

1958

## Hit-Run Murders: Examination of the Body

Harold L. Beddoe

Follow this and additional works at: <https://scholarlycommons.law.northwestern.edu/jclc>

 Part of the [Criminal Law Commons](#), [Criminology Commons](#), and the [Criminology and Criminal Justice Commons](#)

---

### Recommended Citation

Harold L. Beddoe, Hit-Run Murders: Examination of the Body, 49 J. Crim. L. Criminology & Police Sci. 280 (1958-1959)

This Criminology is brought to you for free and open access by Northwestern University School of Law Scholarly Commons. It has been accepted for inclusion in Journal of Criminal Law and Criminology by an authorized editor of Northwestern University School of Law Scholarly Commons.

# HIT-RUN MURDERS: EXAMINATION OF THE BODY

HAROLD L. BEDDOE

Harold L. Beddoe, M.D., is Assistant Chief Medical Examiner, State of Virginia, and Assistant Professor of Legal Medicine, Medical College of Virginia. Dr. Beddoe is a Fellow in the American Academy of Forensic Sciences and has been active in the medical-legal field since 1948 when he served as police physician for the City of Tulsa Police Department. From 1951 to 1954 he was a Fellow in Legal Medicine and Pathology, Medical College of Virginia, and has held his present appointment since 1954. For the last several years Dr. Beddoe has participated in the Annual Southwestern Homicide Investigators Seminar where his presented article was presented as part of a panel discussion on Hit-Run Investigations.—EDITOR.

In most homicides a list of suspected persons can be obtained without much difficulty by the investigating officers. The victim's family, friends, or other associates are the most common examples. Hit-run murders, however, present a different problem in that rarely is there any relationship whatever between the victim and the driver of the vehicle.

Thus, the police must rely almost entirely on the physical evidence found at the scene and the examination of the victim to furnish any leads to narrow the field of search for the guilty person. We will confine our remarks to the examination of the victim and his clothing as sources of medico-legal information to assist in the investigation.

## EXAMINATION AT CRIME SCENE

If at all possible, the medical examiner should visit the death scene, but if he cannot do this, there are certain details which the police investigator can furnish the medical examiner that will be of great value in the interpretation of injuries found during the medical examination. The medical examiner should wait to receive the officer's preliminary report before the body is examined or at least talk with the officer and get as much information as possible.

Some of the preliminary details which will be of value to the medical examiner are: (1) location and position of body on the road, (2) size (measured) and location of blood stains on the road and their distance from the body, (3) distance and direction of body from site of impact, (4) type of road surface, (5) weather conditions, (6) description of skid-marks, if any, (7) any pieces from the vehicle found at the scene, (8) reason for victim being at that location. The clue to suggest suicide or homi-

cide may be revealed by learning that the victim had no known reason for being at that location or on that road.

## EXAMINATION OF CLOTHING

If the police are at the scene when preparations are being made to remove the body, they should see that the ambulance attendants realize the importance of careful handling of the body and the clothing in order not to disturb or lose any trace evidence. The body should be taken directly to the place where it is to be examined, and the clothing left on until the medical examination begins.

The clothing should be inspected carefully while still on the body to determine if there is any evidence to indicate what part of the vehicle struck the victim, the color of the vehicle as shown by paint pigment on the clothing, or whether parts of the clothing might have been torn loose and attached to the vehicle. The fabric weave and pattern of the various items of clothing should be described and photographed to scale, and samples should be retained for future reference. Grease marks and dirt on the garments may give some clue as to the sequence of events that occurred. Generally, when the person has been hit while standing, the impact throws him clear, and the vehicle does not pass over the body; but when the person is already lying on the roadway the vehicle tends to roll the body as it passes over it, and the garments will show dirt and grease both on the front and back and often on right and left sides also.

Clear imprints of the tires of the vehicle may sometimes be found on the clothing. The imprint may be found on the outer surface of light colored clothing but may be difficult to see if the garments

are dark in color. Never fail to examine the inner surface of such clothing because if there has been much dust or dirt in the clothing a nice tire imprint will be found there on the inside where no print at all is visible on the outer surface.

Pieces of glass or mirror fragments or metal fragments may be found in or about the clothing, and these should be saved for later comparison purposes. After the clothing has been examined it should be carefully packaged, labelled, and saved.

#### EXAMINATION OF THE BODY

Turning now to the examination of the body of the victim, the same careful external inspection from head to toe should be made. A description is recorded of all injuries with care being made to provide measurements of the size and extent of the injuries as well as their location on the body with respect to distance from the top of the head or the sole of the foot. These measurements are especially important in identifying some wound on the body with some object or part of the vehicle in question. For instance, the outline of the round parking light and the headlight were found on the left thigh of one of our cases. The diameters of these lights could be measured as well as the distance between them and the distance from the sole of the foot to the lower edge of the marks on the thigh. Thus, we were able to say that the victim had been struck by a make of vehicle having a round parking light of a certain diameter located two or three inches directly below a certain diameter headlight. By including the height of the heel of the victim's shoe we could say that these lights were at a certain distance from the ground. These observations were proven to be accurate when the car was found and examined.

#### PRIMARY IMPACT INJURIES

The experience investigator, from his examination of the injuries on the body, can learn a great deal about the circumstances of the death. There are injuries produced by the impact between body and vehicle, known as primary impact injuries, and there are injuries produced by impact between body and the road surface after being hit by the vehicle. These are known as secondary impact injuries. The primary impact injuries will vary in their extent and severity in different cases depending on whether the pedestrian was standing up or lying on the roadway, the speed of the vehicle, the part or parts of the vehicle striking the person, and

other factors such as amount of clothing worn by the person, etc.

In the typical case the pedestrian will be struck, when upright, by the front bumper of the vehicle just below the knee level. Then the victim's body strikes the radiator grill, hood, or fender and then the windshield corner post. Rarely does the body strike the top of the body of the vehicle. Occasionally, the windshield itself may be hit by the body, but generally it will be propelled to one side or the other after being hit by the more vertical front surfaces of the vehicle. The injuries on the victim's body will be produced in a progressive manner upwards from the site of impact at or below the knees. Thus, the radiator grill or fender will produce injuries or fractures of the thigh and hip, the hood may produce fractures of the chest or head, and the corner posts will produce severe fractures of the skull.

#### CHARACTERISTIC LEG FRACTURE

One injury that is almost conclusive evidence of an auto-pedestrian collision is a spiral fracture of the lower leg bones originating at a point *below* the place struck by the bumper. This fracture only occurs when the victim's weight is on that leg at the time of impact. If he is standing still at the time, then both legs will show such fractures; if he is walking, the fracture will occur in the leg bearing the greatest weight at the time. In most cases one end of the broken bone will break through the skin to produce a compound fracture. The place where this break-through occurs is almost invariably on the side of the leg *opposite* the site of impact. Thus, in such a case, the injury will indicate that the decedent was standing up or walking at the time of impact and will show which side of the body was hit by the vehicle (see figure 1).

This particular fracture is important because we have had cases where, following such a fatality, the motorist removed the body from the highway and placed it some distance from any road in an effort to hide the evidence.

Other fractures of the leg may also be produced by the vehicle bumper at the exact site of impact in addition to these previously described lower leg fractures. Fractures of other bones of other parts of the body may furnish some clue to which parts of the vehicle struck the victim, and at the same time this would indicate which parts of the vehicle might show damage from the impact.



*Figure 1.* Typical auto-pedestrian leg fracture. Note the long ends of this spiral fracture. Right leg also fractured at level of point of impact.

#### OTHER PRIMARY IMPACT INJURIES

The primary impact injuries of the skin resemble the lacerations or cuts produced by blunt or sharp weapons in other types of assault cases. The skin around the wound does not show the "scuffing" or abrasion that is so commonly found in secondary impact injuries. Instead, there often is bruising of the skin edges.

If the victim was lying on the roadway when struck by the motor vehicle, the injuries produced will be of a different type and distribution than if the victim was standing up. Fractures of the legs will not show the spiral break but will be localized to the site of impact. The leg and arm fractures are usually produced when the vehicle wheel passes over the extremity.

#### THE "ROLLING" INJURY

Another type of injury which characterizes these cases where the victim is recumbent is what we call the "rolling" type of injury. This is produced when an automobile or other motor vehicle with a low chassis "rolls" the victim along the roadway as it passes over him. Trucks or vehicles having a higher road clearance may turn the victim over once or



*Figure 2.* "Rolling" injuries produced by vehicle running over recumbent pedestrian.

twice as the wheels pass over the body, but ordinarily they do not grind the victim under the chassis for several feet as the passenger car does.

In these "rolling" injuries, the investigator will find abrasions or scuff marks on the skin (with corresponding marks on the clothing) produced by the rough surface of the roadway (see figure 2). Obviously, asphalt, concrete, gravel, and dirt will leave somewhat different marks on the skin. The injuries will be found on two or more surfaces of the body (back, front, sides) as contrasted with secondary impact injuries which are usually on only one or two parts of the body in a lengthwise or oblique direction rather than around the body as in the rolling injuries. It is essential then that the body be examined unclothed, with good lighting conditions and that all surfaces of the body be inspected.

Usually associated with the skin lesions will be fractures of the pelvis, vertebrae, ribs, shoulder bones, or skull. The multiple nature and the distribution of the fractures is often of value in deciding the position of the body at the time of impact.

Parts of the undersurface of the chassis may strike the body and leave a characteristic mark. The crank case drain-hole plug has a square or hex-head which varies in size in different makes of cars. We have seen imprints of these plug heads on the skin of victims from which an accurate description and measurement could be made.

One additional injury which may be produced when the vehicle wheels pass over the body is an avulsion or stripping loose of the skin from a limb or the torso (see figure 3). Such an injury is due to the rotating action of the wheel as the wheel passes over the body; it is also rotating while it presses the body against the roadway. This produces a tremendous traction or tearing force which literally strips the skin from the underlying tissue. The skin may be split open partly or completely around



Figure 3. Avulsion of skin due to wheel rolling over leg while pedestrian is recumbent.

a leg or arm. If the scrotum or abdominal region is involved the testes or the intestines will protrude through the tear.

#### SECONDARY IMPACT INJURIES

We have defined these as the injuries caused by contact of the victim's body with the road surface after being struck by the vehicle. A knowledge of such injuries and how they are produced is essential to a reconstruction of the sequence of events of the fatality.

The appearance and extent of these injuries will vary, depending upon (1) the road surface, (2) victim's position at time of impact, (3) momentum imparted by vehicle, and (4) clothing worn by the victim.

In most cases the injuries of the skin will be found on the exposed parts of the body (hands and head), but if the body is lightly clothed, there may be abrasions on other parts of the body (see figure 4). If the impact is more direct than glancing, the victim may be propelled through the air for some distance before striking the road. He may then roll or slide, and the location and direction of the skin injuries will indicate this. There may be no secondary injuries at all if the impact was a glancing one and the victim did not roll after falling.

The secondary impact injuries may be superimposed over the site of primary impact injuries so that care must be taken to interpret the two types of injuries.

#### INTERNAL EXAMINATION

One purpose of the autopsy is to determine if there was any natural disease process present which could have produced death or contributed to the death and also if death was due to some other violence. We have had cases where a cerebral

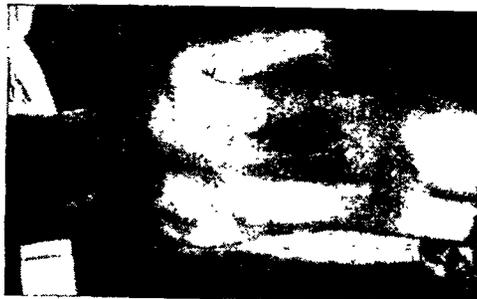


Figure 4. Secondary impact injuries due to contact with road surface.

hemorrhage caused death on the street, and subsequently, the body was run over by a car. The autopsy confirmed the driver's story that the body was lying on the street and that he ran over it before he could stop. Victims of gunshot wounds have also been found on the highway where they were placed in the expectation that the death would appear to be from a vehicle.

Other diseases or toxic conditions may cause the victim to lose consciousness and fall in front of a vehicle or to suddenly stagger into its path. Again, the detection of these conditions may be of great value to the police in deciding what criminal charges, if any, are to be placed against the driver.

The removal of body fluids and organs for toxicology determinations is a routine part of the autopsy procedure. A high level of blood alcohol in the decedent may mitigate the circumstances for the guilty driver. In this regard it should be pointed out that the external injuries are no reliable indication of what internal injuries may exist. Many times we see very little evidence of injury on external examination, but when the body is opened there will be found ruptured or lacerated organs, torn blood vessels, or spinal cord and brain injury that would have been entirely unsuspected before the autopsy. The reverse situation may also occur in extensive external injury but no damage to the internal organs.

The injuries found may not coincide with other circumstances of the case, and upon further investigation it will be found that death was caused in some other manner than being run-over. One case concerned a man found in an alley. The initial investigation indicated that he had been hit by a car, but the autopsy revealed severe crushing injuries confined to one side of the head and trunk. These were not typical of auto-pedestrian injuries, and the suspicion arose that death had resulted in

some other manner. Marks on the soles of the man's shoes indicated he might have been climbing a nearby utility pole. The investigating officer then discovered evidence to show that the decedent had climbed the pole to get to the top of a building where he could look into the windows of an apartment across the street. As he started to get down he slipped and fell, landing on one side of his body. This produced the injuries found at autopsy.

In examining the internal injuries the pathologist should try to evaluate them as indications of the force of the impact, the direction of the force, and whether the victim was standing up or lying down when struck.

#### MEDICAL REPORT

The medical examiner's or pathologist's report should include his opinions on at least the follow-

ing points: (1) the anatomical cause of death, (2) the manner of death (accident, homicide, natural, etc.), (3) was the victim alive or dead at time of impact, (4) was he erect or recumbent at the time, and (5) any evidence to implicate a particular vehicle.

The real value of the medical examination in these deaths lies not so much in the discovery of the various injuries but rather in the correct interpretation of the injuries in terms of the sequence of events during the incident.

Unfortunately the answers to all of these questions cannot be given with certainty in some cases. However, if the medical examiner has an understanding of the medico-legal problems involved he can be of great assistance to the police in arriving at the correct solution of a hit-run death.