessory evidence” nor what it means that it “cannot lay the grounds for specific decisions”. What the Court could mean by that became an object of speculation by later commentators.

Only recently, on the grounds of the new Code of Criminal Procedure, after its amendment in 2003, when the two new regulations were added in Art. 192a and Art. 199a, the Supreme Court explained, in a statement from 2015 (statement of 29 January 2015, ref. No. I KZP 25/14) that “accessory evidence” is tantamount to circumstantial evidence, that is the opposite of direct evidence.

According to the regulations of the Code and the judgements of the Supreme Court, a polygraph examination cannot be a part of an interrogation, and must be performed as a separate expert examination and opinion.

The task of the expert is to assign the subject to one of the two categories: DI (deceptive) or NDI (non-deceptive), or consider that the examination was inconclusive (INC).

Categorising the subject as DI means that the subject reacted to the critical questions of the test the way that is usual of the people who answer these questions deceptively, that is either lie or conceal the fact of having certain information about the issue that the question concerns.

Considering a subject as NDI means that the subject reacted to the critical questions in the way that is usual of the people who answer these questions honestly.

What “usual” means remains a question. Answering it requires a reference to the diagnostic value of a polygraph examination. Depending on the technique, it ranges from 85% to 92%. Thus, “usual” means that any number from 85 to 92 out of 100 “deceptive individuals” would react like the subject in question. It is, however, a fact that from 8 to 15 “sincere subjects” could react in the same way. That is why we say that a polygraph examination only provides circumstantial evidence, and that its result must be confronted with the remaining body of evidence.

5.3. Polygraph examinations for internal needs of police and special services

Police and special services (Police, Border Guard, Military Police, State Security Service, Military Counterintelligence Services, Military Intelligence Service, Agency of Internal Security, Intelligence Agency, and the Central Anticorruption Bureau) use polygraph examinations in the process of recruitment as part of pre-employment routine to control the candidates, and also to screen their officers. The legal grounds for such examinations are the regulations on individual services by legal acts. Practically all candidates to work in these services pass through polygraph examination in the process of recruitment.

Besides the examination of human resources, special and police services make polygraph examinations as a tool of screening informants. These are mostly performed on sources of confidential information. The actual procedure is in the hands of the employees of such services. It can be expected that the number of polygraph examinations performed internally in police and special services for their own use greatly exceeds the number of all the examinations in criminal investigations. The actual number is, nonetheless, secret.

5.4. The polygraph in the private sector

In the private sector, polygraph examinations are performed both in employee cases (both pre-employment and control, known as “loyalty” tests) and in what can be defined as family affairs.

The latter cover both “premarital issues” as well as “marital issues” (testing of marital infidelity etc.). Investigations in family cases are not forbidden by law (How could you forbid participating in an examinations to someone who wants to be examined?), however, one could have doubts whether performing such examinations is consistent with ethical standards. In some countries, codes of ethics and expert behaviour forbid to perform polygraph examinations in such investigations. Other problems are the quality of the examinations made for such purposes, the professional level of the examiners, and many others.

Polygraph examination of human resources is not generally forbidden by the law, however, various limitations on such procedures result from the entire legal system, and from the labour law specifically. Questions asked in the tests cannot concern the so-called sensitive data nor any other question that the employer has no right to know. The private sector sometimes also makes use of polygraph examinations in the case of petty crimes and offences (e.g. recurring petty thefts in the company), when the employer does not want to disclose the problem internally, to police services, so as not to under-

mine the goodwill of the brand, cause no scandal, and solve the issue within the company. Technically, such an investigation is identical with one conducted in a criminal case.

6. Scientific research

At least since 1976 polygraph examinations have been an object of empirical studies in Poland. They include experiments and investigation of practical use of the polygraph. The latter usually contains qualitative and quantitative descriptions of the examinations, techniques and the like.

Experimental studies were focused on the diagnostic value of polygraph examination, [10] validity of testing people with central nervous system damages, [11] the scope of expert subjectivism in polygraph examination, and possibility of comparing various polygraph examination techniques.[12] These works were published and/or quoted in American and Japanese, and recently also in Ukrainian and Russian, literature.



Fig. 15. Examination room in Andrzej Frycz Modrzewski Krakow University

Recently, a new research project was initiated to investigate possibility of detection of deception based on a new psychophysiological factor, namely changes of facial temperature recorded by an infrared camera.[13] The study belongs to one of the main

contemporary currents in researching instrumental lie detection: development of a method to allow contactless observation of emotional changes accompanying lie, performed not only without the informed consent but even the knowledge of the subject.

The other current of contemporary research moves the instrumental detection of deception from the psychophysiological to the neurophysiological level, and is made possible thanks to the advanced techniques of investigating brain and its operation (e.g., EEG, fMRI).

This obviously generates a whole range of legal and ethical questions one must be aware of.

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