

The Assisting Sibling Sciences of Fact-Based Criminalistics

FENYVESI, CSABA^{*}
FÁBIÁN, VANESSZA^{**}

ABSTRACT *Criminalistics, as a fact-based and practice-oriented branch of criminal science, functions within the framework of substantive and procedural criminal law while maintaining its own methodological independence. Its primary objective is the detection of crimes and the collection of reliable evidence, with crime prevention serving as a secondary function. This study examines the interdisciplinary nature of criminalistics and its close relationship with its “sibling sciences.” Within the field of criminal sciences, criminalistics interacts with criminal law, criminal procedure law, criminology, victimology, penology, criminal psychology, and forensic medicine. Beyond these, it also draws on knowledge from natural sciences (such as biology, chemistry, physics, mathematics, computer science, and cybernetics) and social sciences (including philosophy, sociology, pedagogy, statistics, and psychology). The analysis highlights the dynamic interplay between criminalistics and these disciplines, showing how mutual knowledge transfer and the integration of professional expertise have contributed to the rapid development of modern criminalistics. It is argued that interdisciplinary preparedness, coupled with the effective use of experts and consultants, enhances the quality and complexity of evidence gathering, facilitates accurate identification, and ultimately serves the overarching goal of establishing criminal liability.*

KEYWORDS *criminal investigation, criminal procedural law, criminal sciences, criminology, penology, prevention of crime, psychology.*

1. The concept of criminalistics

The literature seems to agree that criminalistics is essentially a practical – and to a lesser extent – theoretical branch of criminal investigation, i.e. the branch of criminal science that explores, develops, systematises and applies the tools and methods of criminal investigation (prevention) and evidence gathering within a normative legal framework. In addition to effective crime prevention, which is a

^{*} Professor, University of Pécs, Faculty of Law, Criminal and Civil Procedure Department.

^{**} PhD student, University of Pécs, Faculty of Law, Doctoral School of Law.

secondary function. Its fundamental function is to detect crimes and obtain as much reliable evidence as possible in order to establish and ensure criminal liability, ultimately by the courts.¹ (The authenticity of evidence acquisition is determined not only by the procedural framework but also by the degree of sophistication and reliability of the forensic methods employed.)²

2. Connections between criminalistics and its “siblings”

As an empirical science, criminalistics has a wide range of connections.³ According to our classification, we can distinguish three main groups: *criminal sciences*, *natural sciences* and *social sciences*.

2. 1 The first – and closest – group of connections includes *criminal sciences* dealing with crime, criminal offences and offenders, including:

- a) criminal law (as a normative discipline),
- b) criminal procedure law (as a normative discipline),
- c) criminology (as a factual science),
- d) victimology (increasingly independent, also as a factual science),
- e) penology (as a normative discipline),
- f) criminal psychology (as a special branch of psychology),
- g) forensic medicine (including anthropology).

Ad a) The practical application of criminalistics can only be maintained within a regulated legal framework in a constitutional state. One such framework is provided by criminal procedural law, which enables the application of methodology, and the other by *substantive criminal law*, which defines its subject matter. This legal discipline deals with such essential questions as the conditions for criminal liability and when and how the appropriate criminal law sanctions – as laid down, stated and announced in advance – are to be applied. Criminal law reveals the abstractly formulated elements of the law that are relevant and serve as guidelines, or “beacons,” for criminal investigators in their data research. Viewed through the lens of criminal law, criminalistics is an “auxiliary science” that provides support in achieving its objectives, which does not jeopardise its independence or its ability to develop its own methodology because it is only an “auxiliary force” from the perspective of jurisprudence (and not only criminal law within that).

¹ For more details, see: Csaba Fenyvesi, *A kriminalisztika tendenciái* (Budapest: Dialóg Campus Kiadó, 2017).

² Orsolya Horváth: “A jövő kriminalisztikája más szemszögből,” *Belügyi Szemle* 67, no 11 (2019): 42.

³ Géza Katona has detailed the connections between criminalistics in a separate volume, and in agreement with his findings, we will now briefly outline our own thoughts on the individual areas of contact. Géza Katona, *A kriminalisztika és a bünygyi tudományok* (Budapest: BM Kiadó, 2002).

Ad b) The interaction between *criminal procedure law* and criminalistics is clear to professionals. In this study, we emphasise that, in a peculiar way, it is precisely criminalistics that, in many cases, represents the substantive side – investigative actions, methods of obtaining evidence and conducting investigations, and the implementation of coercive measures – while the rules of criminal procedure essentially only provide the formal framework. Compliance with procedural rules alone does not lead to the detection of crimes, but at the same time, in accordance with the rule of law, illegally obtained evidence cannot be used effectively or fairly due to the risk of misdirection.⁴ In view of all this, it is fair to say that criminalistics is at least as closely related to criminal procedure law as criminal law is to criminal procedure law.

Here we quote Tibor Király's timeless statement: "Criminal proceedings are a power that can wipe people off the face of the earth, deprive them of their freedom, their property, their honour. Criminal proceedings can be used to wage war even in times of peace. Criminal proceedings are a battleground for human passions. In criminal proceedings, the malice, error or ignorance of judges can have tragic consequences. This explains why criminal proceedings are constrained by legal norms and are not left to the whims of individuals. Efforts are made to establish rules that push individual bias, passion, malice and revenge into the background and rule out error."⁵

Since continental criminal procedure codes, including the Hungarian one, generally regulate investigations, it can be said that criminal procedure law has a significant impact on criminalistics. This is why it can be argued that criminalistics itself has a legal nature,⁶ since:

ba) the code of criminal procedure contains the framework rules for the most important investigative acts, including procedural coercive measures and the obtaining of evidence;

bb) the majority of the fundamental principles of criminal procedure (officiality, presumption of innocence, principle of defence, etc.) must be taken into account and enforced during the implementation of investigative acts;⁷

bc) when carrying out investigative acts, it is very important that their conduct and results are recorded in accordance with procedural law (minutes, official witnesses, etc.) and that other guarantee rules are also observed (instruction on complaints, appointment of a defence counsel, etc.).

The mandatory legal provisions of criminal procedural law thus generally provide the legal framework for investigative acts preparatory to the court phase, while

⁴ For more details, see Viktor Bérces, *A büntetőeljárás reformja és a bizonyítás alapkérdései* (Budapest: ELTE Eötvös Kiadó, 2021), and Flórián Tremmel, *Bizonyítékok a büntetőeljárásban* (Budapest-Pécs, Dialóg Campus Kiadó, 2006).

⁵ Tibor Király, *A védelem és a védő a büntető ügyekben* (Budapest: Közgazdasági és Jogi Könyvkiadó, 1962), 121.

⁶ Tibor Király, *Büntetőútelet a jog határán. (Tanulmány a perbeli igazságról és valószínűségről.)* (Budapest, Közgazdasági és Jogi Könyvkiadó, 1972).

⁷ For more details, see: Tibor Király – Károly Bárd, "Interjú a Be. reformjáról, az elképzelésekről és a megvalósulásról," *Fundamentum* 6, no. 4 (2002): 41–45.

forensic, criminal tactical and methodological recommendations – and not norms – only fill and can fill this legal framework with considerations of expediency and professionalism, with things to know and do.

Based on known legal history data, we believe it is fair to say that criminalistics itself has had and continues to have a significant impact on criminal procedure law, including the law of evidence. For example, it was clearly theoretical research and practical results in criminalistics that led to the inclusion in procedural codes of institutions developed in criminalistics, such as the evidentiary experiment, the presentation for identification, or the on-site interrogation – using our preferred, earlier terminology – the on-site investigation. Previously, these investigative and evidentiary acts could be carried out more or less by interpreting and applying the rules relating to visual inspection by analogy.

Ad c) *Criminology* – as defined by László Korinek⁸ – does not have a uniformly accepted “dominant” definition, but it can be said that it deals with crime and all criminal offences in general as a social phenomenon. It also investigates the causes of crime, and one of its objectives is crime prevention. It is already apparent that there is a common platform with criminology, which also seeks to prevent similar offences at the level of individual crimes. By examining criminal behaviour, criminology provides guidance on typical forms of crime, locations, times, genders and individuals. It provides guidance to criminalists in recognising, defining and ultimately detecting the modes of commission characteristic of different crimes and investigating the facts as accurately as possible. The exploration of the general and specific causes of criminal behaviour by criminology can also help in crime prevention. This data can also be useful from a law enforcement perspective, for example, when the circumstances and motives of the perpetrator are important in the investigation of certain crimes.

The relationship is not one-sided; criminology can also gain experience and information to achieve its goals from the investigation of individual criminal cases, from accurate data obtained in an open and/or secret manner, which often cannot be uncovered using criminalistic methodology. (In the fields of public security and crime prevention, the use of police dogs is of particular importance, as their capabilities contribute both to preventive measures and to the uncovering of evidence.)⁹

Ad d) We highlight *victimology*, which is part of criminology but has not yet gained total independence, in a separate sub-section because:

da) on the one hand, the professional examination and investigation of the victim and the process leading to victimisation, as well as the characteristics of the group, can provide valuable data for criminal prevention and, in some cases, for

⁸László Korinek, *Kriminológia I-II*. (Budapest: Magyar Közlöny Lap- és Könyvkiadó, 2010), 18.

⁹ Orsolya Horváth, “Police dogs – Servicing the security,” in *Security as the Purpose of Law. 3rd International Conference of PhD Students and Young Researchers*, ed. Makūnaitė Skirmantė, Jurgita Randakevičiūtė, Tamašauskaitė Gintarė, and Vigita Vėbraitė (Vilnius University, 2015), 72.

investigation. Just think of the perseverant thinking and actions of perpetrators. The stubborn persistence in sticking to the victim, for example, their gender or age, can also be a guide in the search for a serial offender;

db) On the other hand, we consider it important to emphasise the goal of avoiding so-called secondary victimisation when applying forensic tools. We will explain what we mean by this in more detail below, given its significance.

During the investigation, investigators using forensic methods will inevitably and necessarily have to use coercive measures and legal force. However, these may be used not only against the suspect (accused), but also against the victim, witnesses and, as their name suggests, those who suffer coercive measures. Of particular note among these is the victim, who voluntarily undertakes the procedural suffering and, at the same time, plays a leading role in victimological research in this context. The victim is often a victim of violence in and of themselves, having suffered an attack on their person, rights or property, or unlawful violence. The injuries and damage caused by violence can be multifaceted: psychological, physical, financial, temporal, etc. All of these can appear cumulatively and emphatically. These can only be compounded by the tone of incompetent, rude, often sceptical, almost suspicious, violent investigators and other law enforcement officials, insensitive, soul-crushing, humiliating – often repeated – interrogations, and the crudeness of the interrogation environment. Furthermore, there is the harshness of the occasional medical examination, the tension caused by the unstoppable nature of the proceedings and the oppressive effect of coercion.

Minors deserve special attention, as they are even more vulnerable and traumatised, and the superiority and concentration of power of adult law enforcement officials can have an even greater impact on them. In their case, due to their age alone, a counterbalance must be established to the acting member of the authority, and under no circumstances may general criminal tactics, interrogation and treatment schemes be used.

On average, there are five to seven witnesses in criminal proceedings, so they too can be subjects and victims of both forms of violence. They too can be subject to being brought before the court, obliging them to undergo certain examinations, to remain in a specific place, etc.

Other interested parties who suffer coercive measures carried out on the basis of criminal tactics guidelines include, for example, those who are subject to seizure or detention, who may not be charged, injured or witnesses. Consider, for example, a bona fide car buyer who is shocked to find that the authorities are seizing his car because it is the proceeds of a previous crime, such as theft or smuggling.

There is no doubt that criminalistics and its practitioners must use every means at their disposal to avoid primary and secondary victimisation. In this case, we will – exceptionally – offer a possible solution to the latter.

We believe that both permissible violence and unlawful violence have a common source (the root of the problem), and therefore a common remedy. This involves the correct selection of employees, with particular regard to investigative authorities and those taking primary measures, criminal investigators and prison staff, as well as increasing their preparedness and strengthening their professional competence, experience, self-confidence and self-assurance.

This includes a particularly demanding recruitment system, the dismissal of candidates and employees with inherent and uncontrolled violent characteristics, and the provision of practical knowledge related to theoretical law (substantive, procedural, administrative and law enforcement), criminalistics (forensic technology, tactics and methodology), psychology (criminal and prison psychology) and conflict situation exercises.

Ad e) Compared to other areas of criminal law, the relationship between criminalistics and *penal law*, as well as penology and criminal law, is modest. We see a truly meaningful common ground in coercive measures that severely restrict personal freedom – including, in particular, arrest – and in the tactics of covert data collection which may also be carried out within the penal institution. Furthermore, we also see a connection between the goals of both branches in the area of crime prevention.

Ad f) *Criminal psychology* exists in both approaches – European continental and Anglo-Saxon – and its existence can be traced back to its historical roots, namely Hans Gross. After all, the first comprehensive work on this subject is associated with his name.¹⁰

Today, the field of research, subject matter and investigative methods of criminal psychology can be clearly distinguished from similar natural and social sciences, whose developments it effectively and appropriately borrows and incorporates into its own toolkit as an applied science. Its fundamental question is the psychology, personality and structure of the criminal. Therefore, conceptions of personality are of crucial importance. Personality as a psychological concept refers to an individual's characteristic patterns of thinking, feeling and behaviour that define the person, their style and their relationships with their environment. When defining personality, it is therefore advisable to focus on describing and explaining the characteristics and factors that distinguish individuals from one another, while also taking into account the interactions between the whole personality and the environment. It follows from all this that clarifying personality plays an important role in substantive and procedural law as well as in criminal tactics.

The intertwining of criminal sciences, including criminology and psychology, has been described in various ways. We can read about legal psychology, forensic psychology or judicial psychology, or our preferred term, criminal psychology. The diversity of names also results in heterogeneous definitions of the concept, which means that there is no universally accepted, commonly used definition. In Hungarian literature, Péter Popper's definition is most frequently cited. According to him, criminal psychology is an applied branch of psychology that deals with the psychological problems of offenders, crimes and the fight against crime – law enforcement, punishment, prevention and aftercare.¹¹

¹⁰ Hans Gross, *Kriminal-Psychologie* (Leipzig: Verlag von F. C. V. Vogel, 1897).

¹¹ Péter Popper, *A kriminális személyiségzavar kialakulása* (Budapest: Akadémiai Kiadó, Budapest, 1970).

We can also note that psychology, as an applied auxiliary science, fits into the system of sciences dealing with the fight against crime. However, criminal law science approaches this from a different starting point than criminal psychology. A criminal is a person who commits the material elements of a crime as described in the legal definition. Criminal psychology, in line with its field of research, also seeks answers in the psychological specifics, personal characteristics and psychological mechanisms of the individual. As a result, its content is enriched with psychological features, while its scope is narrower than the concept of criminality in jurisprudence.

Its development required results from various natural and social sciences, including developmental and personality psychology, medicine, psychiatry and specialised sciences related to law enforcement. In the latter, criminology plays a major role, but forensic experience has helped and continues to help today. The assistance is mutual, as the field of science related to the thinking, personality and emotions of antisocial offenders provides results and conclusions that can be used on a daily basis in criminalistics. Just think of the psychology of interrogations, confrontations, and forensic nursing, and the importance of the valuable information that can be gained from them. But it can also provide important data for crime prevention and effective punishment.

It is no coincidence that the internal structure of criminal psychology also covers similar areas, which Péter Popper classifies as follows.

1. Criminological psychology: seeks answers to the individual and social background and conditions of crime, the characteristics of antisocial personalities, and deals with the possibilities of crime prevention.
2. Criminal psychology: deals with the psychology of the investigative and judicial stages of law enforcement. It deals with the work of law enforcement officers and investigators, including the reliability and psychological aspects of interrogations and confessions.
3. Penitentiary psychology: the psychology of resocialisation, which requires the application of comprehensive pedagogical, psychological and sociological procedures.¹²

Ad g) We could also say that criminalistics is a child of *medicine*, having grown and developed from it since the mid-19th century. It is no coincidence that the first criminalistics experts were doctors, biologists, toxicologists and pathologists. As a result, there has been close interaction, or symbiosis, between the two disciplines for a century and a half. They influence each other and must be familiar with each other's scientific and working methods, and occasionally their techniques.

The versatility of forensic medicine (including forensic pathology, odontology, osteology, serology, toxicology and psychiatry) is already evident today and will likely continue in the future. It plays a role in cases of crimes against life and physical integrity in investigating the mechanism of death and injury and in examining human and animal remains and blood alcohol levels.

¹² Péter Popper, *A kriminális személyiségzavar kialakulása*, 21–22.

We have not specifically mentioned identification based on bones, as this is now increasingly becoming a separate field of forensic anthropology emerging from medicine. The results of identification based on human bones and remains are particularly useful to criminal investigators.

Incidentally, forensic anthropologists often and necessarily work together with forensic pathologists and dentists, primarily to jointly identify victims who are unknown to criminal investigators, to search for material remains related to the crime, other evidence, and to help accurately map the crime scene.

Forensic anthropologists also carry out identification procedures in a number of ways. These include:

- comparison of ante-mortem and post-mortem radiological images;
- using odontostomatological methods, i.e. comparing teeth;
- comparison of serological characteristics (DNA);
- if a photograph of the suspected person is available, superimposing the photograph of the skull and the photograph of the probable victim, or video superimposition of the images;
- by creating a plastic facial reconstruction;
- computerised facial reconstruction identification.

2.2 Due to the space limitations of this commemorative volume, we will only list the second and third groups of contacts in criminalistics, without going into detail. The second classification includes *technical and natural sciences*,¹³ among which, in our opinion, the following are particularly relevant:

- a) biology,
- b) chemistry,
- c) physics,
- d) technical (engineering) sciences,
- e) mathematics (mathematical logic),
- f) computer science (information theory),
- g) cybernetics,
- (h) “bridge or ferry sciences.”¹⁴

2.3 The third major group of disciplines related to criminalistics consists mainly of the following *social sciences*:¹⁵

¹³ Supplemented by philosophy, logic and gnoseology, Géza Katona refers to these as “cross-sectional” sciences, referring to the fact that they have an impact on the entire system of science. Géza Katona, “A kriminalisztika helye a bűnügyi tudományrendszerben,” in *Kriminalisztika I-II*, ed. Endre Bócz (Budapest: BM Duna Kiadó, 2004), 53.

¹⁴ Based on the term coined by Géza Katona, “A kriminalisztika helye a bűnügyi tudományrendszerben,” in Endre Bócz, “A kriminalisztika helye a bűnügyi tudományrendszerben,” 51.

¹⁵ Friedrich Geerds refers to these as spiritual sciences. Friedrich Geerds, “A kriminalisztika helye a tudományok rendszerében,” in *A kriminalisztika aktuális kérdései. Tanulmányok öt európai országból*, ed. Géza Katona (Budapest: BM Kiadó, 17).

- a) philosophy,
- b) psychology,
- c) logic,
- d) sociology,
- e) pedagogy,
- f) statistics,
- g) archaeology,
- h) criminology.

3. Summary (conclusions)

As a summary of the connections between criminalistics and the above, the following conclusion can be drawn: from the outset, modern criminalistics owed its rapid development to its increasing adaptation to the challenges of mass crime in large cities (urbanisation), and it did so within the framework of interdisciplinary and mutual knowledge transfer. Initially, this was achieved through the transfer of knowledge (knowledge transplantation) from discoveries and inventions brought to light by medicine, toxicology and various other social and natural sciences, with the utilisation and meaningful assimilation of research results. Meanwhile, criminalistics itself, with its professional and expert theoretical and practical specialists and organisations working as a unified team, relying on the achievements of information technology, has created and developed independent fields of knowledge and methodologies in response to increased demands and technological and scientific possibilities. (See, for example, fingerprinting, dactyloscopy, ballistics, handwriting analysis, profiling, polygraphs, and covert devices.)

We can also conclude that criminalistics can be characterised not only as an ever-expanding repository of indirect evidence obtained and examined primarily on the basis of scientific knowledge, but also as the integration and transplantation of a wide variety of professional knowledge, generally involving the involvement and integration of scientific disciplines,¹⁶ transplantation of various professional knowledge, generally involving the sciences, into the investigation of crimes. The utilisation of specialised expertise, which is diverse and heterogeneous, requires above all the employment of experts and consultants. In view of this correlation, it can also be said that the more prepared someone is in interdisciplinary criminalistics, the more fields of expertise and experts they can call upon for the purpose of crime detection, the more effective, i.e. diverse and thorough, and the more complex their information base will be, data collection and, at the same time, the acquisition of evidence. In our view, the focus is always on identification and gaining a realistic understanding of the past.

¹⁶ According to Endre Bócz's apt description, "criminalistics is an interdisciplinary, integrative system of knowledge." Endre Bócz, "A kriminalisztika helye a bűnügyi tudományrendszerben," 34.