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NECESSARY EQUIPMENT FOR SINGLE-TRACK VEHICLE TRAVELERS – COMMENTS *DE LEGE* *LATA* AND *DE LEGE FERENDA*

Summary

Traffic accidents and collisions involving motorcycle drivers are extremely dangerous events due to, among other things, their dynamic course, the speed values reached while riding a single-track vehicle, and thus the very high overloads to which the bodies of motorcyclists, as well as their passengers, are exposed. This publication addresses the issue of the need for legislation obliging motorcyclists to use specialized clothing in addition to mandatory protective helmets when riding. The lack of properly fitted necessary equipment when riding a single-track vehicle in a fall situation affects the type and extent of injuries to drivers and their passengers.

Keywords: motorcyclist, helmet, protective clothing, safety, traffic, traffic accidents

Introduction

After several years of work on another amendment to the Road Traffic Law (hereinafter referred to as u.p.r.d.), on June 1, 2021, the Law of February 25, 2021, on amending the Road Traffic Law¹ came into force, which introduced provisions, among others. increasing the safety of pedestrians on the roads, standardizing the permissible speed in built-up areas², obliging vehicle drivers to maintain a minimum distance between vehicles on highways

¹ Law of June 20, 1997 – Traffic Law (i.e. Journal of Laws 2021, item 450, 463, 694, 720).

² With the exception of the residential zone, where the value of the maximum speed limit remains unchanged, namely 20 km/h around the clock.

and expressways, and regulating the use of personal transportation devices³, electric scooters⁴, and traffic assist devices⁵. The introduction of the above regulations, especially in the case of the latter vehicles, is a very good step by the legislator, since until now a person driving a scooter was treated by the regulations as a pedestrian, although the motor skills of the two participants are significantly different, and both could move on the sidewalk. A scooter rider does this effortlessly, and the technical parameters of the device allow it to reach a much higher speed than a pedestrian or cyclist. While the introduction of regulations regarding scooter drivers is a significant step toward modernity, as for motorcyclists, whose duties the legislature has already regulated, there are still issues that should, in my opinion, be explicitly regulated.

Motorcyclists are affected by all traffic regulations, but safe motorcycle travel is not always just the application of traffic rules, such as the principle of safe speed, due – and sometimes – special caution, limited trust⁶, but also proper preparation for riding. By preparedness to drive, I don't just mean having a driver's license, although it is very common for traffic incidents to be initiated by people who do not have the proper licenses or experience in driving this type of vehicle. Traveling on a motorcycle for both driver and passenger means many more difficult and dangerous situations on the road that car drivers do not experience or are not aware of⁷. The kinematics of single-track vehicle movement is based on the need for the driver to constantly maintain balance. This is achieved by corrective movements of the steering wheel and body in relation to the vehicle. At higher speeds,

³ As stipulated in Article 2, paragraph 47c, personal transportation device – an electrically powered vehicle, excluding an electric scooter, without a seat and pedals, structurally designed to be moved exclusively by the driver on the vehicle.

⁴ According to Article 2, Section 47b, an electric scooter is an electrically-powered, two-axle vehicle with handlebars, without a seat or pedals, structurally designed to be driven solely by the rider on the vehicle;

⁵ According to Section 18a of the A.P.R.D., a mobility aid is a sports and recreational device or equipment designed to move a person in a standing position, powered by muscular force.

⁶ R.A. Stefański, *Prawo o ruchu drogowym. Komentarz*, 3rd edition, Wolters Kluwer Polska, Warsaw 2008, pp. 135–145, 226.

⁷ Car drivers have no knowledge of the correct behavior of motorcyclists in traffic and their limitations, which causes many dangerous situations. To this can be added errors related to insufficient observation of the foreground or the situation in the mirrors, which is related to the difficulty of seeing the silhouette of a moving motorcycle in traffic against the background of the infrastructure.

equilibrium is favored by the gyroscopic moment created by the rapid rotation of the wheels⁸.

By proper driving preparation, I mean proper equipment, and not just the mandatory, technically compliant safety helmet. At present, the safety helmet is the only piece of equipment required by current law for motorcyclists and their passengers, and the obligation to use it dates back to 1968. The driver of a motorcycle or moped is required to use a helmet while riding a single-track vehicle, cyclists and scooter drivers have no such obligation. Cyclists and scooter drivers, in my opinion, should also be equipped with protective helmets, as they will be able to count on head protection during a fall. It should be pointed out that in an accident situation, head injuries may be the only ones, and thus fatal.

Failure to comply with the obligation to wear a protective helmet while riding will result in a fine of PLN 100 and 2 penalty points, as a passenger who fails to comply with this obligation, while the driver will be additionally penalized for carrying a passenger in violation of the provision of Article 40 of the law.

The safety helmet may not be used by those driving a motorcycle factory-equipped with seat belts, but it should always be used regardless of the length of the route you intend to travel. Each protective helmet should be approved, and meet the requirements specified in the Official Gazette of the Ministry of Communications No. 17 of 1971, item 119, and Polish standards: PN-61/S-800001 or PN-69/S-80001. Before a single-track vehicle driver puts on a helmet and sets off, he or she should make a selection of helmets in terms of type, size, also color, to be easier to spot on the road. The decisive criterion in choosing a helmet should not be the price of such an item. Before hitting the road, it is important to check that the helmet you choose is approved and meets CE standards, or directives on safety issues of use.

These duties were not fulfilled by the moped driver, who sustained injuries only to his head, resulting in left-sided hearing loss as a result of a fall caused by a collision with an overtaking passenger car. The moped rider had an un-homologized, unapproved motorcycle helmet (see Fig. 1), which was not technically efficient. The item, which only in appearance resembled a motorcycle helmet, was devoid of padding – a cushioning material that absorbs impact, allowing it to stay on the head, and the fastening function was performed by a white cord, which tore at the time of the fall, so the

⁸ J. Unarski, *Mechanics of motorcycle movement*, in: S. Gaca, A. Reziński, J. Wierciński (eds.), *Wypadki drogowe – vademecum biegłego sądowego*, 2nd edition, Publishing House of the Institute of Forensic Expertise, Krakow 2006, p. 715.

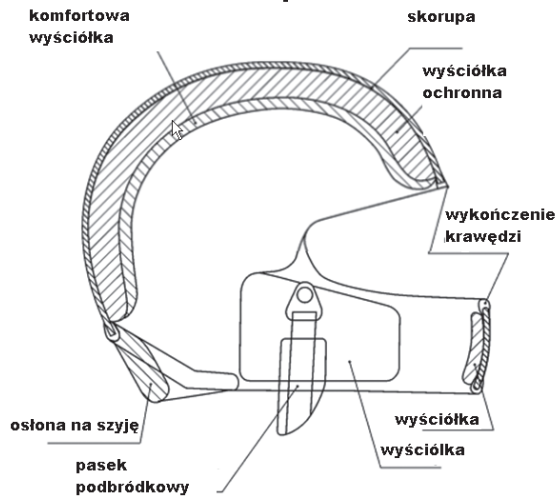
moped rider could not count on head protection. Had the moped rider at the time of the accident been equipped with an approved, homologated, and all-component helmet, he would not have suffered injuries that could be classified as causing a violation of bodily organ functions or disorder of health for more than 7 days as a result of the incident in question.

Fig. 1. Helmet-like object revealed at the scene of the collision between moped rider and passenger car



Source: own compilation based on a photo taken during the inspection by police officers.

Every motorcycle safety helmet should have three basic components: shell, filling, and fastener, as presented in Fig. 2.

Fig. 2. Construction of a motorcycle helmet in cross-section

Source: own study.

All of these essentials will help ensure that the person wearing it has the right level of safety and protect the head (brain) from injury or minimize it⁹. The user of the helmet is not allowed to make changes to its design on his own, removing or adding any elements. This will make the helmet ineligible to be referred to as approved.

Another important point is that the helmet should be properly fitted to the head, the chin strap properly tightened and its buckle fastened while riding. An unfastened helmet will not serve its purpose, and neither will a helmet that is too large. It is not recommended to buy a second-hand helmet, because as for the one acquired second-hand, you can never be sure if it has not been involved in some traffic incidents in the past, during which it may have been damaged. Even micro-damage can affect its continued safe operation.

The basic determinants of a safe and approved helmet are certification and approval. The fact that a product has the so-called European conformity (CE certificate) is not tantamount to an attestation that it meets the safety standards contained in the current ECE R22.05 approval. To obtain such

⁹ There is no protective helmet that will protect against all possible impacts, as the impact energy in the event of an accident may exceed the protection of the helmet.

approval, the manufacturer must submit its product to an institute where the tests specified by the aforementioned standard are carried out. When the helmet receives a positive result, the information is forwarded to the approval authorities of the country where EU standards apply and approval is issued, with the country's designation. Special attention should be paid to this fact, especially for cheaper products. Manufacturers and importers often obscure the fact that they do not have approval with the CE mark. Individual helmet models are tested by various organizations, such as Snell¹⁰ or SHARP¹¹, and then given a rating expressed in stars, similar to the Euro NCAP¹² tests that car models undergo.

ECE Directive R22.05 applies to all ECE (European Economic Union) countries, and all countries that are members of the European Union have adopted this standard as mandatory. Although helmets that do not meet the ECE R22.05 standard can be sold legally (auctions offering models for 30-60 zlotys are encountered on the Internet), they are not allowed in European Union countries (with a few exceptions). Among many others, the ECE R22.05 standard puts a premium on testing impact attenuation, chin strap strength, helmet sliding behavior, and durability. DOT, on the other hand, applies to the US and Canadian markets and stands for FMVSS No. 218 safety compliance testing for motorcycle helmets – FMVSS is the Federal Motor Vehicle Safety Standard. The DOT helmet meets minimum standards for shock absorption, and puncture resistance and has a chin strap with adequate stretch. Unlike ECE R22.05, DOT tests are conducted on specific areas of the helmet, not just spot tests. Interestingly, helmets approved to U.S. standards, such as DOT, cannot be legally used in the UK.

In the provisions of the Law – Traffic Law, there are no regulations on the expiration date of the helmet. Its lifespan depends largely on the user. Manufacturers suggest that the helmet should be replaced at least every five years so that it does not lose its properties. If the shell or any of the fittings have visible signs of wear, then the helmet should be replaced.

¹⁰ The Snell Foundation conducts the most stringent testing of helmets, and has some of the most advanced and stressed helmet testing facilities in the world. Snell's helmet testing laboratory in California is one of the few in the United States accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA).

¹¹ A consumer information initiative introduced by the U.K. Department for Transport (DfT) in 2007 following research that revealed real differences in the safety levels of motorcycle helmets available in the UK. On a five-point scale (in the form of stars), it determines the level of safety of the helmet and is a kind of supplement to the ECE test with safety tests based on the recommendations of the COST 327 study.

¹² European new car evaluation program, provides consumers with information on the safety level of new models.

As you can see, since it is mandatory to wear only a helmet when traveling on a motorcycle, it should be concluded that Polish regulations are not very restrictive and this issue requires additional regulation. The legislator did not see the need to develop regulations for motorcyclists' equipment beyond the helmet, most likely believing in the common sense of Polish single-track vehicle users themselves and that they would protect their bodies from the consequences of falls or crashes despite the lack of regulations. The necessity to use appropriate clothing for riding a motorcycle can be deduced from Article 3(1) of the Law on Motorcycles, according to which a traffic participant and another person on the road are obliged to exercise caution, and when the law requires it, special caution, avoid any action that could cause a threat to the safety or order of traffic, impede the traffic or, in connection with the traffic, disturb the peace or public order and expose anyone to harm.

A well-prepared motorcyclist should be equipped with a suit (possibly a jacket and pants), over-the-ankle boots and gloves, and a back protector. In a collision with a vehicle weighing 1.5 tons, the motorcyclist's body is virtually defenseless, not protected by such elements as the body (including controlled crumple zones), gas bags, or curtains, and it is only up to the motorcyclist's sanity how much he or she will offset the possibility of injury. Therefore, it is worth equipping yourself with the appropriate clothing, as the mandatory helmet is not enough to minimize the extent and type of injury in a fall from a motorcycle situation. Traffic incidents involving motorcyclists and their passengers are characterized by the fact that in the event of even a slight loss of balance, the driver and passenger may lose contact with the vehicle and suffer injuries. A single-track vehicle stopped abruptly causing the people riding it to be ejected according to the direction of the previously maintained speed. Even in a seemingly harmless rollover situation, motorcycle occupants can suffer serious or even fatal injuries in contact with another vehicle, the road surface, or the shoulder. If the motorcycle loses stability without the involvement of the other vehicle, how the motorcyclist falls depends on where the centrifugal force and inertia intersect in relation to the curvature of the trajectory. When the intersection of forces occurs on the inside of the curve, we have a so-called "low side" event – the vehicle will fall on the roadway, and the driver will move, gliding on the pavement, if he does not try to get up. On the other hand, a *high side* event will occur when the intersection of forces occurs on the outside of the curve; then the motorcyclist will be thrown, fly over the handlebars and to the side, fall from a height at high speed, then start somersaulting to glide and stop. The

risk of suffering more extensive injuries increases when an object, such as a tree, stands in the path of traffic, or a motorcyclist is additionally hit by a gliding motorcycle¹³. When a collision occurs, the way the body of the driver and passenger move is slightly different. The trajectory of the driver and passenger is close to a rectilinear or so-called ballistic curve. The movement of the passenger's body is determined not only by the crash position but also by the place he occupies behind the driver in the first phase of the accident¹⁴. In the event of a collision with a stationary obstacle, there is the dynamic movement of the passenger across and over the driver's body. The driver is thrown out of the vehicle in the second place, and falls closer to the motorcycle, mainly because he holds on to the handlebars, and has a greater opportunity to hold on to the vehicle with his lower limbs (against the fuel tank), occupies the so-called position of preference, because he realizes the danger earlier, and his body is momentarily blocked by the body of the passenger moving on his back¹⁵. Determining the mutual position of the bodies of the persons traveling on the motorcycle and analyzing the extent and type of their injuries will help determine the person driving the vehicle when in doubt¹⁶.

Not all single-track vehicle users are convinced by this, and they explain the lack of a special suit and footwear to the high cost of buying such equipment or the short route to be traveled. Such excuses, when it comes to traffic safety, cannot be sufficient and convincing. When giving opinions on traffic incidents involving motorcyclists and moped riders, I observe that, unfortunately, few drivers use protective clothing, as it is not mandatory. Courts increasingly want to determine – especially in civil proceedings – whether the driver, lacking specialized clothing designed for motorcycling, could (at what time) have been visible to other road users and whether, in the absence of protective clothing, he increased the extent of his injuries, which is relevant to determining the extent of compensation for personal injury.

¹³ G. Teresiński, J. Unarski, W. Wach, *Kinematyka i skutki wypadków motocyklowych*, w: G. Teresiński (ed.), *Medycyna sądowa*, vol. 1: *Tanatologia i traumatologia sądowa*, PZW, Warsaw 2019, pp. 695–696.

¹⁴ L. Prochowski, J. Unarski, W. Wach, J. Wicher, *Podstawy rekonstrukcji wypadków drogowych*, Wydawnictwa Komunikacji i Łączności, Warsaw 2008, p. 34.

¹⁵ T. Wolny, *Obrażenia jadących pojazdami jednośladowymi*, in: S. Gaca, A. Reziński, J. Wierciński (eds.), op. cit., p. 223.

¹⁶ More extensively on this topic: M.M. Żoła, *Kryminalistyczna problematyka ustalenia osoby kierującej pojazdem*, in: J. Moszczyński, D. Solodov, J. Sołtyszewski (eds.), *Crime, evidence, law: jubilee book of Prof. Bronisław Młodziejowski*, University of Warmia and Mazury Publishing House, Olsztyn 2016, pp. 329–339.

A motorcycle trip, no matter how long, requires proper attire. In some situations, it seems that the budget has run out of money to pay for a driver's license course or retraining rides and to buy a motorcycle and a helmet. Funds had already run out for appropriate clothing. Properly fitted clothing will significantly increase the safety of the motorcyclist. Traveling even at low speed in an undershirt, shorts, flip-flops, or sneakers in a fall situation will result in skin breaches and painful injuries. Properly selected motorcycle clothing (including thermal underwear or cooling vests) should not only protect against and offset the painful effects of a possible fall but also protect against regular and excessive cooling or overheating. Traveling by motorcycle in hot weather is a challenge for motorcyclists, but such a circumstance should not affect the abandonment of body protection with a specialized suit. These duties were not fulfilled by an experienced (as he described himself) motorcycle driver who was involved in a collision with a passenger car driver performing a turning maneuver. The motorcycle driver was traveling at excessive speed in a built-up area. After colliding with the car, he fell onto the asphalt road surface and continued to rotate around his axis, shuffling onto the streetcar track, sustaining injuries.

Fig. 3. View from the video recorder camera of a turning vehicle whose front right side of the body was struck by a motorcyclist



Source: own elaboration based on the image recorded on the vehicle's video recorder.

Admittedly, as can be seen in the above figure, the motorcyclist had a jawbone motorcycle helmet strapped on his head, which did not fall off his

head¹⁷, but the visor was raised because the motorcyclist put on sunglasses. At the time of the fall, glass penetrated his right eye, causing him to lose feeling in it. Falling on the ballast-lined track, he sustained injuries, including multiple skin abrasions and fractures. He was not wearing a specialized suit, but only an undershirt, short shorts, and athletic shoes. In court proceedings, he testified that it was hot at the time. The need to travel on a hot day is not an argument for not wearing protective clothing, because, in addition to the painful effects of abrasions to the epidermis, you can also suffer burns against engine components or heated fairings. By putting on less clothing, you can avoid overheating (which is just as dangerous as cooling down), but this course of action may be appropriate when walking, but will not ensure safety when riding a motorcycle.

In my opinion, if the above-described motorcyclist had worn proper clothing and a helmet with a proper sun visor, he could have reduced the extent of the injuries sustained in the accident.

Before buying an outfit, as with a helmet, it is important to make sure that the clothing and equipment are well-sized for the wearer, because only properly sized clothing effectively protects against heat or cold, protects against injury as effectively as possible, and provides comfort.

Properly selected comfortable clothing (overalls), footwear, and gloves, not least an approved helmet, ensure the comfort of the traveler and the safety and visibility of the rider of a single-track vehicle to other road users. The clothing worn by motorcyclists while riding must perform certain functions, so it should have the necessary approvals, since during a fall, only the thickness of the material separates the skin from the asphalt or other solid objects. A motorcyclist's outfit should not only look good but also be comfortable, as the motorcyclist must have full freedom of movement while riding. Most of the clothing items for a motorcyclist should be made of high-quality leather, with additional special reinforcements in sensitive areas prone to injury, such as knees and elbows. Motorcycle clothing is designed to protect against impact, and abrasion during a fall from a motorcycle, and should be equipped with protectors on the elbows, knees, back, and hips, and reinforced with fabric. In addition, properly designed clothing protects the motorcyclist from the sun, wind, rain, and impacts of small stones flying out from under the tires of other vehicles. Motorcycle

¹⁷ As a rule, the helmet should not fall off the motorcyclist's head at the time of the accident. In the course of activities at the scene, it is necessary to perform a visual inspection of this item to determine the extent and type of its post-accident damage, not only to the shell, but also to the chin strap and buckle.

clothing also includes elements that are not visible on the outside. As an example, there is the so-called turtle, which is a spine protector that is inserted under the jacket. It is also important to note the difference in attire depending on the motorcycle owned, as a different one will be designed for the owner of a sports motorcycle, or so-called racer, and another for the owner of a chopper, cruiser, or enduro. When traveling on the road in a single-track vehicle, the motorcyclist needs to be visible to other traffic participants. That's why it's so important to use contrast-colored clothing with sewn-in reflective elements and reflective vests.

At present, none of the articles of the u.p.r.d. directly obliges the drivers of single-track vehicles to use specialized clothing (overalls) and footwear while riding, just as there are no regulations specifying the requirements for the "motorcyclist's outfit," but this type of equipment should be the normal equipment of such a traffic participant, who, in a situation of participation in a traffic incident, thanks to it can minimize or eliminate the risk of injury.

Analyzing the technique and tactics of riding a motorcycle, it is taken into account that any driver of such a motorcycle, aware of the dangers of traffic (the fact that he is, in fact, an unprotected participant in traffic by the body of the vehicle), should make every effort to eliminate or minimize the risk of injury through the use of closet suitable for driving.

Properly selected clothing can either prevent injuries or minimize their extent. When choosing the appropriate attire for riding a motorcycle, the driver of such a vehicle should remember that:

- the entire body must be shielded;
- special protectors must be placed on the joints; the skin in areas more prone to abrasion should be protected with abrasion-resistant material;
- each type of garment should have more than one sewing line and at least one hidden sewing line on exposed seams;
- all fasteners should be secure and protected from contact with the road surface or other surfaces;
- external pockets, handles or straps are not recommended due to the possibility of snagging on something and causing a fall;
- clothing should be made of the highest quality material – well-insulating, waterproof, ventilated, and windproof or one that effectively protects against the cold;
- clothing must be breathable to protect against overheating;
- the clothing should be of a contrasting color or have reflective elements sewn into it - so that the person wearing it can be seen against the background of the road infrastructure;

- clothing must be properly sized to stay in place in the event of an accident;
- pockets should be emptied so that any items stored in them cannot cause additional injury.

Damp clothing is not only uncomfortable, but can also cause distraction to the motorcyclist, and can also make a person cold quickly, as water absorbs heat from the body surface. While driving, the body's cooling is compounded by the breeze. When the air temperature is high, motorcyclists can still get cold due to sweat-soaked clothing. Cold weather causes him to become less concentrated and reaction time increases, consequently, the driver is more likely to make a mistake in the traffic environment, which can result in a collision or accident. A decrease in the temperature of the vertebral body can even affect the proper functioning of the brain and impair the ability to make decisions. Motorcycle clothing will help protect the motorcyclist from rheumatism.

Of course, under current regulations, it is up to the motorcyclist himself to choose whether he or she will travel on a motorcycle in ordinary everyday clothes or use protective clothing.

The outer layer of any piece of clothing or suit should primarily protect the skin from abrasion, and skin disruption and minimize the risk of burns from a hot engine or exhaust pipes, while specialized protectors (for the spine, knees, shoulders, and hips) can prevent or minimize severe fractures or joint damage¹⁸.

Motorcyclists are not only people who travel on single-track vehicles for pleasure, they are also people who work, such as police officers from the traffic division or paramedics, who should be properly protected while riding as part of their official duties. Motorcycle clothing, regardless of whether the motorcycle is a tool for work or pleasure, should meet the appropriate standards. The Central Institute for Labor Protection – National Research Institute indicates that it must comply with the following standards:

- PN-EN 1621-1:2013-06 – Protective clothing for motorcyclists against mechanical impact - Requirements and test methods for impact protection;
- PN-EN 1621-2:2005 Protective clothing for motorcyclists protecting against the effects of mechanical impact – Part 2: Back protectors for motorcyclists – Requirements and test methods;

¹⁸ <http://dziennikimotocyklowe.com/przewodnik-po-odziezy-motocyklisty-i-kierowcy-skutera/> (accessed: 31.05.2021).

- PN-EN 13595-1:2005 Protective clothing for professional motorcyclists – Jackets, pants, and one-piece or multiple-piece garments – Part 1: General Requirements;
- EN 13595-2:2005 Part 2: Impact abrasion resistance test method;
- EN 13595-2:2005 Part 3: Pushing strength test method;
- EN 13595-2:2005 Part 4: Impact cut resistance test method¹⁹.

Since Polish legislation lacks adequate regulations for motorcyclists' clothing, perhaps it would be appropriate to see how the situation is in other countries, such as the UK, and take advantage of their good practices. According to the *Highway Code* for motorcyclists, to which rules 83 through 88 apply, the driver and passenger must always wear a protective helmet. They are also advised to use eye protectors – which must comply with regulations – and consider hearing protection. Motorcyclists are also informed that “sturdy shoes, gloves, and proper clothing can protect you in the event of a collision.” Rule 86 suggests that drivers should be as visible as possible from the side, as well as from the front and rear and that they should wear a “bright or brightly colored helmet and fluorescent clothing or stripes.” According to Rule 87, when driving in the dark, you should “wear reflective clothing or stripes to improve your visibility.” In addition, as of July 1, 2011, examiners conducting an exam with motorcycle driving candidates may stop the exam if the driver is not wearing “appropriate clothing”; as defined by the DVSA (Drivers and Vehicle Standard Agency), this consists of:

- motorcycle boots or other sturdy footwear that provide support and ankle protection,
- textile or leather motorcycle pants or thick denim pants,
- a textile or leather motorcycle jacket or heavy denim jacket with several layers underneath,
- motorcycle gloves.

Advice on choosing the best outfit is also given to trainees in *Compulsory Basic Training* (CBT). In the UK, there is no legal requirement to wear any protective gear except a helmet, but injury claims are handled in civil proceedings under a 1975 precedent (*Froom et al. vs. Butchers*), according to which if some or all of the injuries sustained in an accident could have been avoided by wearing the appropriate kit, a claim for damages can be reduced by up to 25%.

¹⁹ https://www.ciop.pl/CIOPortalWAR/appmanager/ciop/pl?_nfpb=true&_pageLabel=P30001831335539182278&html_tresc_root_id=300001987&html_tresc_id=300001987&html_klucz=19558 (accessed: 31.05.2021).

As far as Polish motorcyclists are concerned, the emphasis on the need for proper closets should be placed not only on the part of properly formulated regulations but also during driving courses and training. Beginning motorcyclists need to know the potential dangers of not wearing a protective kit.

Many times when analyzing the pathological behavior of some motorcyclists, one gets the impression that they treat public roads like race tracks. Perhaps, therefore, for the construction of regulations obliging the use of protective clothing while riding, the technical regulations that apply to competitors in track racing could be adapted accordingly. According to these rules, the suit should be one-piece (as in track racing) or its upper and lower parts should be connected by a zipper or similarly (for *Flat Track*, long-sleeved pants and shirt are also allowed); it should have inserts of elastic material under the shoulders, at the back of the knees and in the groin to allow freedom of movement, it should be no thinner than 1 mm, non-toxic and non-allergenic, and it should not be made of nylon or spandex (e.g. Lycra, Elastane) (for *Flat Track* it is only recommended not to use nylon or spandex). It is recommended that the suit meet EN13595-1,2,3,4, which means good resistance to abrasion, seam tearing, impact cutting, high melting point, and low thermal conductivity. If it is not made entirely of leather, it is recommended that the driver and passenger also use a suitable undersuit, which should contain ribbed panels of moldable plastic with a minimum thickness of 2 mm and protect the following parts of the body: shoulders, elbows, both sides of the torso (chest and back), hip joints and knees. It is recommended that the trouser model conforms to EN 13595-1,2,3,4, which, as with the suit, means good resistance to abrasion, seam tearing, impact cutting, high melting point, and low thermal conductivity. In addition, the driver and passenger must wear a back protector built into the suit or pants or selected separately; it must comply with the EN1621-2 standard. In addition, it is recommended to wear a chest protector and other padding to protect the clavicles, elbows, hip joints, and knees. The liners for the chest and hip joints must comply with EN1621-1-3 (or EB14021) and EN 1621-1, respectively. Footwear (as well as gloves of the driver and passenger) should be made of leather or other material having similar characteristics, the upper is to have a minimum height of 30 cm²⁰.

The use of a protective helmet and specialized clothing and footwear by motorcyclists and their passengers not only reduces the risk of fatal injury

²⁰ https://www.fim-moto.com/fileadmin/user_upload/2021_0_TRACK_RACING_TECHNICAL_RULES.pdf (accessed: 31.05.2021).

completely in every case, in every accident situation, and every crash, but also avoids more serious injuries, especially when the rider in a pre-crash situation chooses to lay the motorcycle down and lose speed while gliding on the asphalt or gravel surface²¹. Manufacturers of motorcycle equipment, not just vehicles, offer a range of stylish helmets, vests, knee and elbow pads, pants, and boots for added aesthetic appeal while riding.

Factors such as higher vehicle horsepower and torque, a change in travel patterns - that is, the abandonment of the car in favor of motorcycles dictated by economic considerations - increasing environmental awareness, and, finally, greater mobility are causing a persistently high risk of loss of life and health for single-track drivers and passengers. As such, it will be up to them how they protect their bodies from the danger of injury or improve their safety on the road.

Summary

Although currently only a helmet is required under the current legislation on mandatory equipment for motorcyclists and moped riders (and their passengers) when riding a motorcycle or moped, special protection is required not only for the head of the single-track vehicle driver but also for the arms and feet. Even if driving a motorcycle is associated with freedom, another obligation should be imposed on the driver in addition to the above-mentioned one – to wear specialized clothing while riding. Therefore, it is worth investing in protective gear and thus ensuring safety measures when traveling on a motorcycle or moped. This should be obligated by the provisions of the Law – Traffic Law. Accordingly, Article 40(3) of the u.p.r.d. could read as follows: “The driver of a motorcycle or moped, as well as the person being transported on such vehicles, shall be obliged to use overalls, boots, and gloves that comply with the appropriate technical conditions while driving”.

²¹ Without proper protective clothing, a unicycle rider risks what is known as road rash in the event of a fall. This occurs when the material that is on the road surface, at the moment of violent friction of the unprotected or poorly protected epidermis abrades it and removes several layers of skin. This can cause damage to nerves, muscles, tendons and even bones.

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KONFERENCJA NAUKOWA „KRYMINALISTYKA – PIĘKNA 130-LETNIA” – SPRAWOZDANIE

W dniach 28–30 czerwca 2023 r. na Wydziale Prawa i Administracji Uniwersytetu Jagiellońskiego w Krakowie odbyła się konferencja naukowa pt. „Kryminalistyka – piękna 130-letnia”, której organizatorami byli Pracownia Kryminalistyki Wydziału Prawa i Administracji Uniwersytetu Jagiellońskiego w Krakowie oraz Polskie Towarzystwo Kryminalistyczne.

Spotkanie obejmowało dwa ważne wydarzenia, tj. XI Zjazd Katedr, Zakładów, Pracowni i Zespołów Kryminalistyki oraz VIII Międzynarodowe Sympozjum Naukowe Polskiego Towarzystwa Kryminalistycznego. Związane było z trzema jubileuszami – prof. dr. hab. Józefa Wójcikiewicza, 60-leciem powstania Zakładu Kryminalistyki Wydziału Prawa i Administracji UJ oraz 50. rocznicą utworzenia Polskiego Towarzystwa Kryminalistycznego. Patronat honorowy nad przedsięwzięciem objęli: JM rektor Uniwersytetu Jagiellońskiego prof. dr. hab. Jacek Popiel, dziekan Wydziału Prawa i Administracji UJ prof. dr. hab. Jerzy Pisuliński, prezydent miasta Krakowa prof. dr. hab. Jacek Majchrowski.

Wydarzenie spotkało się z dużym zainteresowaniem, uczestniczyło w nim bowiem ponad 160 osób. W konferencji udział wzięli przedstawiciele krajowych oraz zagranicznych ośrodków akademickich oraz reprezentanci środowiska praktyków, którzy w swojej działalności naukowej i eksperckiej zajmują się kryminalistyką.

Ze względu na obchody jubileuszu pierwszy dzień konferencji miał uroczysty, oficjalny charakter. Zebranych gości przywitali prof. dr. hab. Józef Wójcikiewicz oraz dr. hab. prof. UR Mieczysław Goc – prezes Polskiego Towarzystwa Kryminalistycznego, który podziękował za duże zainteresowanie organizowanym wydarzeniem skutkujące otrzymaniem wielu zgłoszeń czynnego uczestnictwa, wskazał na cykliczność sympozjów PTK oraz podkreślił rolę i znaczenie kryminalistyki – zarówno w sferze naukowej, jak i praktycznej.

Podniosłym punktem tej części konferencji było wręczenie Medalu „Zasłużony dla Polskiego Towarzystwa Kryminalistycznego” prof. dr. hab. Józefowi Wójcikiewiczowi. Treść uchwały podjętej przez Kapitułę Medalu odczytał prof. dr. hab. Tadeusz Tomaszewski – przewodniczący Kapituły Medalu oraz Rady Naukowej Polskiego Towarzystwa Kryminalistycznego.

W uznaniu szczególnych i godnych upamiętnienia zasług dla Polskiego Towarzystwa Kryminalistycznego Kapituła Medalu podjęła także uchwałę

o przyznaniu pośmiertnie tej godności prof. dr. hab. Tadeuszowi Widle. Z rąk prof. dr. hab. Tadeusza Tomaszewskiego oraz prof. Mieczysława Goca medal odebrała małżonka zmarłego Profesora, prof. dr. hab. Halina Widła. Niewątpliwie chwilom tym oprócz podniosłej atmosfery towarzyszyły momenty wzruszenia.

Podczas tej części spotkania nastąpiło uroczyste wręczenie Jubilatowi wieloautorskiej monografii zatytułowanej *Piękno kryminalistyki. Księga jubileuszowa Profesora Józefa Wójcikiewicza*. W imieniu wszystkich autorów na ręce Jubilata *Księgę* przekazali jej redaktorzy naukowci – dr hab. prof. UMK Violetta Kwiatkowska-Wójcikiewicz, dr Ryszard Krawczyk oraz dr Dariusz Wilk. Ta część uroczystości była okazją do złożenia życzeń Jubilatowi. Zaproszeni goście kierowali je zarówno w stronę Pana Profesora, jak i wszystkich pracowników Pracowni.

W uroczysty sposób uczczono także jubileusz 50-lecia Polskiego Towarzystwa Kryminalistycznego. Wiele życzeń spłynęło z krajowych i zagranicznych ośrodków naukowych. Wyrazy uznania i gratulacje za wiele lat tak aktywnej działalności skierowali w stronę Polskiego Towarzystwa Kryminalistycznego również dyrektorzy i przedstawiciele laboratoriów oraz innych jednostek współpracujących z PTK. Życzenia oraz listy z gratulacjami przekazano na ręce prezesa PTK prof. Mieczysława Goca oraz przewodniczącego Rady Naukowej prof. Tadeusza Tomaszewskiego.

Po przerwie odbyła się prezentacja Katedr, Zakładów, Pracowni i Zespołów Kryminalistyki. Moderatorami byli: prof. Józef Wójcikiewicz oraz prof. Mieczysław Goc. Tę część spotkania rozpoczęto od sesji jubileuszowej, podczas której prof. Wójcikiewicz przedstawił 60 lat funkcjonowania Pracowni Kryminalistyki UJ, natomiast prof. Goc przybliżył zebrany gościom Polskie Towarzystwo Kryminalistyczne z perspektywy pół wieku działalności.

W dalszej części spotkania głos oddano instytucjom związanym z nauką i praktyką kryminalistyki. Instytut Ekspertyz Sądowych im. Prof. dra Jana Sehna w Krakowie zaprezentowany został przez jego dyrektora dr. hab. Dariusza Zubę, prof. IES. Dr hab., prof. UP Kazimiera Juszka, pełniąca funkcję kierownika Katedry Kryminalistyki, Prawa Karnego i Międzynarodowego, przedstawiła historię oraz perspektywy rozwoju Kryminalistyki w Uniwersytecie Pedagogicznym w Krakowie. Dr hab., prof. UŚ Marek Leśniak omówił działalność Zespołu Badań Kryminalistycznych WPiA Uniwersytetu Śląskiego. Prof. dr hab. Wiesław Pływaczewski przedstawił uczestnikom spotkania działalność Katedry Kryminologii, Kryminalistyki WPiA Uniwersytetu Warmińsko-Mazurskiego (prof. Pływaczewski sprawuje funkcję

kierownika Katedry). Pracownia Kryminologii i Kryminalistyki Uniwersytetu Rzeszowskiego została zaprezentowana przez dr Dorotę Semków. Następnie prof. dr hab. Tadeusz Tomaszewski – kierownik Katedry Kryminalistyki Wydziału Prawa i Administracji Uniwersytetu Warszawskiego – zapoznał uczestników konferencji z działalnością tej jednostki oraz Centrum Nauk Sądowych UW. Dr hab., prof. Uwr Maciej Trzeciński przedstawił Katedrę Kryminalistyki Wydziału Prawa, Administracji i Ekonomii Uniwersytetu Wrocławskiego, której jest kierownikiem. Dr Aleksandra Tucholska-Lenart, przewodnicząca warszawskiego oddziału PTK, przygotowała prezentację na temat 25-lecia działalności tego oddziału, natomiast Władysław Wojtyczka scharakteryzował Laboratorium Kryminalistyczne Komendy Wojewódzkiej Policji w Krakowie.

Pierwszy blok tematyczny, któremu przewodniczył prof. Tadeusz Tomaszewski, dotyczył kryminalistyki w systemie nauk sądowych. W tej części obrad przewidziano następujące wystąpienia: Valery Shepitko, *Directions and trends of criminalistics and forensic sciences in Ukraine*; Henryk Malewski, Vidmantas Egidijus Kurapka, Snieguolė Matulienė, *Litewsko-polsko-ukraińska współpraca czynnikiem inspirującym integracyjne procesy w kryminalistyce obszaru Trójmorza (Intermarium)*; Dariusz Zuba, *Kierunki rozwoju nauk sądowych*; Ewa Gruza, *Kryminalistyka jutra – ewolucja czy rewolucja?*; Jerzy Kasprzak, *Filozofia kryminalistyki – kompleksowe spojrzenie na teorię tej nauki*.

Obradom kolejnej części konferencji przewodniczył prof. Dariusz Zuba. Podobnie jak w przypadku pierwszego panelu, również i w kolejnej części uczestnicy mieli okazję wysłuchać wielu interesujących wystąpień. Zgodnie z programem konferencji, podczas poszczególnych prezentacji przedstawiono następującą problematykę: Maciej Trzeciński, *Zbrodnie z przeszłości – o perspektywach wykorzystania współczesnej kryminalistyki*; Rafał Skowronek, *Kryminalistyka na łamach „Archiwum Medycyny Sądowej i Kryminologii” (1951–2022)*; Monika Całkiewicz, *Nauczanie kryminalistyki w ocenie studentów*; Magdalena Zubańska, *Kryminalistyczne badania poligraficzne – metoda identyfikacji znana praktyce polskiego procesu karnego od 60 lat*; Tomasz Berdzik, *Katastrofa lotnicza samolotu Il-62 PLL LOT „Mikołaj Kopernik” – studium przypadku. Aspekty prawne, kryminalistyczne i historyczne*.

Drugi dzień konferencji naukowej upłynął pod hasłem *Nowe technologie kryminalistyczne w praktyce śledczej i ekspertyzie sądowej*. Obrady obejmowały pięć sesji naukowych, którym przyporządkowano następującą tematykę.

Sesja I – *Kryminalistyczne badania dokumentów (cz. 1)*. Moderatorem tej części obrad była prof. dr hab. Ewa Gruza, natomiast prelekcje wygłosili: Aleksandra Gryniewicz, *Bezpieczeństwo dokumentów a rola edukacyjna Polskiej Wytwórni Papierów Wartościowych*; Jagoda Dzida, *Występowanie w piśmie ręcznym wybranych cech graficznych – założenia badań populacyjnych*; Tomasz Dziedzic, *Nowe ujęcie zasad dobrej praktyki laboratoryjnej w badaniach pisma ręcznego*; Pavlos Kipouras, *De facto validity of a testament and proof issues of the comparative material (Faktyczna ważność testamentu i kwestie dowodowe materiału porównawczego)*; Piotr Bilski, *Automatyczna weryfikacja autentyczności podpisu odręcznego z wykorzystaniem metod sztucznej inteligencji*; Liliana Solarz, Krystyn Łuszczuk, *Usuwanie przebarwień linii graficznych pisma z wykorzystaniem programu EDYTOR v.3.0 jako ważny etap badań pismoznawczych*.

Rozważania w zakresie kryminalistycznych badań dokumentów kontynuowano po przerwie kawowej. Moderatorem sesji była dr hab. Anna Koziczak, prof. UKW. W swoich wystąpieniach prelegenci poruszyli następującą problematykę: Yuriy Agalidi, *Forensic investigations of magnetic printing based on magnetic measurements (Badania kryminalistyczne druku magnetycznego na podstawie pomiarów magnetycznych)*; Zbigniew Zieliński, *Badanie autentyczności dokumentów historycznych*; Marek Leśniak, *Specyfika kryminalistycznych badań sygnatur malarskich*; Olivia Rybak-Karkosz, *Czy nadchodzi rewolucja w badaniu autentyczności dzieł sztuki? O możliwościach zastosowania sztucznej inteligencji w weryfikowaniu autentyczności dzieł malarskich*.

Podczas kolejnej sesji, zatytułowanej *Taktyczno-techniczne aspekty działań śledczych*, której także przewodniczyła prof. Anna Koziczak, wysłuchano trzech wystąpień: Sylwia Zadworna, Klaudia Gawęda, *Uwagi dotyczące czynności wykonywanych przez techników kryminalistyki z wybranych Komend Policji w województwie śląskim*; Dariusz Wilk, *Taktyczno-procesowe sposoby uzyskiwania materiału porównawczego od osób w celu wykrycia sprawcy. Aspekty prawne, kryminalistyczne i społeczne*; Jakob Maziarz, *Pierwsze nowoczesne badania przesiewowe w Polsce – Kraków 1936*.

Konferencja, która odbywała się w tak historycznym i atrakcyjnym pod wieloma względami mieście jak Kraków, nie mogła być pozbawiona walorów turystycznych. W drugim dniu obrad zatem organizatorzy zaplanowali zwiedzanie Collegium Maius UJ. Okazały, najstarszy budynek Akademii Krakowskiej spotkał się z dużym zainteresowaniem uczestników spotkania. W trakcie oprowadzania przybliżono m.in. interesujące wydarzenia i tradycje akademickie, które towarzyszyły na przestrzeni wieków tej najstar-

szej polskiej uczelni i jednemu z najstarszych uniwersytetów na świecie. Dodatkowym atutem był spacer przepięknymi uliczkami Starego Miasta.

W tym dniu ostatniej przewidzianej planem konferencji sesji przewodniczył prof. Henryk Malewski. Ta część obrad była zatytułowana *Kryminalistyczne badania interdyscyplinarne*, a w jej trakcie ogłoszono następujące referaty: Horváth Orsolya, *Evidence related to 3D printing technology*; Krzysztof Woźniewski, Aneta Lewkowicz, Magdalena Kasprzak, *Nowatorska, nietoksyczna metoda wizualizacji śladów daktyloskopijnych na papierach standardowych i termicznych*; Dariusz Bułka, Tomasz Wójtowicz, Weronika Winiarska, *Automatyzacja w procesie analizy plam krwawych*; Jolanta Wąs-Gubała, *Różnicowanie fragmentów barwnych włókien bawełnianych w badaniach kryminalistycznych*; Daria Śmigiel-Kamińska, Jolanta Wąs-Gubała, Piotr Stepnowski, Jolanta Kumirska, *Kryminalistyczne badania zdegradowanych włókien tekstylnych z wykorzystaniem technik chromatograficznych*; Maciej Świętek, *Przykłady „nietypowych” spraw mekhanoskopijnych wykonywanych w Instytucie Ekspertyz Sądowych w Krakowie*.

Po intensywnym naukowo dniu uczestnicy konferencji mieli możliwość spotkania się podczas uroczystej kolacji, którą organizatorzy zaplanowali w jednej z krakowskich restauracji. Wieczór był okazją do integracji uczestników, kularowych rozmów, a tym samym stwarzał możliwość wymiany wielu interesujących spostrzeżeń.

W ostatnim – trzecim dniu konferencji przewidziano trzy sesje naukowo. Pierwsza zatytułowana została *Informatyka i dowody cyfrowe*, a jej przewodniczącym był prof. dr hab. Arkadiusz Lach. W jej trakcie wystąpili: Viktor Shevchuk, *Actual problems of using digital criminalistics in the investigation of war crimes in Ukraine*; Denis Solodov, *Metadane w plikach cyfrowych – aspekty kryminalistyczne*; Stanisław Rabczuk, *Złapani w sieci. Taktyka udowadniania sprawstwa przestępstw popełnionych za pośrednictwem mediów społecznościowych w świetle badań aktowych*; Piotr Słowiński, *Cyberprzestępczość wykorzystująca funkcjonalności lub podatności Internetu Rzeczy*.

Prof. dr hab. Arkadiusz Lach prowadził obrady także kolejnej części spotkania, która poświęcona została czynnościom operacyjnym i działalności Policji. Podczas tej sesji wyniki prowadzonych badań zaprezentowali: Paweł Opitek, *Procesowo-kryminalistyczne aspekty wprowadzania materiałów z czynności operacyjno-rozpoznawczych do procesu*; Magdalena Tomaszewska-Michalak, Paweł Waszkiewicz, *Wykorzystanie kamer nasobnych w pracy organów ścigania*; Magdalena Tomaszewska-Michalak, Tadeusz Tomaszewski, *Czy wierzymy polskiej Policji? Dane statystyczne a opinia*

publiczna; Magdalena Kruczek, *Wybrane aspekty funkcjonowania kryminalistycznych baz danych daktyloskopijnych. Utworzenie bazy eliminacyjnej dla Zbioru Danych Daktyloskopijnych w Polsce.*

Ostatniej sesji przewodniczył prof. dr hab. Jerzy Kasprzak. W jej trakcie uwagę poświęcono śladom pamięciowym i czynnościom kryminalistyczno-procesowym. Prelegentami byli: Arkadiusz Lach, *Specyfika przesłuchania zdalnego świadka*; Dariusz Jagiełło, *Wady i błędy w dokumentowaniu czynności przesłuchania*; Olga Mazur, *Rejestrowanie przesłuchań podejrzanych na etapie postępowania przygotowawczego – konieczność czy kaprys?*; Mirosław Lisiecki, *Wpływ sugestywności wizerunku i atrakcyjności twarzy na bezstronność parady identyfikacyjnej okazania ze zdjęć*; Piotr Herbowski, *„Rozpoznanie” z monitoringu jako nowa metoda identyfikacji sprawców?*; Amanda Krać, Tomasz Sidor, *Opiniowanie w sprawach karnych w zakresie percepcji wieku biologicznego osób małoletnich przez osoby dorosłe*; Karolina Olszak-Haeusslera, *Behawioralny odcisk palca (behavioural fingerprinting) jako metoda łączenia przestępstw w serie*; Janina Sabat, *Lingwistyka kryminalistyczna w służbie kryminalistyki*; Halina Walicka-Marek, *Portret psychologiczny sprawców przestępstw przeciwko wolności seksualnej nieletnich.*

W ciągu trzech dni obrad uczestnicy spotkania mieli okazję do wysłuchania wielu merytorycznych, ciekawych wystąpień, ale także do zapoznania się z ofertą partnerów strategicznych, wśród których należy wymienić: Shim-Pol A.M. Borzymowski, Korporację Wschód, STANIMEX. Partnerami konferencji byli także: Future Law Lab i DELTA OPTICAL.

Podczas spotkania nie mogło zabraknąć Polskiej Wytwórni Papierów Wartościowych (darczyńca), która reprezentowana była przez Panią Aleksandrę Gryniewicz – eksperta PWPW i redaktor naczelną cieszącego się dużą popularnością czasopisma „Człowiek i Dokumenty”. PWPW od wielu lat współpracuje z Polskim Towarzystwem Kryminalistycznym, wspierając liczne inicjatywy podejmowane w ramach jego działalności naukowej i eksperckiej.

Konferencja naukowa pt. „Kryminalistyka – piękna 130-letnia” stanowiła ważną okazję do wymiany poglądów oraz płaszczyznę do przeprowadzenia dyskusji i rozważań w wielu interesujących obszarach, w których głos zabrali przedstawiciele środowiska naukowego i reprezentanci praktyki kryminalistyki oraz dziedzin ściśle z nią związanych. Spotkanie upłynęło w przyjemnej atmosferze i niewątpliwie przyczyniło się do dalszego rozwoju kryminalistyki oraz intensyfikacji współpracy osób i instytucji w tym

zakresie. Problematyka przedstawiona podczas wystąpień prelegentów przewidziana została do publikacji w postaci wieloautorskiej monografii.

Potwierdzeniem udanej zarówno naukowo, jak i organizacyjnie konferencji jest sytuacja, w której organizatorzy dostrzegają chęć uczestnictwa przejawiającą się w rzeczywistym – merytorycznym zainteresowaniu ze strony uczestników, natomiast uczestnicy wdzięczni są organizatorom za możliwość partycypacji i podjęcie się trudu zorganizowania przedsięwzięcia, jak również zauważają konieczność kontynuowania spotkań i podjętych i ich ramach rozważań. Tak też było i tym razem – podczas Zjazdu Kryminalistycznego w 2023 r. w Krakowie.

Dziękując za udział w spotkaniu i dokonując formalnego zamknięcia konferencji, w imieniu gospodarzy spotkania prof. prof. Mieczysław Goc i Józef Wójcikiewicz zaprosili zebranych gości na kolejny – XII Zjazd Katedr, Zakładów, Pracowni i Zespołów Kryminalistyki, który zaplanowany został na 2025 r. w Rzeszowie.

Opracowała:

dr Dorota Semków, adiunkt

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