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## Significance of polygraph examinations in so called difficult situations in Polish investigative practice

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## **SIGNIFICANCE OF POLYGRAPH EXAMINATIONS IN SO CALLED DIFFICULT SITUATIONS IN POLISH INVESTIGATIVE PRACTICE**

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### **ABSTRACT**

In recent years there has been concern connected with the practice of collecting classic forensic traces in crime scenes. Apart from this there are some problems concerning their accessibility. The main factor which affects the possibility of disclosing evidence negatively is the decreasing quality of forensic activities. Moreover, poorly trained police officers do not usually know how to use tactically the information content of forensic evidence. During the preparatory proceedings problems connected with small value of detection of classic evidence appear. Also the significance of AFIS and Genom databases decreases and obtaining reference material is becoming difficult. In such situations law enforcement authorities do not have to be helpless because, while committing a crime, memory traces of this events are formed in the mind of a perpetrator. They can be revealed objectively by polygraph examination aimed at excluding and confirming a person's connection with the event. In many cases, however, there is no alternative for polygraph, which was presented in this article.

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### **INTRODUCTION**

During the most serious crime cases some problems can appear, which make difficult to establish their virtual course<sup>1</sup>. Such cases are not only typically encountered in Polish criminal investigation but are globally commonplace.

These difficult situations appear when incriminatory testimony of one person is the only evidence in such cases as: rape, corruption and mugging. There are also proceedings in which the suspect casts doubt on the turn of

events rather than their consequences. Even if forensic traces are collected, is this the proof that a crime has been committed?

In some instances of murder, statements are not supported by results of crime scene investigation. For instance a number of suspects had been arrested after accusing them of murdering a porter at Szczecin University in Poland in 2000. Having spent many years in confined custody, they were then released by the appeal court who handed a not guilty verdict on 30.10.2008<sup>2</sup>.

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<sup>1</sup> S. Waltoś, *Proces karny. Zarys systemu*, LexisNexis, Warszawa 2005, p. 217–218.

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<sup>2</sup> Case reference: II Aka 94/08; LEX nr 781316.

There are also cases of murder when members of victim's family are suspected. Having shared living space with the victim, they may become implicated in the crime as a suspect because of the discovery of material traces on them. In this situation it is obviously in the interests of a person the real perpetrator to be caught. In parallel, it is even more important for relatives to be proved innocent and therefore eliminated as suspects. Such elimination is often impossible when only material traces are taken into investigative account<sup>3</sup>.

Sometimes physical traces have been planted at the crime scene in an attempt to incriminate innocent people. How can they prove that they had no link with the crime?

What happens in cases where the perpetrators deliberately remove forensic traces<sup>4</sup> after murder? Material traces can be removed also accidentally by those, for example, reporting the crime as neighbours of the victim, police patrol or paramedics. Sometimes they leave "new traces" which are then examined by forensic teams unnecessarily.

There are also difficult situations when missing persons are believed, according to the Police, to have been murdered. An investigation is limited when police officers believe there is little chance of identifying the perpetrator because of a lack of any material trace. There is also little chance of a suspect being charged without finding the body. Yet, in Polish investigative practice, such cases are known<sup>5</sup>.

What can be done in murder, mugging and assault when there are a number of perpetrators taking part in these crimes? It is sometimes difficult to define the role of particular person. It

is important to determine criminal responsibility of the perpetrators accordingly<sup>6</sup>.

Let us not forget about situations when fictitious crimes have been reported (e.g. robberies or car theft) to obtain insurance. The numerous "traditional" police actions do not result in solving those cases. It is caused by the fact that the only "witness" of the crime is also its "victim" and there are obviously no material traces that would verify the "victim's" version of events.

### DIFFICULTIES RELATING TO COLLECTING EVIDENCES AT THE CRIME SCENE

Low quality of crime scene investigation in Poland is confirmed in scientific research in three monographs<sup>7</sup> as well as during superficial observations of investigative practice. The analysis of this practice shows that work of crime scene investigators sometimes does not bring satisfactory results for criminal trial proceedings. Research conducted by V. Kwiatkowska-Wójcikiewicz in 2010 confirms this fact. During her analysis of 988 burglaries, physical traces were discovered in 421 of those cases but only 5 suspects were identified as a result<sup>8</sup>.

Among other problems connected with collecting evidence, it is necessary to mention the way of work of some crime science investigators, which is sometimes careless<sup>9</sup>. It can result in contamination or destruction of above mentioned evidence. As a consequence, such evidence is rendered useless for further forensic examination. Scientists and forensic experts have also noticed these problems in other European countries. This has led to the founda-

3 See R. Jaworski, *Badania poligraficzne hipotetycznych zabójców własnych dzieci lub rodziców*, „Przegląd Sądowy”, 1997, no. 9, p. 37–47.

4 J. Gurgul, *Kryminalistyczne znaczenie dowodów rzeczowych*, „Problemy Kryminalistyki”, 1979, no. 141, p. 554–555.

5 R. Jaworski, *Poligraficzny „test wydobywczy” przy poszukiwaniu ciała ofiary zabójstwa*, „Wrocławskie Studia Sądowe”, 2012, no. 3, p. 58–59.

6 R. Jaworski, *Situational Sequencing Tests in Polygraph Examination*, Wydawnictwo Uniwersytetu Wrocławskiego, Wrocław 2006, p. 10.

7 M. Calkiewicz, *Oględziny zwłok i miejsca ich znalezienia*, Poltext, Warszawa 2010, p. 133–140; K. Juszcza, *Jakość czynności kryminalistycznych*, Verba, Lublin 2007, p. 76–80; V. Kwiatkowska-Wójcikiewicz, *Oględziny miejsca. Teoria i praktyka*, TNOiK, Toruń 2011, p. 214–223.

8 V. Kwiatkowska-Wójcikiewicz, *Oględziny miejsca...*, p. 220.

9 P. Palka, *Zabójstwa z broni palnej – niepowodzenia ścigania karnego*, Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego, Olsztyn 2004, p. 288.

tion of the European Standardization Committee to deal with the problem of properly collecting criminal evidence<sup>10</sup>.

Moreover, criminals more and more often have the knowledge how to protect themselves against leaving traces which can lead to their identification. Not surprisingly, such direct evidence is rarely revealed<sup>11</sup>.

Crimes often take place in public places so it is highly probable that they can be destroyed or contaminated by random people. This especially concerns assaults, mugging, murder as a consequence of beating and homicide in places such as discotheques, banks and underground passageways.

### PROBLEM WITH COMPARATIVE MATERIAL EVIDENCE

The collecting of material traces at the crime scene marks only the beginning of the investigative process and will not necessarily lead to identification of a perpetrator. It is also necessary to collect comparative samples. Difficulties in indicating the person from whom these samples should be taken are more and more serious.

The AFIS (Automated Fingerprint Identification System) has performed an increasingly limited role as a database in identifying perpetrators over recent years. They are the consequence of the sentence of the Polish Constitutional Tribunal of December 12, 2005<sup>12</sup>. The Tribunal pointed out that article 20 of the Constitution of the Republic of Poland concerning Police regulations, was unconstitutional<sup>13</sup>.

Nowadays, fingerprinting experts even compare the AFIS database to: "an encased hole, being hollowed inside like a cheese. It only appears to be useful. The fingerprint database is not regularly updated by investigative bodies and so entries become obsolete"<sup>14</sup>. The above mentioned sentence of the Constitutional Tribunal also reduced the incriminating role of DNA or other genetic-oriented samples. This means that the Police officers often underestimate the wide potential of the genetic database<sup>15</sup>. The identity of only 259 suspects have been revealed this way since the database was first established in 2007. However, other European databases present more encouraging results with 438 suspects identified<sup>16</sup>.

In such cases of so called difficult situations, collecting evidence to solve crime via traditional means can be problematic. Nevertheless, Police may find polygraph examination helpful. In cases of crime where a number of people are involved, it may establish what role each person played at each stage of the crime<sup>17</sup>. Such examinations may also verify hypothesis of possible cooperation of perpetrators with other people. They direct searching for hidden corpses or weapon<sup>18</sup>.

### THE SIGNIFICANCE OF POLYGRAPH EXAMINATION

If the perpetrator successfully avoids leaving any forensic traces at the crime scene or for different reasons they are not detected, still information about crime is planted in the conscious-

10 [http://www.pkn.pl/sites/default/files/plan\\_dzialania\\_505.pdf](http://www.pkn.pl/sites/default/files/plan_dzialania_505.pdf) (access 6.03.2015).

11 P. Herbowski, *Rola poligrafu w sprawach napadów na placówki bankowe*, „Problemy Kryminalistyki”, 2012, no. 276, p. 46.

12 Case reference: K 32/04.

13 A. Taracha, *Wykorzystanie śladów daktyloskopijnych w realizacji funkcji wykrywczej przez policję*, [in:] *Co nowego w kryminalistyce – przegląd zagadnień z zakresu zwalczania przestępczości*, E. Gruza, M. Goc, T. Tomaszewski (red.), Stowarzyszenie Absolwentów WPIA UW, Warszawa 2010, p. 345–346.

14 A. Krawczyńska, *AFIS, czyli baza skromnie wykorzystywana*, „Policja 997”, 2013, April, p. 13.

15 T. Noszczyński, *Prawo kontra DNA*, „Policja 997”, 2013, April, p. 14.

16 Data from Central Forensic Laboratory of the Police.

17 R. Jaworski, *Situational Sequencing...*, p. 9–10.

18 See J. Bieńkuński, *Rola psychofizjologicznych badań poligraficznych w sprawie podwójnego zabójstwa studentek w województwie gorzowskim w roku 1993*, „Problemy Współczesnej Kryminalistyki”, 1998, vol. II, p. 13–21; J. Konieczny, *Badania poligraficzne. Podręcznik dla zawodowców*, WAiP, Warszawa 2009, p. 75–78.

ness of their perpetrators<sup>19</sup>. We cannot ignore the existence of crime memory traces because it would mean, in many cases, resignation of law enforcement institutions to detect perpetrators and prove their guilt. A wide range of investigation activities are just based on a person's memory traces and among them – identity parades, interrogations, site inspections or suspect statements. Knowledge about crime details can be revealed by measuring physiological changes in the organism of the perpetrator during polygraph examinations.

These examinations are not the procedures of detecting lie<sup>20</sup>. Their aim is to verify whether in the consciousness of the person, who is being examined, a memory and emotional traces connected with the specific crime or specific type of behaviour exist. Nowadays polygraph examinations are applied during criminal proceedings as a forensic tool, during pre-employment procedures in civil and military services as well as in business. Polygraph examinations have been used by the Polish secret services from the early 1950's. As a part of criminal proceedings they were first used in 1963<sup>21</sup>.

Polygraph examinations are considered trustworthy because they are based on scientifically proved facts relating to psychophysiology. Psychophysiological responses are displayed in respiratory activity, cardiovascular activity as well as in the electrical conductivity of the skin what can be an indicator of someone's emotional response<sup>22</sup>. The examination is based on standardized procedure with confirmed ac-

curacy as a result of long-lasting scientific research<sup>23</sup>. The methodology implies the presentation of sequence of test questions with defined meaning, which take a role of incentives. During examination those stimulus cause differences in examinee's psychophysiological arousal. By the use of stimulus (questions) memory traces are triggered and affect emotional condition of a person being examined to increase his/her arousal because of the significance he or she gives to particular test questions. According to the current theory concerning psychological bases of polygraph examinations, diagnostic changes in monitored physiological parameters are the result of emotional, cognitive and behavioural factors<sup>24</sup>.

## POLYGRAPH EXAMINATIONS IN POLAND

Although polygraph examinations have been present in Polish criminal proceedings for over 50 years, they are considered as a forensic tool just for last few years. For many years their status of scientific method was rarely noticed<sup>25</sup>. The period when polygraph examinations were perceived similarly to clairvoyance and hypnosis has definitely ended in Poland. Nowadays claims that this type of examination restricts the way the examined person answers or in some way limits free-will are rarely formulated.

In Poland polygraph examinations are treated more often as a method of verification of investigative versions established for an examined person<sup>26</sup>. The conclusion concerning above men-

19 A. Krzyżcin, *Istota badań poligraficznych*, „Jurysta”, 1998, no. 2, p. 22.

20 M. Leśniak, *Badanie poligraficzne (wariograficzne) a wykrywanie kłamstwa*, [in:] *Nauka wobec prawdy sądowej – Księga Pamiątkowa ku czci Profesora Zdzisława Kęgla*, R. Jaworski, M. Szostak (red.), Wydawnictwo Uniwersytetu Wrocławskiego, Wrocław 2005, p. 367.

21 P. Herbowski, *50 lat badań poligraficznych w polskim procesie karnym*, „Problemy Kryminalistyki”, 2013, no. 280, p. 7.

22 D. Karczmarska, *Zastosowanie poligrafu w postępowaniu karnym w świetle znowelizowanych przepisów kodeksu postępowania karnego*, [in:] *Problemy znowelizowanej*

*procedury karnej*, Z. Sobolewski, G. Artymiak, C. P. Kłak (red.), Zakamycze, Kraków 2004, p. 148.

23 M. Gougler, R. Nelson, M. Handler, D. Krapohl, P. Shaw, L. Bierman, *Meta-Analytic Survey of Criterion Accuracy of Validated Polygraph Techniques*, *The Ad-Hoc Committee on Validated Techniques*, „Polygraph”, 2011, vol. 40, no. 4, p. 203–305.

24 See J. Wojciechowski, *Podstawy teoretyczne powstawania reakcji w czasie badań poligraficznych*, „Problemy Kryminalistyki”, 2012, no. 276, p. 28–29.

25 J. Wójcikiewicz, *Dowód naukowy w procesie sądowym*, Wydawnictwo IES, Kraków 2000, p. 44–52.

26 R. Jaworski, *Opinia z ekspertyzy...*, p. 159; M. Kulicki (red.), *Wariografia kryminalistyczna*, Wydawnictwo



tioned versions does not refer to the main fact: examinee's guilt or innocence. Instead the final conclusion states that result of polygraph examination confirms or not someone's version about his/her involvement in the crime. Such ways of presentation of polygraph examination outcome became accepted in Polish courts. Its relevance is confirmed by the content of the code of criminal procedure in particular by article 192 a § 2<sup>27</sup>.

## CASE STUDY

On 11 November 2014 in the afternoon in one of the cities in southern Poland Krzysztof W. and Marek Z. discovered the corpse of their neighbor Anna K. The body was lying in blood in the room of her flat where she lived with her son Jan K. The woman had been stabbed in her neck which caused her death. There were no other injuries. It was found out that her death had occurred 6–7 hours before.

Information collected by the police officers confirmed that there had been fist cuffs and quarrels between Anna K. and Jan K. often heard by neighbors which were caused by drinking alcohol. In addition, Anna K. disapproved of his fiancée. On the other hand, her son could not accept her problems with alcohol. It often happened that during his absence in their flat she invited homeless friends. Sometimes Jan K. locked his mother to make it impossible for her to buy alcohol.

According to Police, one of the versions of this murder was a conflict between son and mother. Apart from this, Jan K. had specific hobby: he manufactured knives. After the homicide none of the knives were found. Jan K. was presumed to have taken out to cover his tracks.

Jan K. claimed that the last time he talked to his mother on the day of murder was before his leaving for work around 11 am. His presence at

work was confirmed by his co-workers. He received telephone information from the Police about his mother's death around 6 pm. It meant that he could have killed his mother before going to work. During an investigation he constantly claimed that, although he had had arguments with his mother, he had never beaten her, which was contradictory to testimony of her cohabitant.

Jan K. agreed to polygraph examination to prove his innocence. The examination was based on Utah DLT test with the high diagnostic value which allows to qualify it as an evidentially useful test<sup>28</sup>.

UTAH DLT was presented 3 times but with questions in altered sequence. This test consists of 3 types of test questions: N-neutral, R-relevant and C-comparison as well as two technical questions: SY-symptomatic and SR-sacrifice relevant.

The construction of UTAH DLT test used during the polygraph examination of Jan K. was as follows:

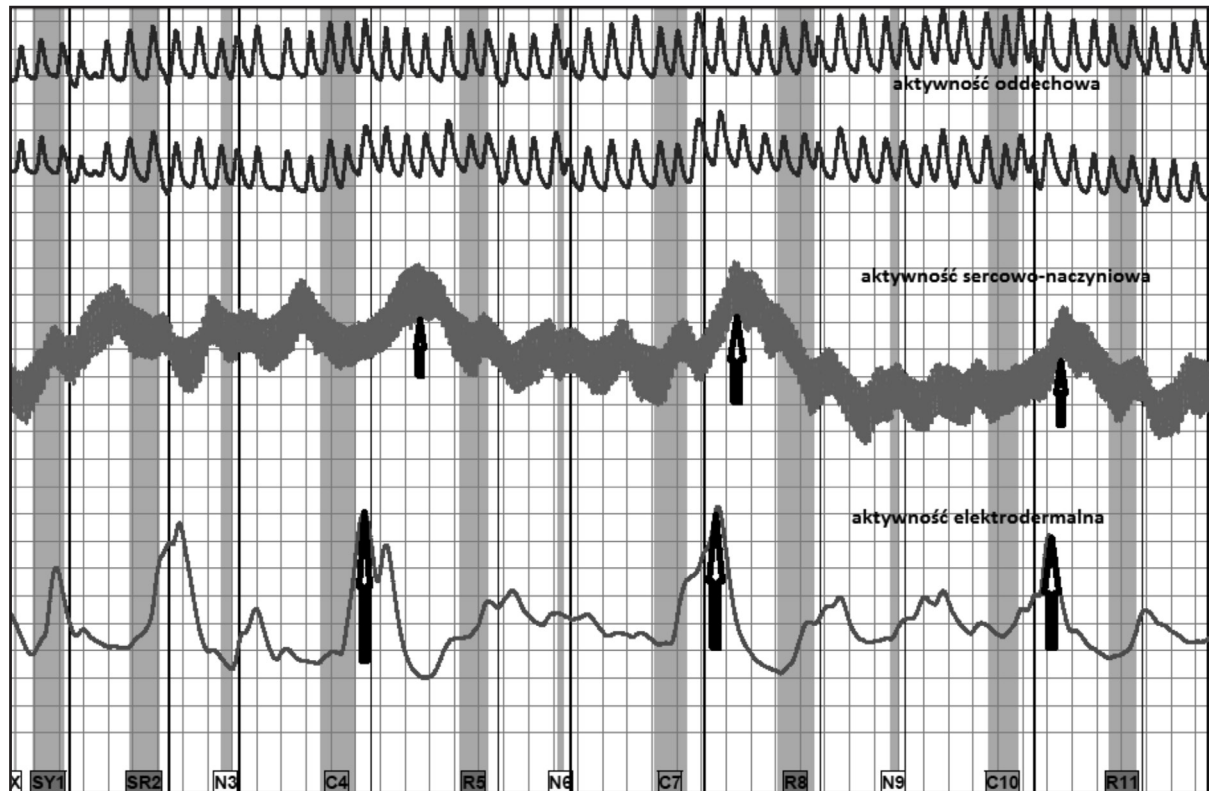
- 1 SY Are you afraid of questions which we have not discussed before?
- 2 SR Are you going to answer the questions concerning Anna K's death truthfully?
- 3 N Is it Wednesday today?
- 4 C Before the year 2014 did you do anything which you regret later?
- 5 R Do you know who stabbed Anna K. with the knife on 11 November 2014?
- 6 N Is it the year 2015 right now?
- 7 C Before the year 2014 did you do anything which you were ashamed of?
- 8 R Was it you who stabbed Anna K. in her neck?
- 9 N Is it January right now?
- 10 C Before the year 2014 did you mislead in any serious matter anybody you are in close relationship with?
- 11 Did you have an argument with Anna K. on 11 November 2014?

WSPol, Szcztyno 1998, p. 134; P. Herbowski, *Badanie poligraficzne jako metoda weryfikacji wersji śledczych*, Wydawnictwo Centralnego Laboratorium Kryminalistycznego Policji, Warszawa 2011, p. 251.

27 P. Herbowski, *Stosowanie poligrafu na podstawie art. 192a k.p.k.*, „Prokuratura i Prawo”, 2012, no. 2, p. 78–79.

28 [www.polygraph.org/files/00xb\\_by\\_laws\\_through\\_march\\_2014\\_2nd\\_draft\\_04-02-14.pdf](http://www.polygraph.org/files/00xb_by_laws_through_march_2014_2nd_draft_04-02-14.pdf) (access 7.03.2015); M. Gougler, R. Nelson, M. Handler, D. Krapohl, P. Shaw, L. Bierman, *Meta-Analytic...*, p. 228–229.

Figure 1

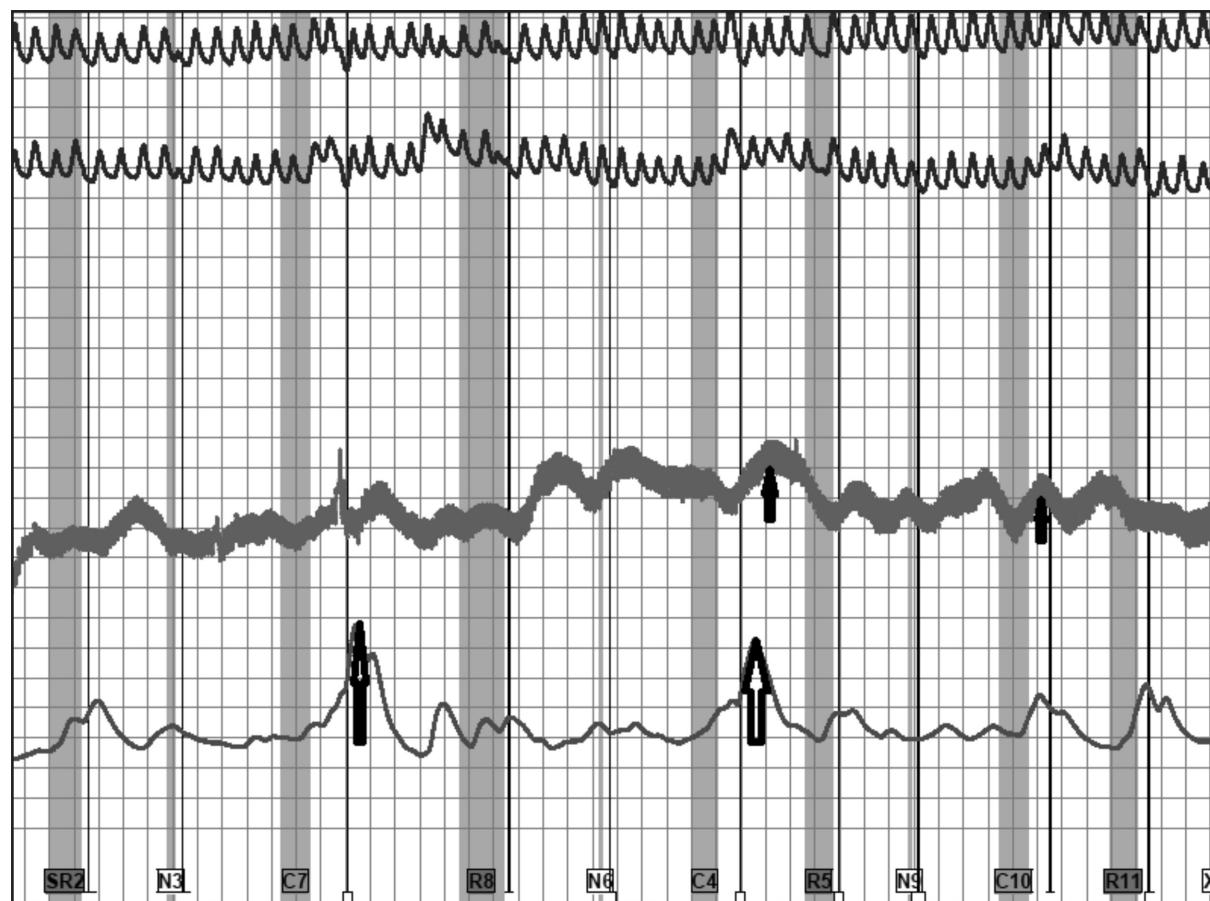


According to Utah DLT rules examine, having real involvement in crime, should show stronger psychophysiological arousal after being asked relevant questions in comparison to control questions. In case when the examinee is innocent, he/she should display his/her stronger reaction for control questions. Relevant questions concern circumstances of crime under investigation – Did you do it? Do you know who did it? Control questions concern other acts that the crime which is the subject of examination. They can be formed like above mentioned ones. During the pre-test interview an examiner presents the meaning of both types of questions. In addition, an examinee is instructed to deliberately lie while being asked control questions.

Figure 1, 2, 3. Three charts of the Utah DLT test. The comparison questions C4, C7 and C10 caused stronger psychophysiological arousal in EDA and CA channel (marked by black arrows) than changes following the relevant questions R5, R8, R11. The top two patterns display respiratory activity recorded using pneumatic respiration transducers, the

top tracing is termed “thoracic respiration”. The second tracing displays “abdominal respiration”. The third one from the top shows continuous cardiovascular activity, recorded using a standard pneumatic blood-pressure cuff, placed around the upper portion of the arm closest to instrument. Finally, the bottom tracing displays electrodermal activity measured in K Ohms and recorded using electrodes attached to the volar surface of the first and the third fingers of the hand furthest from the instrument. Stimulus duration is denoted by the vertical rectangular gray boxes with the solid line immediately following to the right denoting the point of verbal response, with YES and NO responses recorded using “+” and “-” signs respectively.

During the polygraph examination Jan K. showed stronger reaction on control questions contrary to relevant ones concerning his mother's death. Reactions of stronger intensity were marked on charts. On the basis of examination result the version that Jan K. killed his mother was eliminated. The following operational work of Police resulted in detecting the



real murderer of Anna K., who occurred her acquaintance. On the critical day Anna K. was consuming alcohol with this men. After some time they had an argument during which the man stabbed Anna K. in her neck with a knife.

In the described case polygraph examinations confirmed their effectiveness with respect to a person who was both a relative of the victim and the suspect. In literature some claims presented by opponents of polygraph examinations have appeared which say that the examinees, regardless their role in the investigations, will react on relevant questions especially if they concern the death of the closest person. This case completely refutes these claims. It also allowed to confirm an assumption that polygraph examinations enable to check effectively the case of homicide version, even though it concerns a family member<sup>29</sup>.

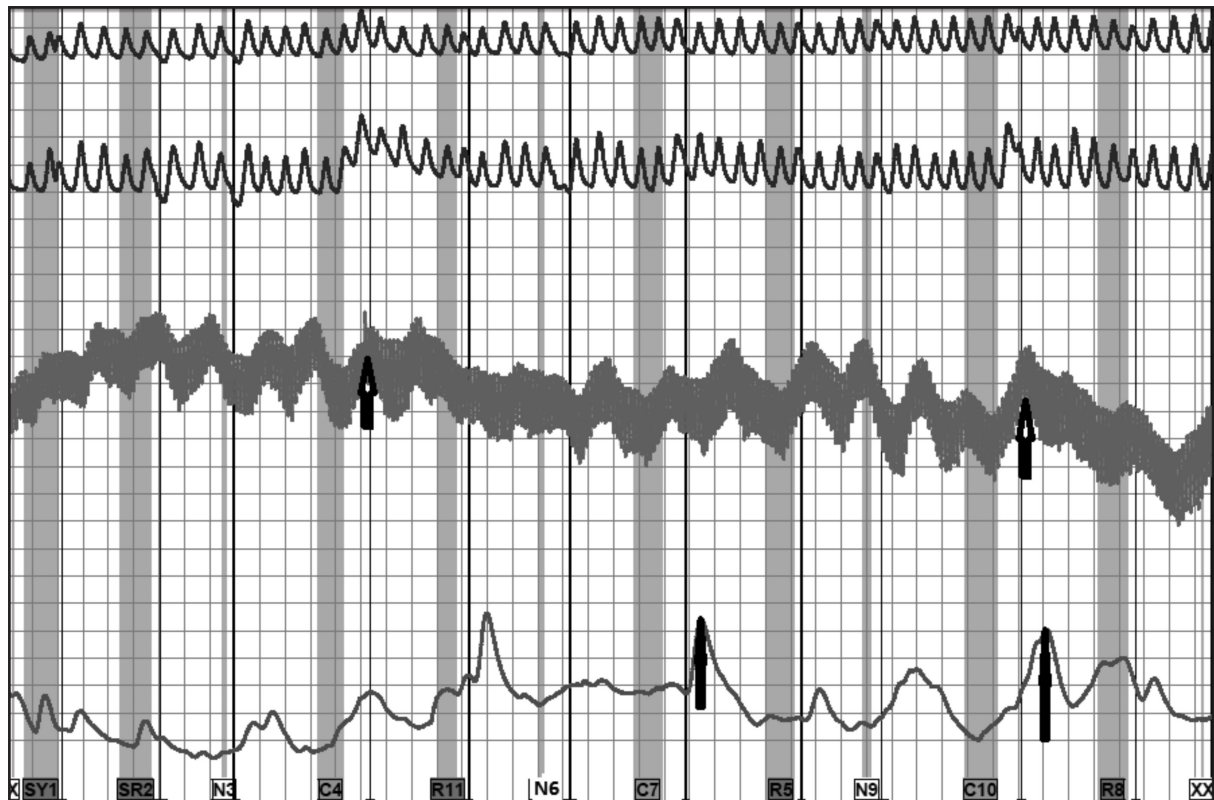
<sup>29</sup> R. Jaworski, *Badania poligraficzne...*, p. 35.

## CONCLUSION

So-called difficult situations may appear during police investigations. They can also be affected by other circumstances characteristic for particular legal system. The Polish policemen continue to struggle with ineffective means of detection of traces at the crime scene. The valuable support of operational and proceeding activities can become polygraph examinations. They are directed to exclude or confirmed the connection of particular person with crime. First of all they have detection function and much less evidential one. These examinations can cause significantly faster detection of perpetrators, preventing traditional traces from being destroyed which allow to confirm their connection with the crime. They are especially useful in so-called difficult situations where there are mutual slanders, multi-subject and complex cases. These can also be used for fast verification of alibi, especially when the



Figure 3



collected traces do not allow to resolve doubts which are appearing.

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