Letter dated 2 April 2014 from the Permanent Representative of France to the United Nations addressed to the President of the Security Council

I have the honour to transmit herewith a report on the torture and summary execution of persons incarcerated by the Syrian regime (see annex). This report, which was made public in January 2014, was prepared by a commission of inquiry consisting of legal, medical and medical imaging experts, chaired by Sir Desmond de Silva, former Chief Prosecutor of the Special Court for Sierra Leone.

The work carried out by this team was based on the photographs provided by a former member of the Syrian military police, who had defected, and was codenamed “Caesar”. He had been tasked, from the start of the Syrian conflict, with photographing the bodies of detainees who had died in the regime’s prisons, and on whom various abuses, leading to their deaths, had been inflicted.

The authenticity of the photographic images obtained from “Caesar” has been confirmed through in-depth expert analysis. These horrific photos suggest that some 11,000 Syrians have been tortured and executed in the regime’s prisons since the start of the conflict.

I should be grateful if you would have this letter and the annexed report circulated as a document of the Security Council.

(Signed) Gérard Araud
Annex to the letter dated 2 April 2014 from the Permanent Representative of France to the United Nations addressed to the President of the Security Council

[Original: English]

A report into the credibility of certain evidence with regard to torture and execution of persons incarcerated by the current Syrian regime

Contents

I. The Members of the Inquiry Team ................................................................. 3
II. Executive Summary ...................................................................................... 3
III. Introduction ................................................................................................... 4
IV. Methodology of Inquiry ............................................................................. 5
V. The Evidence of “Caesar” ............................................................................ 7
VI. The Evidence of “Ceasar’s” Contact ........................................................... 8
VII. Findings of the Inquiry Team .................................................................. 8
VIII. Conclusions .............................................................................................. 11
IX. Appendices ................................................................................................. 12
I. The Members of the Inquiry Team

The Legal Team

The Right Honourable Sir Desmond de Silva QC (Chairman)

A former Chief Prosecutor of the Special Court for Sierra Leone. Appointed personally by the Secretary General of the United Nations. In that capacity he brought about the arrest of President Charles Taylor of Liberia.

Professor Sir Geoffrey Nice QC

The former lead prosecutor of ex-President Milosevic of Yugoslavia before the International Criminal Tribunal for the former Yugoslavia.

Professor David M. Crane

The first Chief Prosecutor of the Special Court for Sierra Leone. Appointed personally by the Secretary General of the United Nations. In that capacity he indicted President Charles Taylor of Liberia.

The Forensics Team

Dr. Stuart J. Hamilton, MB, ChB, BMSc (Hons), FRCPath, MFFLM
A forensic pathologist on the United Kingdom Home Office Register

Professor Susan Black, OBE, BSc, PhD, DSc, FRSE, FRAI Cert-FA1
Professor of Anatomy and Forensic Anthropology. Certified forensic anthropologist

Stephen Cole, MFSSoc
Technical Director for Acume Forensics and Forensic Imaging Expert

II. Executive Summary

The members of this inquiry team have, collectively, vast experience in the prosecution of war crimes, crimes against humanity and other crimes contrary to international law.

The inquiry team was mandated to determine the credibility of a defector from Syria whose occupation prior to his defection was in the service of the military police of the Syrian government. In that capacity, for many years, he had been in the military police and in that role it fell to him to photograph scenes of crimes. With the onset of the civil war the nature of his occupation changed. His duties, and those of his colleagues, now were to photograph and document the bodies of those brought from their places of detention to a military hospital.

The bodies he photographed since the civil war began, showed signs of starvation, brutal beatings, strangulation, and other forms of torture and killing.

The defector who was codenamed “Caesar” by the inquiry team had, during the course of his work, smuggled out some tens of thousands of images of corpses so photographed by his colleagues and himself. Other similar images have been smuggled out by other people. In all, approximately fifty-five thousand (55,000)
images have, to date, been made available outside Syria by these processes. As there were some four or five photographs taken of each body this approximates to there being images of about eleven thousand (11,000) dead detainees.

Having carefully interviewed “Caesar” and evaluated his evidence in light of the exhibits available to it, the inquiry team found him, for its part, to be a truthful and credible witness. He revealed no signs of being “sensational”; nor did he seem partisan. Although he was a supporter of those who opposed the present regime, the inquiry team is satisfied that he gave an honest account of his experiences. If he wished to exaggerate his evidence it would have been very easy for him to say that he had actually witnessed executions. In fact, he made it quite plain that he never witnessed a single execution. There were many other reasons which drove the inquiry team to its conclusion that his evidence was reliable and could safely be acted upon in any subsequent judicial proceedings.

III. Introduction

The members of the inquiry team travelled to the Middle East from the United Kingdom and the United States of America to discharge a mandate given to them by the firm of Carter-Ruck and Co. in the City of London.

The information available to the legal team prior to its arrival in the Middle East was that there was a defector from Syria who was then in a third country. Prior to his defection he had been in the military police. The legal team was further informed that there were some fifty-five thousand (55,000) photographic images of some eleven thousand (11,000) detained persons who had been tortured and killed by agents of the current Syrian regime since the beginning of the uprising against the Assad regime in March 2011.

It was also the understanding of the inquiry team that this defector had supplied thousands of photographic images of executed persons by making copies of the photographic images on a “flash drive” (memory stick).

The mandate entrusted to the inquiry team was to question this defector and to establish whether he was a truthful and credible witness.

The interviewing of the defector, who was codenamed “Caesar” for his own protection, took place on the 12, 13, and 18 January 2014.

During the course of his account to the inquiry team the witness dealt with his employment in the military police and informed the members of the team that it fell to that section to take photographs of persons who were injured or dead. However after the uprising against the Assad regime it became routine to take photographs of people in detention who had been tortured and killed during detention. The reason for photographing executed persons was twofold: First to permit a death certificate to be produced without families requiring to see the body thereby avoiding the authorities having to give a truthful account of their deaths; second to confirm that orders to execute individuals had been carried out. At no stage did “Caesar” indicate to members of the inquiry team that he had been present when any torture or any execution had taken place.
IV. Methodology of Inquiry

Legal methodology

Given the competing national and other interests in the Syrian conflict the members of the inquiry team approached their task in the evaluation of the evidence of the defector codenamed “Caesar” and the photographic images with caution and an alertness to the fact that the inquiry team itself had to guard against being used as a vehicle for others to advance a particular point of view.

In addition, in view of the fact that this inquiry was evaluating potential evidence which, if true, revealed the gravest of crimes contrary to international law, the members of the inquiry team subjected all evidence heard and viewed to rigorous scrutiny. Given the nature of the allegations made, the inquiry team proceeded on the basis of only coming to an adverse conclusion as regards criminal involvement on the most convincing account.

In this regard the inquiry team was most ably assisted by three highly experienced forensic experts for whose professionalism the legal team is most grateful.

Forensic Methodology

The digital images of dead bodies were examined by Dr. Stuart Hamilton and Professor Sue Black. The images were examined in the first instance without the experts being aware of the evidence of “Caesar” or having any written account of his evidence. The images were assessed for evidence of physical injury and other relevant features. It was recognized that the images were said to have been produced during a time of armed conflict in Syria and the experts were therefore mindful of the possibility of apparent injuries being the result of lawful military action.

Thirty-five images were uploaded directly to a secure server at Acume Forensics in the United Kingdom for assessment by Stephen Cole, an expert in digital imaging. It was confirmed to the inquiry team that these images were not digitally altered.

Of the fifty-five thousand (55,000) images twenty-six thousand nine hundred and forty eight (26,948) images were present in various folders on the computer where the images were examined. The inquiry team was satisfied that all of those twenty-six thousand nine hundred and forty eight (26,948) were provided by “Caesar”, as were some of the other twenty thousand plus images.

A very significant percentage of the bodies showed emaciation as defined here:

**Emaciation:** For an individual to be classified as emaciated (medically referred to as cachexia), there should be marked evidence of severely low body weight with features such as scaphoid abdomen (sunken with prominent hip bones), prominent ribs, wasting of the limb muscles and in some cases, Hippocratic facies (a

---

1 The inquiry team was given access to the images referred to in this paragraph by the current holders of these images namely the Syrian National Movement.
sunken and hollow facial appearance). An individual merely appearing “thin” was insufficient to place him into this category.

The following terminology was used for particular categories of images:

**Convincing Evidence of Inflicted Trauma:** For images in this category, there was evidence of physical injury of the sort that would result from beating, binding, restraint or other physical assault but excluding injuries that could reasonably have occurred as the result of legal combat engagement. This category was reserved for those injuries that the experts felt could be so presented with a high degree of certainty to a court.

There were many bodies that showed bloodstaining. The presence of such staining alone in the absence of visible injury on the image was not considered to be evidence of injury; it was necessary for there to be an associated lesion that would cause bleeding.

**Equivocal Evidence of Inflicted Trauma:** For these images, there was either evidence of injury that was partially obscured or the images did not capture injuries with sufficient clarity to support a high degree of scientific certainty as to cause. Therefore these cases represent individuals where there was a possibility, but not the “convincing evidence” of inflicted trauma as defined above.

**No apparent trauma:** These images did not show sufficient evidence to be categorized within either of the two groups above. This does not mean that the individual had not sustained inflicted unlawful trauma, simply that this could not be confirmed from the evidence available.

The experts took the view that they were examining physical findings only. They could not determine from the physical appearances whether torture had in fact taken place, as torture requires a state of mind in the individual or individuals inflicting the injuries.

**Limitations of the forensic analysis of the images.** There were certain limitations upon the forensic experts’ assessment of the images:

The images were not produced in the manner of evidentiary photographs as would be taken by crime scene investigators in cases of domestic homicide but were said to have been produced as a record of the deceased individuals. Therefore the images did not bear a scale and there were no close-up images of individual injuries. The majority of the images did not show the back of the body of the deceased and therefore any injuries that may have been present at the back of the body could not be assessed.

The images were only of the external aspect of the bodies and so internal injuries or internal natural disease could not be identified.

Given the time constraints upon the inquiry team and the large number of images available it was not possible to produce a detailed report regarding the exact injuries present in each image for each individual. Therefore the above categorization was adopted.
V. The Evidence of “Caesar”

This witness who defected from Syria and who had been working for the Syrian government was given the codename “Caesar” by the inquiry team to protect the witness and members of his family.

The inquiry team had the witness look at two Syrian identification cards which carried his name on them along with his photograph and occupation.

“Caesar” told the inquiry team that he had worked in the military police for some 13 years prior to his defection. Originally his job had involved the taking of photographs related to ordinary criminal matters and sending them to “the judiciary”. In short, he was a scenes of crime investigator.

Since the civil war against the current regime began, his job changed from taking photographs of crime scenes and accidents to “taking pictures of killed detainees”. The inquiry team was informed by “Caesar” that for the last three years his only job together with others in his section, was to photograph and document bodies of detainees who had been killed. Caesar went on to tell the inquiry team that his job was difficult and caused his colleagues and himself “psychological suffering”.

The procedure was that when detainees were killed at their places of detention their bodies would be taken to a military hospital to which he would be sent with a doctor and a member of the judiciary, “Caesar’s” function being to photograph the corpses. He informed the inquiry team that there could be as many as fifty (50) bodies a day to photograph which required fifteen to thirty minutes of work per corpse.

The purpose of documenting the corpses was to ensure that none had been released by the security services and to inform the families of murdered detainees in due course that the cause of death in each case was either a “heart attack” or “breathing problems” and to satisfy the authorities that executions had been performed.

Each murdered detainee was given two numbers with only the intelligence service knowing the identities of the corpses.

The procedure for documentation was that when a detainee was killed each body was given a reference number which related to that branch of the security service responsible for his detention and death. When the corpse was taken to the military hospital it was given a further number so as to document, falsely, that death had occurred in the hospital. Once the bodies were photographed they were taken for burial in a rural area.

Because of “Caesar’s” deep concern as to what was happening he sent copies of these photographs to a trusted contact using a “flash drive” (memory stick). These photographs also included those who appeared to have been starved to death.

---

2 Quotes from “Caesar” are in italics.
3 “Caesar” explained that the number of photographs taken of each body reduced over time due to an increase in the number of bodies and lack of resources. The forensics team confirmed this by registering an average of four to five images per body.
some with signs of torture prior to death. Indeed, there were marks of beatings and burns even upon those emaciated bodies. In some cases the bodies had no eyes.

The original photographic images taken by “Caesar” or someone in his unit were sent with an official report to the “military judiciary”.

At the time “Caesar” was planning to defect, he had someone in his section take photographs of a group of bodies to show that the place “looked like a slaughterhouse”. The excuse he gave for group photographs to his colleagues was that in case they had missed a body they could go back to the group photograph.

“Caesar” told the inquiry team that he did all this “for the sake of Syria and the Syrian people so that the killers could be prosecuted to achieve justice”.

Fearing for his life and that of his immediate family “Caesar” informed the inquiry team that he escaped from Syria and he described his escape route.

VI. The Evidence of “Caesar’s” Contact

The inquiry team also heard evidence from “Caesar’s” contact. This witness wrote his name down for the inquiry team. The inquiry team cannot disclose his name in public for reasons of his own security.

The witness confirmed that he was Caesar’s relative by marriage and that he had left Syria five days after the civil war against the current Syrian regime had begun and established contact with international human rights groups.

Subsequently an information committee was formed in the Middle East to collect and document material as to what was happening within Syria.

This witness informed the inquiry team that “Caesar” was working with his group from an early stage, the witness having contacted “Caesar” for this purpose in or around September 2011. According to this witness, the regime in Syria was contradicting the authenticity of the information being given out by the group so that “we started to look for an information source within the regime. There was a problem about gaining evidence about detainees and those who had disappeared. We had to look for people working with the regime itself who are sympathetic to our cause ...”.

The witness informed the inquiry team that when “Caesar” started to be concerned about his safety, after he had sent out tens of thousands of images that this witness and others in his group began to plan for Caesar’s successful defection. The witness described how Caesar was exfiltrated from Syria and how his family followed him a while later. The witness dealt with the fact that the defection process took some four months.

VII. Findings of the Inquiry Team

The inquiry team found that the witness codenamed “Caesar” was not only credible but that his account was most compelling.

---

4 A member of the Syrian National Movement.
5 Quotes from the contact are in italics.
“Caesar’s” account of the need of the regime in Syria to have photographic images of the persons who were killed is wholly consistent with the need of the regime to ensure that orders for the killing of persons in detention facilities had been carried out. In the view of the inquiry team the need to photograph those who were killed is a strong pointer to the fact that the killings were systematic, ordered, and directed from above.

The evidence of “Caesar”, which, for its part, the inquiry team accept, that often up to fifty (50) bodies a day had to be photographed by him or his section, is telling evidence that the killings were systematic. We add to that the fact that the numbering system used to identify the bodies and that was photographed on the bodies was evidence of an organized form of killing.

It was quite clear from the account given by “Caesar” that the emaciation of the bodies of those in detention was something that he regularly encountered when taking the photographs. Indeed the emaciated bodies of those killed may well tell a story of starvation used as a means of torture.

There appear to have been many forms of torture used by those responsible for those in detention. The unmistakable marks of ligature strangulation were evident on a number of bodies. The beatings to which the deceased had been subjected in life were evident on their bodies in death.

The appearance of a large number of young people in the photographic images, with no apparent injuries, is suggestive of death by unnatural means. For example there was evidence of injury by electrocution on some of the bodies. We accept that this is a speculative conclusion. However, looking at this category of images in light of all the other facts, including the fact that those bodies were together with the others who had clearly been murdered, lends support to the conclusion that they met their end at the hands of their captors.

**Forensic Findings**

Some five thousand five hundred (5,500) images were examined in total by the forensics team. It was apparent that most deceased persons had between four or five images taken of them allowing an estimate of images of one thousand three hundred (1,300) individual corpses being considered by the forensics team.

Initially two thousand (2,000) images were examined as an overview, to provide a sense of the nature and extent of injuries, then a further three thousand five hundred (3,500) were examined in more detail.

The vast majority of the images were of young men most likely between the ages of twenty and forty, with a minority more likely to be up to sixty years old. There were no children. Within the images seen there was only one female body and this was clothed and showed no evidence of injury. The bodies were mostly unclothed or minimally clothed.

Within these five thousand five hundred (5,500) images, images of a total of eight hundred and thirty five (835) deceased persons were evaluated in detail. Of these 20% showed evidence of inflicted trauma and 30% were equivocal. 42% showed emaciation.

- The ligature marks on the necks were transverse. This would be inconsistent with a typical hanging where the ligature mark rises upon the neck and in the
opinion of the forensics team this represents ligature strangulation. Ligature strangulation of this kind is also consistent with strangulation being used as a method of torture. There were images of deceased person where ligature marks were present on the wrists and ankles. In one case a plastic cable tie was around the ankles, being used as a ligature.

• The majority of the tramline bruises were on the torso, although some were on the limbs. These were highly consistent with repeated impacts with a rod-like object.

• There were other injuries such as bruises and abrasions that were essentially non-specific as no particular causative implement or mechanism could be inferred.

• There was a high level of emaciation and images of many of the individuals showed evidence of discoloration and ulceration primarily in the foot and shin region. The precise aetiology of this is unclear and it could have more than one cause. Potential explanations include pressure effects (pressure sores), vascular insufficiency, inflicted injury such as application of hot or cold objects and tissue breakdown resulting from poor nutritional status.

• It must be noted that as the majority of these ulcerating lesions occurred in young men, a natural explanation for all of these observations is highly unlikely.

Overall there was evidence that a significant number of the deceased were emaciated and a significant minority had been bound and/or beaten with rod-like objects.

In only a minority of the cases examined could a convincing injury that would account for death be seen, but any fatal injury to the back of the body would not be represented in the images. Again, it must be noted the forensics team make clear that there are many ways in which an individual may be killed with minimal, or even absent, external evidence of the mechanism.

Having made the initial overview and the more formal analysis of images of these eight hundred and thirty five (835) bodies a “dip sample” of images of one hundred and fifty (150) separate individuals was included from two randomly selected files for detailed examination. Individuals were included where there was a good view of the body with no significant portion of the body obscured by clothing. Information was recorded based on anatomical regions of the body namely head, neck, torso, upper arm, lower arm, thigh and shin/foot. Within each region, categories of trauma were recorded including scars, ulceration, tramline bruises, non-specific injuries, and ligature marks. It was also recorded when make-shift bandages or apparent ligatures were still present on the body. As a separate category, whether the individuals were emaciated was noted. The results of this are represented in table 1 in the appendix.

Results of the dip sample:

• On the faces of the corpses only non-specific injuries were present. These were seen in 24% of the sample (36 individuals).

---

6 For security and privacy purposes faces or other potentially identifying features in images as
Neck images of 19% of individuals showed non-specific injuries and 16% showed evidence of ligature marks on the neck. In the opinion of the forensics team these ligature marks would be consistent with fatal or non-fatal ligature strangulation. The marks did not appear to be consistent with execution by hanging and in one case a characteristic ligature was in place (figure 5).

The images of the torso showed scars in 1% of cases, ulceration in 1% of cases and tramline bruising in 5% of cases.

The majority of injuries seen on images of the arms and forearms were non-specific (10% and 7% respectively) with 1% of cases showing tramline bruising on the arm and 11% showing evidence of ligature marks on the wrists.

The images of the thighs showed some cases of ulceration (10%) with scars (5%) and tramline bruises (1%).

The majority of images examined showed ulceration of the shin/foot (55%) with 9% showing scars, and 6% showing non-specific injuries.

Apparent ligatures were present on the shins of 3% of images and bandages, most of which appeared make-shift, were present in 9%.

Only 5% of images of bodies showed no apparent evidence of either injury or emaciation.

62% of the images of deceased persons showed emaciation.

VIII. Conclusions

The inquiry team is satisfied that upon the material it has reviewed there is clear evidence, capable of being believed by a tribunal of fact in a court of law, of systematic torture and killing of detained persons by the agents of the Syrian government.

Such evidence would support findings of crimes against humanity against the current Syrian regime.

Such evidence could also support findings of war crimes against the current Syrian regime.

The Rt. Hon. Sir Desmond de Silva QC (Chairman)

Professor David M. Crane

Professor Sir Geoffrey Nice QC
IX. Appendices

A. Selected samples of photographs
B. Tables of results of dip sample
C. Glossary of forensic terminology

Appendix A
Selected samples of photographs

Figure 1
Emaciated remains

8 The images seen by the inquiry team are currently held by the Syrian National Movement.
Figure 2

Emaciated condition of two sets of remains

Note also the degree of ulceration and discolouration of the shin and ankle regions.

Figure 3
Patterned ligature mark on the neck

Belt type object on the neck with a ridged pattern highly consistent with the ligature mark seen in a different individual in figure 4
Emaciated individual with tramline injuries across lower chest wall

Tramline injuries across the anterior chest and abdominal walls
Figure 8

Figure 9
Tramline injuries (marked by arrowheads) across the anterior chest and abdominal walls
Figure 10

Ulceration in the lower shin and foot areas
### Appendix B
Tables of results of dip sample

#### Table 1
Summary of injury types recorded from a dip sample of 150 individuals

<table>
<thead>
<tr>
<th>Region of the body</th>
<th>Type of injury</th>
<th>Number of individuals</th>
<th>Percentage of individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>Non-specific</td>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Ligature</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>Neck</td>
<td>Non-specific</td>
<td>28</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Ligature</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>Torso</td>
<td>Non-specific</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Tramlines</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Scars</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Ulceration</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Arm</td>
<td>Non-specific</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Tramlines</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Ulceration</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Forearm</td>
<td>Non-specific</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Ligature</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Ulceration</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Thigh</td>
<td>Ulceration</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Non-specific</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Scars</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Tramlines</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Shin</td>
<td>Ulceration</td>
<td>82</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Scars</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Bandage</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Non-specific</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Ligature</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Zero injuries</td>
<td></td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Emaciated</td>
<td></td>
<td>93</td>
<td>62</td>
</tr>
</tbody>
</table>
Table 2
Overall incidence of injuries within a region

| Overall incidence of injury type |
|-------------------------------|---|
| Face                          | 36 |
| Neck                          | 52 |
| Torso                         | 37 |
| Arm                           | 18 |
| Forearm                       | 26 |
| Thigh                         | 33 |
| Shin                          | 110 |

Dr. Stuart J. Hamilton, MB, ChB, BMSc (Hons), FRCP, MFFLM
Professor Susan Black, OBE, BSc, PhD, DSc, FRSE, FRAI, Cert-FA

Appendix C
Glossary of Forensic Terminology

Many forensic terms are used in a specific way by forensic pathologists and anthropologists. For clarity they are identified here.

**Bruising:** Bruising is produced as the result of leakage of blood from damaged blood vessels. It is most commonly seen with impact (either the body impacting an object or by an object striking a body) or compression such as gripping. Many are relatively non-specific in size and shape although some may reproduce the shape of the object causing the bruise. Examples are ligature marks and footwear marks.

**Tramline bruises:** These are a specific type of bruise produced by blows with rod-like objects. Such impacts stretch and injure blood vessels at the edges of the object and produce parallel lines of bruising.

**Abrasions:** Abrasions ("scratches" or "grazes") are the typically the result of shearing forces on the skin removing the outer layers of the skin surface.

**Laceration:** A laceration is produced by blunt trauma crushing and splitting the skin. In technical terminology sharp objects produce incised wounds, not lacerations.

**Gunshot wound:** These are a specific form of laceration produced by the passage of a bullet through the body. Entrance wounds are produced when the projectile enters the body. If it also exits the body exit wounds are produced.

**Hypostasis:** This is also known as lividity or livor mortis. After death blood pools under gravity to the dependent parts of the body, producing a purple-pink discoloration. If the body is moved shortly after this process the blood will shift with the new position, but after a period of time the hypostasis permanently stains the skin (referred to as the hypostasis becoming "fixed").

**Decomposition:** The process of degradation of the body after death. The two main forms are putrefaction and mumification.

**Ulceration:** Loss of epithelial (skin) surface. This has many underlying causes.