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## Earliest History of Kazakhstan Polygraph

Предыстория казахстанского полиграфа

**Key words:** polygraph in Soviet Union, polygraph in Kazakhstan

The instrumental method of psychophysiological detection of concealed information i.e. examinations using a polygraph (“lie detector”) is widely applied in the Republic of Kazakhstan. According to the Eurasian Polygraph Association Public Association, law enforcement authorities and special services of Kazakhstan introduced at least 75 new polygraphs, differing greatly in systems and models in 2015 alone. Taught at the training centre of the association for all law enforcement bodies including Ministry of Internal Affairs, Kazakhstan National Agency for Corruption Prevention, Kazakhstan Republican Guard, National Security Committee of the Republic of Kazakhstan, Committee for Emergency Situations, General Prosecutor Office, State Revenue Committee Ministry of Finance, Ministry of Defence in 2015 were 168 new polygraph specialists. Almost every practicing polygraph specialist in

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Kazakhstan attended the seminars, conferences, and training courses organised by our association.

Besides law enforcement, the polygraph is very popular among private Kazakhstani businesses. Most largest banks have employed a polygraph specialist and some even more than one. The largest trading and mining companies also start to use the polygraph either by employing a polygraph specialist or by outsourcing one from the Eurasian Polygraph Association.

In this way, a new profession of polygraph specialist has developed in Kazakhstan. A suggestion to take a polygraph test today is no longer a surprise. Various courts more and more often consider the conclusion of polygraph examinations in various cases, and the law community turns to polygraph examinations to obtain evidence of their client's innocence in reference to various criminal acts.

Therefore, polygraph has made an official entry to Kazakhstan. Many remember the words of President Nursultan Nazarbayev [1] at the Board of the Ministry of Internal Affairs in January 2011, when the President insisted on widespread use of polygraph in the law enforcement system. As a result, on 21 May 2013 amendments to the law On law-enforcement services [2] were adopted, and a year later, on 19 June 2014, so were The rules of organising polygraph examinations in law enforcement bodies of the Republic of Kazakhstan.[3] Today the application of a polygraph is obligatory in law enforcement bodies of Kazakhstan in three areas: 1) hiring personnel to work in law enforcement services, 2) in certification procedure, 3) in internal investigations.

However, the answer to a question how the polygraph started in Kazakhstan and who the “founding father” of the method is, is actually not so simple.

It is well known that the first polygraph in Kazakhstan was introduced in one of private banks in the early 1990s.[4] It was a Lafayette polygraph from the US. It was not Russified, and had no user manual. A businessman saw a polygraph in the United States and considered it an interesting device, so he brought it home as “potentially useful”. Yet such a device can be useful only in the hands of a trained and skilled professional. There was no such a person in the bank, and anywhere else in Kazakhstan at the time. That is why the Lafayette disappeared without ever being used.

The second attempt to use a polygraph in Kazakhstan did not succeed either. A Soviet Delta polygraph made its way to Kazakhstan's Ministry of Defence in the second half of the 1990s at legacy from Russian colleagues.[5] At that time this polygraph was spearhead technology, but its interface was too complex and difficult to understand. Working for the National Security Agency and being beginners in the matters of the polygraph we received a Delta without any instructions for use and had no

practical experience either. Our colleagues from Moscow kindly gave their advice and instructions on how to use a polygraph, and we managed to obtain data on physiological curves. Nonetheless, we were not able to make genuine examinations and conduct examinations with the machine.

Unfortunately, even the third attempt to introduce a polygraph into Kazakhstani law enforcement service did not succeed either, though it left a trace in the history. In the late 1990s the scientific and engineering department of one of the law enforcement agencies of Kazakhstan was tasked to develop and produce its own polygraph.[6] Soon the first Kazakhstani polygraph named Adal (meaning “Justice”) was presented. A few Adal machines capable of reading basic physiological parameters: the upper and lower respiratory response, cardio, skin reactions, and involuntary movements (tremor), were produced. However, significant deficiencies of the Adal were revealed, for example the setting of the device and tuning it to the examinee was difficult and tiring so that it sometimes took up to 30 or 40 minutes. Evidently, it was not acceptable in practical work, and Adal was dismissed.

Even now we are very sorry for Adal, as it was the first (and still is the only one) product of Kazakhstani designers in the field of polygraphy. If only the engineers had had a little more patience and endurance and if the state had helped them with additional funding, perhaps today Adal would be one of the best brands of the Republic of Kazakhstan in the realm of hi-tech and sophistication. However, everything happened as it did, and the third attempt at introducing a polygraph in Kazakhstan failed.

From the moment two major Russian polygraph equipment manufacturers, Varlamov and Soshnikov, visited our Republic, situation began to improve. Their polygraphs KRIS, RIF, Barrier-14, Polarg, and Diana became dominant in Kazakhstan. There was an especially high demand for the professional computerised polygraph Diana among Kazakhstan polygraph specialists in recent years. Of foreign machines Axciton is the most remarkable one.

It is believed that the question of using polygraphs in the Republic of Kazakhstan was first tackled in 2002, and covered its usage in investigative activities, the work of the personnel, and procedures. It was the first Kazakh textbook on criminology published under the supervision of the guru of Kazakhstani criminology, Professor A. Aubakirov, DLL.[7] A chapter of this textbook for high schools, innovative for that time, was titled Non-traditional methods of obtaining evidence in crime investigation, where criminological use of polygraph was also mentioned.

From the perspective of its time, the book considered conceptual, procedural, ethical, technical, and tactical issues of polygraph use. Likewise, polygraph examination

was assessed for reliability and accuracy. Commentators noted the phrase on pp. 682–683: “Thus, the polygraph is used in accordance with the current state of affairs in the Ministry of the Interior, the Federal Security Service, Federal Tax Police Service, Ministry of Defence, and other entities in Russian Federation. The same legal acts apply to Ukraine, Belarus, Armenia, *and recently to the Republic of Kazakhstan.*” [emphasis by the author]. However, the claim was never mentioned again in the textbook. It is still a big question what kind of legal acts concerning the polygraph in 2002 in Kazakhstan that the author meant.

Nevertheless, time went on fast, and majority of mysteries were unravelled. Today it is no secret that the first departmental legal act in Kazakhstan was enacted exactly in 2002 by the National Security Committee. It regulated conducting polygraph examinations (the term was proposed by the author of the article, who also was one of the authors of this normative document) for hiring personnel to law enforcement agencies. The act was approved by the Chairman of the KNB of the Republic of Kazakhstan, and for a long time served as the policy document for the area.

Almaty Polygraph Association was founded on 1 July 2008, and was the first public association of polygraph specialists in the history of Kazakhstan.[8] Since then, 1 July became the official anniversary for Kazakh polygraphy. By now the process of implementation and use of polygraph has accelerated several times. Polygraph specialists from all over Kazakhstan as well as from Russia, Belarus, Kyrgyzstan, Azerbaijan, Mongolia, and other countries have joined the Almaty Polygraph Association. Consequently, the association was renamed into Eurasian Polygraph Association in 2012. With time, local Kazakhstani polygraph specialists have acquired the necessary knowledge and skills, and gained a lot of practical experience and even international recognition.

In August 2015, a group of polygraph specialist from the Eurasian Polygraph Association was invited to participate in the 50th anniversary conference of the APA (American Polygraph Association) held in Chicago. During the six days of the conference, together with leading world polygraph specialists, we considered current issues of lie detection, advanced techniques of examination, features of serious crime investigation with the use of the polygraph, identification of intentional resistance to polygraph testing, and other issues.

Today’s rapid and successful development of Kazakhstani polygraph would not be possible without the efforts of Ivan Zinkevich, a well-known Kazakh specialist in forensic sciences, professor, colonel of the reserve. Zinkevich was the first Russian scientist to raise the issue of applying the polygraph at a conference of the Soviet Ministry of Internal Affairs on The use of technical devices in detection and inves-



tigation of crime in 1980. The conference was held in the Dzerzhinsky Kiev High School of the Soviet Ministry of Internal Affairs, and its proceedings were published. [9] In the book the speech Zinkevich delivered at the conference is entitled Problems of polygraph use in crime investigation in the People's Republic of Poland.

Let's try to understand what made an associate professor of the Karaganda High School of Criminology of the Soviet Ministry of Internal Affairs interested in the polygraph and why he addressed Polish experience in the implementation of the polygraph in criminal investigations.

Together with his parents, Ivan Zinkevich moved to Kazakhstan as Polish refugees, settlers against their will. Despite that young Ivan did not seem annoyed by the state that was so cruel for his family. He went to the High School of the Soviet Ministry of Internal Affairs in Karaganda, where he studied from 1967 to 1971. Cadet Zinkevich was very lucky with the instructors, especially the teacher of psychology, a field of great interest for the young man. The works of A. Luria outstanding Soviet academic, changed the worldview of the young internal affairs officer, as they described the options for using psychophysiology in criminalistics.

Zinkevich also had a memorable meeting with the legendary Soviet spy, Rudolf Abel, who conducted several classes with high school students. Abel discussed the use of polygraph in blowing his cover in the US: although he did not say a word during the numerous polygraph examinations by the FBI, his physiology made everything clear and Abel could do nothing about it. Americans discovered everything about the Soviet spy network in the US.

Abel was arrested by FBI, but was soon released in return for an American pilot of a U-2 aircraft, Francis Gary Powers, shot down on 1 May 1960 over Sverdlovsk. For a long time, the KGB did not believe that Abel did not say a word during polygraph examinations, because it seemed incredible that the physiology of silent Abel revealed all the secrets.

With such personal experience, Abel acquired respect for the polygraph method of identifying hidden information. He emphasised that the method is highly effective and allows to reveal any secret. Zinkevich remembered these words of the famous Soviet spy particularly well.

Zinkevich looked for an opportunity to work with the polygraph when he started to work at the Academy of the Soviet Ministry of Internal Affairs in Moscow. However, in all the communist bloc, such work was carried out only in the People's Republic of Poland. In order to get an internship there, Zinkevich had to visit the legendary First Deputy Minister of the Ministry of Internal Affairs, General Yuri Churbanov, pri-

vately son-in-law of General Secretary Brezhnev. Surprisingly, Churbanov approved the trip, as he appreciated the commitment of the young Zinkevich to the development of a new albeit controversial method.

In 1975, as one of the best young scientists, Zinkevich received an internship in Warsaw, at the Institute of Criminology of the Academy of Internal Affairs. Perfect knowledge of Polish and the striking desire for new skills led Zinkevich to a department where polygraph was in use for criminal proceedings. It should be noted that at the time Poland held a leading position among communist countries in introducing polygraph.

During the visit to Warsaw, Zinkevich worked closely with the legendary 4-channel polygraph created by Keeler factory. An experience that made Zinkevich confident that polygraph is a really efficient device and should definitely be used in his country too. With all these reflections and willingness to develop Kazakhstani criminalistics, Zinkevich came back home.

There was, however, not a single working polygraph in the Department of Criminology of the High School or in the whole USSR at the time. That is why Zinkevich decided to make one himself. In the Karaganda Medical Institute, he received a number of different devices, individually capable to record pulse changes, respiration, pressure, and other physiological parameters. With this diverse equipment the scientist made his own polygraph and started his extensive research programme where he experimented on the students of the Police Academy. He created artificial criminal situations and tried to use his device to find the culprits. In total, he examined more than 30 students and in about 85% obtained correct results. A very good figure even for our times.

It is interesting to notice that Zinkevich was unfamiliar with modern methods of polygraph examination, yet he intuitively came to test a concept that is currently considered the most reliable and valid in polygraph examinations. It is Lykken's test for detecting hidden information.

Such a dynamic research activity could not stay unnoticed in the Soviet bloc, however, and Zinkevich was summoned by B. Beisenov, the head of the Karaganda High School of the Soviet Ministry of Internal Affairs. It should be noted that the general attitude to the polygraph was extremely negative in the Soviet Union, since the method was considered bourgeois and reactionary. There were only few mentions about the polygraph in the literature of the time made by G. Zlobin and S. Jani.[10]

Beisenov appreciated the creative enthusiasm of his subordinate but kindly warned that he should not dedicate his time to polygraph, since the method is similar to

biologism, and for further work in this area Zinkevich can be fired. However, the conversation did not convince Zinkevich to stop his work with polygraph as he felt that Beisenov had an understanding for the device as well. Nevertheless, Zinkevich decided to continue his research more carefully and theoretically rather than practically.

Zinkevich made many useful connections with outstanding scientists such as R. Belkin, G. Zuikov, N. Yablokov, and L. Vinitiskii. These progressive lawyers understood the benefits and potential practical use of the polygraph but were afraid to speak openly in defence of this method. Everyone remembered highly conservative statements by M. Strogovich and I. Panteleyev saying that “the polygraph compromised itself as a pseudoscientific method”.<sup>[11]</sup> Professor I. Luzgin openly warned Zinkevich to be careful with the new device as it could bring plenty problems.

Tutors, R.S. Belkin and G.G. Zuikov made a huge impact on Zinkevich as a scientist. In 1975 they offered young Zinkevich go to explore Poland and polygraph. Experienced scientists could not work with the polygraph themselves, as they were afraid of other colleagues with extremely negative attitudes to the device. That is why they decided to attract a young scientist who had nothing to lose. In addition, Zinkevich was of Polish origin which they thought should simplify the task.

An outstanding professor himself, Belkin certainly used young Ivan Zinkevich to further his own ambitious goals. Under Belkin’s unofficial patronage Zinkevich conducted his experiments in Karaganda. In 1980 Belkin decided to test, with the assistance of his loyal subordinate Zinkevich, his opponents from the conservative professors board in Moscow. Belkin and Zinkevich prepared a speech for his performance at a conference in Dzerzhinsky Kiev High School of Ministry of Internal Affairs of the USSR in 1980.

Zinkevich chose the topic of his speech very carefully. He could not share the experience with the polygraph he had in Karaganda High School, as it could trigger negative reactions and consequences not only for him but for B. Beisenov as well. There was only one theme available that would not damage his reputation in uneasy Soviet circumstances: his Polish experience with polygraph.

In a report on a theme completely neutral at a first glance – Problems of polygraph use in the investigation of crimes in Poland – Zinkevich (most probably with Belkin’s approval) included very controversial and daring material. This is how Zinkevich entered into an open conflict with the reactionaries, ardent Soviet opponents of the polygraph.

In his report Zinkevich said “The fact is that in modern criminology, there is no other device such as polygraph to have so many negative opinions. They are made by people who neither have nor have seen a polygraph in their lives, and never conducted research on it, nor even are familiar with the special literature on this subject and methods of using the device.”[12]

In his smart and daring speech, Zinkevich proved the necessity of using polygraph for detecting the truth, by providing strong arguments and own observations made in lifetime’s experience. He mentioned outstanding works by physiologist I. Pavlov and psychologist B. Porshnev, and also made a link to the successful experience of Polish polygraphers, as well as their colleagues from Czechoslovakia and Yugoslavia. He even referred to the examples of polygraph use in the US, even though that was not a typical reference in the Iron Curtain time. Zinkevich finished his speech with some truly revolutionary proposals.

For the first time in Soviet science he proposed to design a programme for the polygraph that would allow to solve experimental, theoretical, and practical problems and fight crime. He believed that the programme for future research should cover:

- a) the history of a problem
- b) the theory and practice of polygraph research in capitalist countries
- c) the theory and practice of polygraph researches in communist countries
- d) natural scientific grounds for polygraph
- e) psychological grounds for polygraph research
- f) ethical and legal aspects
- g) the questions of complex problem of polygraph use in fighting crime.

Zinkevich’s speech at the Kiev High School of the Soviet Ministry of Internal Affairs in 1980 went much ahead of his time. Serious research on his programme became possible only decades later. Only in 1997 could his tutor, Professor Belkin, prove the need for the polygraph.[13]

Today we should be proud that a Kazakh scientist was one of the first Soviet experimenters in instrumental lie detection. Unfortunately, this comes many years later than Zinkevich could have started applying his precious work and experience. Late is nonetheless better than never, and we all need to know that the Kazakhstani polygraph research started in the 1970s, precisely at the Karaganda High School of Police thanks to a modest scientist-experimenter Ivan Bernardovich Zinkevich.



Ivan Zinkevich (right) with President Nursultan Nazarbayev at a session of the Assembly of Peoples of Kazakhstan.

*Translated by Yelena Milshtein*

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## Anticlimax Dampening Concept: It Does Exist

Концепция Anticlimax Dampening: она работает

**Key words:** anticlimax dampening, examiner conclusion

In recent years some examiners have tried to change the basic concepts of polygraphy by introducing questionable changes. I am still unsure whether these changes have any scientific grounds or simply served as an attempt to challenge the theories of our pioneers and in doing so to enter the hall of polygraph fame. One of these concepts was a psychological set which received a new name of “salience.” Many years ago the issue of the name versus its meaning was addressed by Shakespeare in *Romeo and Juliet*, Act 2 scene 2 “What’s in a name? that which we call a rose by any other name would smell as sweet.”

Among issues related to the theory of psychological set we can find the concept of Anticlimax Dampening. The knowledge of this concept may force some examiners change their opinion about the results they reported to clients. I often see reports on multiple issue or multifaceted tests wherein the examinee is deceptive to one question and truthful to others. If such a result is reached after running only a single CQT (Comparison Question Test), this is a mistake!

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Let's us review what this concept says:

## Anticlimax Dampening Concept

In a PV examination, the examinee's psychological set will be drawn to the test question holding the *greatest threat or interest* to his/her general well-being thus engaging the *selective attention* which may *tune out* test questions posing a lesser threat, hence causing an *anticlimax dampening effect* on all questions except that which gained the examinee's selective attention. Therefore, when two distinctly separate crimes are included in the same test, the suspect who is guilty of both of them may respond only to the crime that he/she feels to be the greatest threat to his/her well-being. Furthermore, the relevant question offering the greatest threat to the guilty examinee will cause partial or complete dampening of control question reactions, thus an anticlimax [1].

This theory proposed by Cleve Backster is based on the principle of the "psychological set". A theory that holds that a person's fear, anxieties, and apprehensions will be directed towards the situation which holds the greatest threat or interest for his/her well-being or self-preservation at that moment in time. In a polygraph examination, a guilty examinee's concern over an intense relevant question may result in a full or partial dampening of responses to other relevant questions about deception, as well as to comparison questions. (Backster 1963) [2].

Let's review a case that clearly demonstrates this theory. During a basic course in polygraph, we playacted a mock crime. There were three participants: two active and one passive. Two of the students were asked to steal an item: Student A stole a cell-phone and Student B – a laptop.

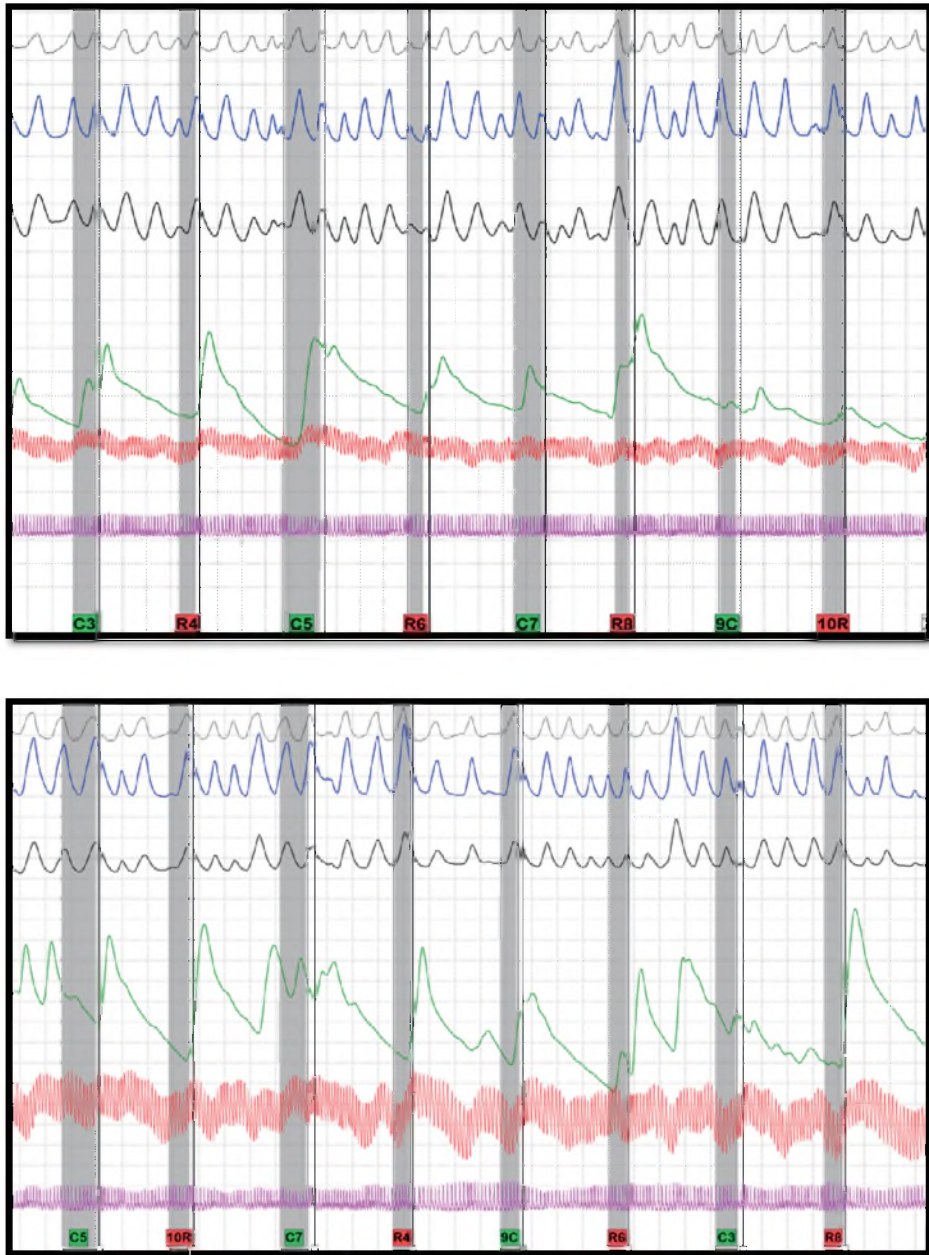
Student A was also asked to take a knife from the kitchen and, with the help of student B, lock student C (a female) in a small closet. This was done while student C was not present. When student C entered the room the two students asked her to enter into the closet and she did. Student B held the knife in his hand behind her back. Later on student C stated that she never felt threatened nor saw the knife.

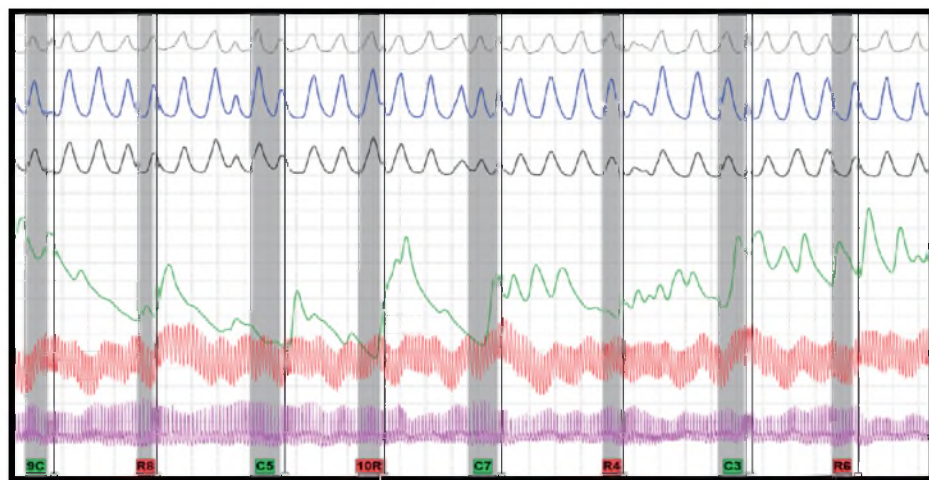
After completing the mock crime roleplay, all students underwent a test. The examiner of student A decided to run an AFMGQT with 4 relevant question as follows:

- (R4) Did you cause the disappearance of the missing laptop?
- (R6) Did you cause the disappearance of the missing mobile phone?
- (R8) Did you point a knife at student C's back today?
- (R10) While pushing Student C into the closet, did you have a knife in your hand?



The following data was collected:





I evaluated the test manual using a 3-point scale (the charts were not condensed) to obtain the following results:

R	4	R	6	R	8	R	10
<b>CHART 1</b>							
PNEUMO2	0	PNEUMO2	1	PNEUMO2	1	PNEUMO2	-1
PNEUMO1	0	PNEUMO1	-1	PNEUMO1	1	PNEUMO1	-1
EDA	1	EDA	1	EDA	-1	EDA	1
CARDIO	1	CARDIO	1	CARDIO	-1	CARDIO	1
SUBTOTAL	2.0	SUBTOTAL	2.0	SUBTOTAL	-1.0	SUBTOTAL	1.0
<b>CHART 2</b>							
PNEUMO2	-1	PNEUMO2	0	PNEUMO2	-1	PNEUMO2	1
PNEUMO1	-1	PNEUMO1	0	PNEUMO1	-1	PNEUMO1	1
EDA	-1	EDA	-1	EDA	-1	EDA	-1
CARDIO	-1	CARDIO	1	CARDIO	-1	CARDIO	1
SUBTOTAL	-3.0	SUBTOTAL	0.0	SUBTOTAL	-3.0	SUBTOTAL	1.0
<b>CHART 3</b>							
PNEUMO2	-1	PNEUMO2	1	PNEUMO2	-1	PNEUMO2	1
PNEUMO1	-1	PNEUMO1	1	PNEUMO1	-1	PNEUMO1	1
EDA	1	EDA	1	EDA	-1	EDA	-1
CARDIO	1	CARDIO	1	CARDIO	1	CARDIO	0
SUBTOTAL	1.0	SUBTOTAL	3.0	SUBTOTAL	-1.0	SUBTOTAL	0.0
3 CHARTS SUBTOTAL	0		5		-5		2

## Conclusion

What we see is that the examinee is clearly focusing on R8 (Did you point a knife at student C's back today?). This occurred even though he had the stolen phone in his possession throughout whole test. Still, he focused his psychological set on a 2-minute incident, even though he was lying to the relevant question concerning the article that was still in his possession. We can also see that the examinee accumulated the negative points in all three collected charts.

This short example demonstrated at a training emphasises the importance of the Anticlimax Dampening Concept and the danger of failing to pay attention to it. When in a multi-issue or multifaceted tests an examinee is deceptive to one of the relevant questions yet lacks reactions to other ones, considering the latter question(s) "truthful" contradicts the concept of Anticlimax Dampening, and can clearly result in erroneous examiner conclusions.

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# The Amount of Information Remembered by the Perpetrator in the Context of the Application of the Guilty Knowledge Technique in Criminal Investigation – a Pilot Study,<sup>\*\*\*</sup>

Количество информации, сохраненной в памяти правонарушителя в контексте использования тестов ГКТ в ходе расследования уголовного дела: экспериментальное исследование

**Key words:** Guilty Knowledge Technique, GKT or CQT

Despite the fact that the Guilty Knowledge Technique [Lykken 1959, Lykken 1960], or GKT, originated more than five decades ago, its validity is still debatable, especially when compared to other polygraph techniques.

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Partisans of GKT superiority to other techniques, especially to Control Question Technique, support their opinion on the high percentage of correct results (up to 100% in some studies) coupled with a relatively low count of inconclusive indications, or even their lack [Lykken 1973, Elaad et al. 1992, Elaad 1998].

Members of this group believe that the GKT technique provides much more protection for innocent subjects, because, unlike the CQT, the polygrapher does not ask directly about perpetration of a crime during the procedure, but instead he verifies the subject's knowledge about all distinctive aspects of the case – in this way reducing the chances of a random reaction to critical question, which could be interpreted as a deliberate lie made by truly innocent subjects [Krapohl et al. 2009]. The Guilty Knowledge Technique is also believed to provide more solid methodological background than the CQT [Lykken, 1974; Ben-Shakkar & Elaad 2002].

On the other hand followers of the CQT technique claim that from diagnostic point of view it cannot match the latest forms of the Control Questions technique [APA Meta-Analytic Survey 2011, Gołaszewski 2012, Widacki 2014]. Superiority of the CQT may also lay in the broader spectrum of its potential application [Elaad 1990, Podlesny 1994, Podlesny 2003] – its effectiveness does not rely on the existence of multiple distinctive details of the case known only to the investigators. Some problems with the distinction between perpetrators and witnesses (who have some knowledge about the case as well) have also been indicated [Konieczny et al. 1984, Bradley & Warfield 1986].

Followers of the CQT also argue about the theoretical base of the Guilty Knowledge Technique, especially about the assumption that the perpetrator is in a state of high consciousness during the act, and because of that has the ability to remember fully the whole event with high amount of details. An argument has been made that every single perpetrator of a crime is more or less stressed during the critical moments of the event. The presence of stress during a crime may reduce the level of offender's perception [Christianson 2007] and result in a possibility that perpetrators do not remember many details of the crimes that – from the perspective of the theoretical background to the GKT – they are expected to remember [Widacki 2011]. This argument is particularly interesting because, if accurate, it can discredit the application of the Guilty Knowledge Technique in criminal investigation, and consequently also its very right of existence.

In the light of the above, before any comparison of validity between GK and CQ techniques can be made, it is necessary to determine in a staged event whether subjects are able to remember properly a sufficient amount of details for the Guilty Knowledge Technique to be used effectively.

## Method

Forty (40) subjects (students of Andrzej Frycz Modrzewski Kraków University, aged from 21 to 27) were divided in two equal groups: A (“perpetrators”) and B (“witnesses”). Members of both groups were arranged into 20 “perpetrator –witness” pairs, and all of them duly participated in an activity prepared for the needs of the experiment. After receiving their instructions, each pair have entered a darkened shooting range where the “perpetrator” had 7 seconds to assume his or her place in the shooting range and take the blank gun. After that time, a light beam was activated and illuminated the rotating shooting target with the picture below placed on it, 4m away from the shooting range. The photo (80 × 60 cm) featured the “victim”: a young woman standing in quite a dark room and talking on a mobile phone.



Photo 1. The picture used in the experiment.

From that moment, the “perpetrator” had 10 seconds to make one shot from the blank gun at the target, aiming to “kill” the “victim”. After the time, the target began to rotate automatically to prevent further exposition. The “witness”, unaware of the instructions given to the perpetrator, had to observe passively the whole event. After the target began its rotation, subjects were asked to leave the room and separately asked to fill in a questionnaire, where they first determined the level of stress generated during the experiment and then described shortly the whole event from their point of view. This was followed by answering 11 questions. The author of the

questionnaire believes that they indicated the most distinctive details of the picture. They related to:

- the gender and age of the “victim”
- situation, in which the “victim” was “caught”
- characteristic background details of the picture
- “victim’s” hair color;
- “victim’s” cloths and other details
- the objects in the “victim’s” hands
- two particular, highlighted background elements in the pictured room (a wooden bookcase to the right from the “victim”, and candlesticks with candles on the wall on the left).

The questions were to determine the amount of information that the subjects remembered while being exposed to the picture, and would be considered a starting point to develop polygraph tests using the GKT technique. The dramatic scenario of the experiment (unknown to the last moment, with little time to prepare and shoot blank gun, and also the loud noise accompanying the shooting) was developed to generate a relatively high level of stress, especially in the “perpetrators”.

## Results

In the questionnaires filled after the experiment all subjects described the course of the event without much detail but correctly. Descriptions of the picture placed on the shooting target were less accurate. Reasons for that are different, and they will be presented later in this article. The stress level generated by the event as declared by subjects (on a scale 1-10, where 1 is totally free of stress and 10 fully stressed) was distributed as shown in the table below:

Group	Level of stress declared by a subject		
	1–3 (low stress)	4–6 (medium stress)	7–10 (high stress)
<b>A (“perpetrators”)</b>	9 subjects (45%)	5 subjects (25%)	6 subjects (30%)
<b>B (“witnesses”)</b>	11 subjects (55%)	5 subjects (25%)	4 subjects (15%)

Table 1. Distribution of declared levels of stress in both groups.

At the first sight, the values seem to be very similar in both groups. The chi-square ( $\chi^2$ ) test value in this case is 0.6 and lies outside the acceptance region for a significance level of 0.05, in the context of the critical value of chi-square distribution with two degrees of freedom – 5.991. With respect to the above, the null hypothesis can-



not be rejected, which means that the amount of stress generated by the experiment cannot be considered distinctive for members of the two experimental groups.

Answers to the eleven questions about the distinctive elements of the picture used in the experiment allowed to determine the amount of information effectively remembered by subjects participating in the event.

Group	Number of well-remembered details:		
	0–3	4–7	8–11
<b>A (“perpetrators”)</b>	8 individuals (40%)	11 individuals (55%)	1 individual (5%)
<b>B (“witnesses”)</b>	2 individuals (10%)	12 individuals (60%)	6 individuals (30%)

Table 2. Distribution of the number of details (information) remembered in both groups.

The average number of remembered details of the picture exposed during the experiment is 3.8 in group A (“perpetrators”) and 6.4 in group B (“witnesses”). The chi-square test value is 7.27 and lies in the acceptance region for the significance level of 0.05, because the critical value of chi-square distribution with two degrees of freedom is 5.991. With respect to the above, there are grounds to reject the null hypothesis in this case and the distinction between the two groups of subjects based on the number of details remembered is statistically relevant. The role in the experiment affected the ability of remembering details well, independently from the subject’s declared level of stress.

Due to the large difference between the declared levels of stress (the lowest recorded value being 1 and the highest – 8) it seems reasonable to compare values of stress with the number of details remembered by the subjects regardless of their role in the experiment. The comparison of all 40 subjects participating in the experiment is presented below:

Declared level of stress	Number of details remembered by individuals		
	0–3	4–7	8–11
<b>1–3 (low stress)</b>	3 individuals (7.5%)	10 individuals (25%)	7 individuals (17.5%)
<b>4–6 (medium stress)</b>	2 individuals (5%)	8 individuals (20%)	-
<b>7–10 (high stress)</b>	5 subjects (12.5%)	5 subjects (12.5%)	-

Table 3. Distribution of the number of details remembered broken by the declared level of stress in members of Group A and B together.

The average amount of details remembered by the subjects who declared low stress level was 6.25, medium stress level allowed to obtain on average 4.3 details, and high level of stress – only 3.6 of details in the exposed picture. The chi-square test value for these results is 11.574 and the critical value of chi-square distribution with four degrees of freedom is 9.488. The resulting value therefore lies within the acceptance region for the level of 0.05, and the null hypothesis can be rejected. Therefore, with the 0.5 level of significance, it can be stated that there is a statistically relevant relationship between the subject's level of stress and the amount of remembered details of the event, regardless of affiliation to group A or B.

### Pilot polygraph examination

A decision was reached to run a pilot project using a group of four subjects to test the conditions (both rooms and equipment) required for running the examinations. The group consisted of people participating in the experiment described above. The subjects included two from the group of the “witnesses”, one person from the group of the “perpetrators”, and one who was not connected to the event. The polygrapher was given the task to use polygraph examinations to determine who belonged to which group.

The examination made use of CQT tests, as proper use of GKT tests was impossible for a number of reasons. First, the experiment took place more than six months before the planned examination, and the knowledge of the event became destroyed in participants in the experiment, and the differences in the way the event was remembered between the witnesses and the perpetrator was possible. Consequently, which is another argument, the knowledge of the perpetrators and witnesses of the event became levelled, the only difference between the witness and the perpetrator being the fact that the perpetrator held the gun in his hand and shot. Let a good example of portraying the blurring of the differences be the fact that neither the perpetrator nor the witness remembered what weapon was used, yet both witness and the perpetrator remembered perfectly well what the target at the shooting range was. All this resulted in the lack of sufficient characteristic differences in the features of the event between the knowledge of the witness and the perpetrator, which made it impossible to use GKT tests.

For the reason above, a CQT technique was used, to be precise the latest development in the CQT family, namely the UTAH ZCT. The test was developed in the option that contains control questions about Directed Lie Control (DLC). The examination made use of two UTAH ZCT DLC tests. The first was to check whether the subject

is a witness, and the second was to test whether the examinee is the perpetrator. NDI results obtained in both tests meant that the person was not connected to the event. If the first test produced NDI and the second DI, the subject was believed to be the perpetrator. Analogously, with NDI being the result of the first and DI in the second test, the subject was believed to be a witness.

<b>Witness Test</b>	<b>Question Type</b>	<b>Perpetrator Test</b>
Are you sure I am going to ask only the questions we have discussed?	<b>SYMPTOMATIC</b>	Are you sure I am going to ask only the questions we have discussed?
Are you going to answer the questions concerning the event at the shooting range truthfully?	<b>CRITICAL (Relevant)</b>	Are you going to answer the questions concerning the event at the shooting range truthfully?
Are you sitting on a chair?	<b>NEUTRAL</b>	Are you sitting on a chair?
Have you ever lied to a person who trusted you?	<b>CONTROL (Comparison)</b>	Have you ever lied to a person who trusted you?
Did you witness a shot being fired at the shooting range?	<b>CRITICAL (Relevant)</b>	Did you witness a shot being fired at the shooting range?
Are you wearing shoes?	<b>NEUTRAL</b>	Are you wearing shoes?
Have you ever cheated at the exam?	<b>CONTROL (Comparison)</b>	Have you ever cheated at the exam?
Were you at the shooting range when the shot was fired?	<b>CRITICAL (Relevant)</b>	Did you have a gun in your hands on that day?
Are we at a university?	<b>NEUTRAL</b>	Are we at a university?
Have you ever said something derogatory about another person when they couldn't hear?	<b>CONTROL (Comparison)</b>	Have you ever said something derogatory about another person when they couldn't hear?
Did you see the person who fired the shot at the shooting range?	<b>CRITICAL (Relevant)</b>	Did you fire a shot at the shooting range on that day?

Table 4. The questions used in the polygraph examination.

## Results of the pilot study:

Polygraph results obtained were ESS (Empirical Score System) scored. For tests analysing single issue (ZCT), the system features the following decision thresholds: To classify the subject as deceptive (DI – Deception Indicated), the total test score must amount at least to -4, or any of the spots needs to reach at least -7. If the global score is +2 or greater, the person classifies as NDI (No Deception Indicated). In the remaining cases we speak of inconclusive (INC) results. The results of all the tests are presented in the table below. The table provides not only the aggregated results, but also those of spot analysis, and evaluation of individual reactions to specific questions.

TYPE OF TEST:	WITNESS			
subject A		R1	R2	R3
	PNEUMO	0	0	0
	EDA	2	2	2
	CARDIO	0	0	0
SPOT	I	2	2	2
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	2	2	2
	CARDIO	-2	0	0
SPOT	II	0	2	2
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	2	-2	-2
	CARDIO	1	0	-1
SPOT	III	3	-2	-3
		R1	R2	R3
TOTAL	8	5	2	1
TEST RESULT:		NDI		

TYPE OF TEST:	WITNESS			
subject B		R1	R2	R3
	PNEUMO	0	0	0
	EDA	-2	-2	-2
	CARDIO	-1	-1	-1

TYPE OF TEST:	PERPETRATOR			
subject A		R1	R2	R3
	PNEUMO	0	0	0
	EDA	2	0	2
	CARDIO	1	1	1
SPOT	I	3	1	3
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	0	-2
	CARDIO	0	-1	1
SPOT	II	0	-1	-1
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	0	0
	CARDIO	0	1	0
SPOT	III	0	1	0
		R1	R2	R3
TOTAL	6	3	1	2
TEST RESULT:		NDI		

TYPE OF TEST:	PERPETRATOR			
subject B		R1	R2	R3
	PNEUMO	0	0	0
	EDA	-2	-2	2
	CARDIO	0	0	1

<b>SPOT</b>	<b>I</b>	-3	-3	-3
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	2	2	-2
	CARDIO	-1	0	0
<b>SPOT</b>	<b>II</b>	-3	2	-2
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	-2	2	-2
	CARDIO	-1	-1	1
<b>SPOT</b>	<b>III</b>	-3	1	-1
		R1	R2	R3
<b>TOTAL</b>	<b>-15</b>	<b>-9</b>	<b>0</b>	<b>-6</b>
TEST RESULT:		DI		

<b>SPOT</b>	<b>I</b>	-2	-2	3
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	0	-2
	CARDIO	0	-1	1
<b>SPOT</b>	<b>II</b>	0	-1	-1
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	-2	-2
	CARDIO	-1	-1	1
<b>SPOT</b>	<b>III</b>	-1	-3	-1
		R1	R2	R3
<b>TOTAL</b>	<b>-2</b>	<b>-1</b>	<b>-2</b>	<b>1</b>
TEST RESULT:		INC		

TYPE OF TEST:	WITNESS			
<b>subject C</b>		R1	R2	R3
	PNEUMO	0	0	0
	EDA	2	-2	-2
	CARDIO	0	0	0
<b>SPOT</b>	<b>I</b>	2	-2	-2
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	-2	2	-2
	CARDIO	-1	-1	1
<b>SPOT</b>	<b>II</b>	-3	1	1
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	-2	0
	CARDIO	0	0	0
<b>SPOT</b>	<b>III</b>	0	-2	0
		R1	R2	R3
<b>TOTAL</b>	<b>-5</b>	<b>-1</b>	<b>-3</b>	<b>-1</b>
TEST RESULT:		DI		

TYPE OF TEST:	PERPETRATOR			
<b>subject C</b>		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	0	-2
	CARDIO	0	1	0
<b>SPOT</b>	<b>I</b>	0	1	-2
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	-2	2	2
	CARDIO	-1	0	1
<b>SPOT</b>	<b>II</b>	-3	2	3
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	2	-2
	CARDIO	1	0	-1
<b>SPOT</b>	<b>III</b>	1	2	-3
		R1	R2	R3
<b>TOTAL</b>	<b>-1</b>	<b>-2</b>	<b>3</b>	<b>-2</b>
TEST RESULT:		INC		

TYPE OF TEST:	WITNESS			
<b>subject D</b>		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	-2	2
	CARDIO	1	-1	0
<b>SPOT</b>	I	1	-3	2
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	-2	2	2
	CARDIO	0	1	0
<b>SPOT</b>	II	-2	3	2
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	2	-2	-2
	CARDIO	0	-1	-1
<b>SPOT</b>	III	2	-3	-3
		R1	R2	R3
<b>TOTAL</b>	<b>-3</b>	<b>1</b>	<b>-3</b>	<b>-1</b>
<b>TEST RESULT:</b>		<b>INC</b>		

TYPE OF TEST:	PERPETRATOR			
<b>subject D</b>		R1	R2	R3
	PNEUMO	0	0	0
	EDA	-2	0	0
	CARDIO	-1	1	-1
<b>SPOT</b>	I	-3	1	-1
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	-2	-2	2
	CARDIO	-1	-1	-1
<b>SPOT</b>	II	-3	-3	1
		R1	R2	R3
	PNEUMO	0	0	0
	EDA	0	-2	-2
	CARDIO	0	0	-1
<b>SPOT</b>	III	0	-2	-3
		R1	R2	R3
<b>TOTAL</b>	<b>-11</b>	<b>-6</b>	<b>-4</b>	<b>-3</b>
<b>TEST RESULT:</b>		<b>DI</b>		

Table 5. Results of individual tests.

## Discussion

The experiment failed to achieve the situation, in which “perpetrators” of crime could reach a significantly higher level of stress than members of the “witnesses” group. Despite that the experiment indicated the existence of clear and statistically important difference between the number of details in the picture remembered by subjects who shot at it and by ones who only observed the whole event passively. The difference may result from factors other than stress itself. The conclusion that can be made from the descriptions made by participants in the study is that the “perpetrators” (most of whom had never fired a gun before) focused their concentration mostly on the correct completion of the task, which was to shoot the blank gun. Coupled with the very short time of exposure to the image, this circumstance did not let the “perpetrators” remember perfectly all the details of the picture, and for that reason they often only picked basic information (e.g. age or gender of the “victim”, however some “perpetrators” also found these details a problem).

“Witnesses” on the other hand, had an opportunity to concentrate more on the picture during its 10-second exposition, because they had no other activity assigned for that time.

This aside, the research showed a connection between the level of stress reached during the experiment and the remembered level of detail concerning the actions. With the results of all subjects taking part in the experiment recapitulated, it can be estimated that with the increasing level of stress, the number of correctly remembered details diminishes. Regardless of the role played in the experiment, the experienced stress and its level clearly influence the quantity of details remembered from a certain event.

Results of the experiment cannot, however, substantiate a statement that perpetrators possess more specific knowledge of details of the crime. Outcomes are rather opposite: the need to focus concentration to accomplish specific tasks may result in the perpetrator retaining less information about details of a certain event than its witness.

There is another result worth indicating: both the “perpetrators” and “witnesses” of the simulated event remembered only little information, as the average result for the two groups was 3.8 and 6.4 respectively. That level of detail remembered about the event raises doubt about the potential distinction between the “perpetrators” and “witnesses” of an event by using the GKT polygraph technique. In addition, the “witnesses” who remembered the picture much better than “perpetrators” may be qualified falsely as perpetrators of presented crime because of their better knowledge of the event.

The experiment was designed to simulate the event in which the victim and the entire surrounding are completely unfamiliar to both the perpetrator and the witness. It can therefore be presumed that if participants of the event were familiar with the victim and crime scene, the level of detail remembered would be much higher.

A relatively small group of subjects (40 people) does not allow to issue any categorical statements about the cognitive value of this experiment. It seems necessary to conduct further research in this area on a much larger scale that would allow a more reliable analysis of the investigated phenomena, and provide more reliable conclusions as result.

Further studies in the area should attempt to generate more emotional involvement of participants of the experiment to generate more consistent stress reactions. In this regard, it seems appropriate to develop a pre-study narrative, which in this experi-

ment was limited to a brief explanation of each subject's role in the experiment. It is also possible that changing the form of exposure of the "victim" could improve the subjects' responses; therefore a dummy could be used for this purpose instead of a photo.

It is also necessary to reinforce the role of the perpetrators in further studies, e.g. by making them more familiar with the weapon and its elements, or asking to perform some other tasks that the "witnesses" would be unaware of. In this way, the "perpetrators" would be able to obtain certain information not available to the "witnesses", which could be useful in determining the role of a particular individual by subjecting him or her to a polygraph examination.

Analysing the results of the pilot experiment conducted, one clearly and immediately sees that it was not easy to tell the perpetrator apart from a witness using polygraph in this experiment. On the other hand, a decision which of the subjects was not connected to the case at all was incontrovertible. This may be an argument supporting the view expressed by the authors of the amendment to the code, who refer to the polygraph as a method used to the so-called "reduction of the number of suspects". What remains a problem is distinguishing witnesses from perpetrators in the test group. There are a number of reasons for that. The first is poor motivation of the subjects to the experiment: participants in the project did not receive any reward for "deceiving the polygraph". The other question was the fact that the instruction for the perpetrator and witness concerning the use of the blank gun was the same. The perpetrator was instructed about the weapon in the presence of the witnesses, who for that reason spent as much time same time watching the weapon, observing also the perpetrator and remaining at the site of the experiment (shooting range), which must have had an influence on blurring of the borders between the roles of different groups of subjects.

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# Reports





*Report from the 2nd International  
Conference Polygraph in Kazakhstan:  
Contemporary Problems and Perspectives*

The D.A. Kunaeva Eurasian Academy of Law and the Eurasian Polygraph Association organized the 2nd International Conference Polygraph in Kazakhstan: Contemporary Problems and Perspectives. The conference took place in Almaty, the former capital of Kazakhstan, on 1–2 April 2016.

The conference was attended by participants from many countries and represented mostly former Soviet Union (Russia, Belarus, Ukraine, Kyrgyzstan, Azerbaijan, Uzbekistan) as well as Bulgaria, Poland, and Mongolia. The conference was an opportunity to exchange European and Eurasian experiences on the theory and practice of polygraph examinations and research in this field.

The scientific part of the conference began with a speech by Professor Kopabayev, Rector of D.A. Kunaeva Eurasian Academy of Law. Participating in the conference were also representatives of Kazakhstan law enforcement agency, representatives of the academia and polygraph examiners from Russia, Bulgaria, Poland, Ukraine, Belarus, Kyrgyzstan and Mongolia. Sergei Alexovsky, co-organisier of the conference and President of the Eurasian Polygraph Association, presented a report on the activity of the association and a paper on the polygraph in Kazakhstan. Discussing history, the speaker emphasised the special role of the oldest polygraph expert in the former Soviet Union, Professor Jan Zinkevich, now a citizen of Kazakhstan (it can be interesting: he is a Polish origin).



Professor Boiko Ganchevski from the Institute for Behaviour Analysis of the Police Academy in Sofia (Bulgaria) presented the use of polygraph examinations in Bulgaria. The following speaker, Vladimir Knyazev (Belarus), Chairman of Polygraphologist NGO, presented fifteen years of history and development prospects of polygraph examinations in Belarus.

Papers presented on the first day of the conference also concerned contemporary trends in the use of detection of deception in Ukraine and non-verbal cues in lie detection during polygraph examinations (both by Vitaliy Shapovalov, a polygrapher and psychologist, Deputy Director of the Ukrainian Bureau for Psychophysiological Research) and experiences in polygraph examinations in Kyrgyzstan (V.T. Salykbaev).

Professor Jan Widacki (Andrzej Frycz Modrzewski Kraków University, Poland) spoke about preparations for experimental use of infrared cameras in deception detection (part of NCN project No. DEC-2013/11B/HS5/3856), and Anna Szuba-Boroń, another Polish speaker, presented the history and current polygraph examination practices in Poland.

E.V. Gaydamasheva (Academy of Internal Affairs of Kazakhstan) presented a comparison of pre-employment and screening examinations used in Eurasia.

A very interesting paper on Criminal profiling for polygraph examination in Israel was delivered by Dr Olena Aleskovskaya, and followed by Dr Elena Friedman's

presentation of the Kazakh perspective on The influence of the personality of polygraph examiner on results of examination.

The organisers made sure the conference was a success both in its scientific and practical dimension. It is worth noting that participants were experts, psychologists, representatives of penal prosecution agency, and members of organisations making use of lie detection.

The 2nd International Conference Polygraph in Kazakhstan: Contemporary Problems and Perspectives was highly stimulating as it expanded both the experience and knowledge of polygraph examinations in countries of the former Soviet Union and others, mostly lying within the realm of the Russian language. The papers presented proved that polygraph examinations in these countries steadily continue to strengthen their position in various areas.

An exhibition of lie detection equipment and a presentation of the latest Russian Polygraphs: Diane – 07 and Triumf were also organised during the conference.

Anna Szuba-Boron'<sup>\*</sup>

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*Report from the National Conference on the Instrumental  
and Non-Instrumental Methods of Detection of Deception –  
Current Legal Framework and the State of the Science  
– Rzeszów, 10–11 June 2016*

A conference on the methods of detection of deception (including polygraph) was held on 10 and 11 June 2016 at the University of Law and Public Administration (WSPiA) in Rzeszów, Poland. It was combined with the meeting of the Polish Society for Polygraph Examinations (PTBP). The scientific event was organised under the auspices of the Voivode of Podkarpackie, Ewa Lenart, and Rector of WSPiA, Professor Jerzy Pośluszny.

The conference gathered both practitioners and representatives of academia interested in lie detection. The participants were presented with interesting speeches on cross-disciplinary issues.

Professor Czesław Kłak (Director of the College of Law at WSPiA) gave a lecture on polygraph examinations in the light of *nemo se ipsum accusare tenetur* principle (no-one shall be compelled in any criminal case to be a witness against himself). He concluded, according to judicature, that a suspect, accused or a witness has a duty to appear before the polygraph expert witness; however he has right to refuse to take a polygraph test. The discussion extended to the European Court of Human Rights judgment of 6 December 2007, case of Bragadireanu v. Romania (application 22088/04). The Court pronounced that there had been no violation of the right to

a fair trial due to the fact that the complainant had taken the polygraph test without being represented by a lawyer during the examination.

Professor Katarzyna Kaczmarczyk-Kłak (WSPiA lecturer) discussed the consequences of the Polish Constitutional Tribunal judicature for the organisation of polygraph examinations in personnel screening procedures in public institutions.

A judge of the District Court in Rzeszów, Grzegorz Maciejowski, emphasised the need for additional training for judges and prosecutors, as many of them still underestimate and do not understand the substance of polygraph examination. This is one of the reasons behind the poor number of polygraph expert opinions in criminal proceedings despite the fact that polygraph is legally admissible.

Major Jarosław Wójtowicz, representing the Prison Service, suggested the implementation of polygraph examinations in the procedures of criminological prediction and assessing the level of danger posed by individuals. Verification of prisoner behaviour in custody and during leaves would be helpful in predicting their future conduct which might put the public at risk.

Marcin Gołaszewski (PTBP President) presented a paper on hearing a polygraph expert witness in jurisdictional proceedings – frequently asked questions and correct answers. The repeated questions pertain for instance to the influence of examinee's stress management capability, alcoholism, and passage of time on the process of examination and tests results. It is therefore worth clarifying that examinee's nervousness should not affect a properly-conducted test that includes an appropriate pretest interview and an acquaintance test. Alcohol can be a problem if the person was intoxicated during the incident to a degree impairing memory of the event. Polygraphers should not test people unless they can provide sufficient details about the event to indicate that they are amenable to testing. Nor is passage of time a major problem unless the test relies on minor aspects of the events that may be easily forgotten or confused. Every test should focus on aspects that are clearly memorable.

In addition, the lecturer explained the difference between the mean accuracy of a polygraph technique and the statistical significance (probability of error) of a test result (numerical score). Probability indicates just the likelihood that the score belongs to scores obtained from deceptive or truthful subjects. This simply reflects the strength of the results and not the accuracy of the decision. Empirically obtained accuracy of the technique is based on scientific studies of verified cases. It is the actual accuracy of the decision regarding the test result, e.g. 9.6% error for the You-Phase test scored using ESS (e.g. not 1% error of score classification when the grand total is -8).

Agnieszka Leszczyńska (PTBP Vice President) described the three main techniques of detection of deception based on human detection, direct recording of brain activity, and observation of physiological reactions. Human detection has been practiced throughout human history. It consists in careful observation of the interlocutor, whose appearance, physiology, and behaviour are different when lying than while telling the truth. We are able to distinguish four communication codes between people: body language, facial expressions, tone of voice, and the verbal code that are helpful in the art of detection of deception.

Our brain is directly responsible for lying. Therefore, all the methods which enable brain activity observation may be considered potential “lie detectors”. Some of these techniques rely on the recording of electrical brain activity (electroencephalography, magnetoencephalography). Other, indirect methods, are based on measuring the changes in blood flow in the areas of brain, where increased neuronal activity takes place (positron emission tomography, functional magnetic resonance). When people lie, there is an increased activation of the cerebral cortex, especially prefrontal cortex, anterior cingulate cortex, and parietal cortex.

The category of psychophysiological techniques includes thermal vision, voice analyse, oculograph, and polygraph. The lecturer underlined that such examinations should be conducted by qualified experts.

Jakub Kryłowski (University of Warsaw) presented the idea of applying oculography in research on linguistic preferences. He discussed the concept of cognitive inhibition. Regarding the potential implications of determining linguistic preferences in detection of deception – the method might be helpful for example in checking whether a person (an illegal immigrant or espionage suspect) is concealing the knowledge of a specific language. It is also worth to be aware that lying in a non-native language may result in less significant physiological responses.

The reported event was a great opportunity to exchange experiences from laboratories and the field. It was the third national conference organised in cooperation with Polish Society for Polygraph Examinations.

Marcin Gołaszewski\*

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# Book review





A.Y. Molchanov,  
N.A. Molchanova:  
*Atlas Poligramm*  
(in Russian; literally: “Atlas of  
Polygraph Records”),  
IPK, Jaroslav, Russia 2007,  
pp. 384

*Atlas...* contains over 300 illustrations of recordings of polygraph reactions gathered from authentic cases conducted in the last several years by Russian polygraphers, especially members of POLARG group.

The authors intended the polygraph records included in *Atlas...* to provide training material for participants of academic courses in instrumental detection of deception. They are also believed to be useful for practising polygraphers.

Presented and partially described on pp. 9–28 are symptomatic reactions on pneumographic curves, while pages 41–68 are devoted to the GSR (Galvanic Skin Response) curves, and pp. 71–106 – to reactions recorded on cardiovascular curves and their explanations. Full recordings of reactions recorded on a four-channel

computer polygraph are portrayed on pages from 109 to 299. The last part of *Atlas...* contains recordings of reactions that were purposefully corrupted by the examinees.

Even a cursory look at the book's content allows to draw a handful of basic conclusions. First, all the recordings were made by computer polygraphs. Secondly, all the assessments of the recordings were made solely with qualitative and not quantitative (numerical) methods. *Atlas...* lacks numerical criteria for the assessment of the extent or intensity of reaction (and therefore indirectly the degree of its symptomaticity). Authors don't differentiate the symptomatic nature of reactions on individual curves depending on the examination technique used. It can therefore be inferred that Russian polygraphers (at least those from POLARG group) do not use numerical methods of polygraph record interpretation, which has already become a standard in the world.

Where full recordings of larger chunks of text are presented, it is evident that the authors use control questions techniques.

The 300 polygraph records (or their fragments) presented provide an interesting and precious material, especially for the earliest stage of training for students learning qualitative interpretation of the recordings.

The material provided is as valuable as what J. Reid and F. Inbau once included in their *Truth and Deception*; one should bear in mind, however, that the last edition of their book was published in 1977.

Jan Widacki\*

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For example (in references):

Reid J., Inbau F. (1966), *Truth and Deception: the Polygraph ("Lie-detector") Techniques*, Williams & Wilkins, Baltimore.

Abrams S. (1973), *Polygraph Validity and Reliability – a Review*, Journal of Forensic Sciences, 18, 4, 313.

and (Reid, Inbau, 1966), (Abrams, 1973) inside text.

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### Nathan J. Gordon

Mr. Gordon began his career polygraph in 1978 and has made numerous innovations in the field, including the Forensic Assessment Interview Technique (FAINT), Integrated Interrogation Technique, Integrated Zone Comparison Polygraph, Horizontal Scoring System for Data Analysis, the Academy's Manual Algorithm for Data Analysis and Computerized Scoring, the Polygraph Validation Technique and innovative work done with brain scanning technology using functional magnetic resonance imaging in the detection of the deception. Mr. Gordon is President of the International Society of Polygraph Examiners, past president of the American Polygraph Association, and the International Association of Psychophysiological Institutes and the Pennsylvania Polygraph Association. He is a founding member and Board of Director of the Vidocq Society ([www.vidocq.org](http://www.vidocq.org)), where he proudly received the Vidocq Medal of Honor for solving the murder of Terri Brooks, 14 years after the fact.

### Tuvia Shurany

Mr. Shurany is President of Lie Catcher, the largest private polygraph company in Costa Rica. He served as head of the polygraph department of the Israeli government, and is former director of the International Polygraph Training Centre, which was accredited by the American Polygraph Association. He is an internationally recognized expert and speaker in the field of polygraph, and has lectured around the world, including the United States, Singapore, Mexico, Guatemala, Colombia, Canada and Poland. Mr. Shurany is the co-author of the textbook, "Evaluation of Polygraph Graphs," and "The Pre-Test Interview the Foundation of Polygraph," and has published numerous research papers on polygraph concepts and techniques. Mr. Shurany is interview Vice President of ISOPE, and a full member of the APA. He was presented the prestigious David L. Mottisinger Award by the American Polygraph Association in 2004, which recognizes new stars that shine in the profession early in their career demonstrating loyalty, professionalism and dedication to the profession of Polygraph.

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