

<p>1 Wednesday, 12 April 2017</p> <p>2 (10.20 am)</p> <p>3 G11 (continued)</p> <p>4 THE CHAIRMAN: Yes.</p> <p>5 MR BEER: Sir, thank you.</p> <p>6 Questions from MR BEER (continued)</p> <p>7 MR BEER: G11, I think we were at the point where you were</p> <p>8 parked up in the Raven Inn at the junction of Warrington</p> <p>9 Road and Hey Shoot Lane. Yes?</p> <p>10 A. Yes.</p> <p>11 Q. If you take out your bundle, please, and look at tab 1,</p> <p>12 page 2. In the third paragraph you say:</p> <p>13 "We parked up at the Raven Inn, where we awaited</p> <p>14 further information."</p> <p>15 Yes?</p> <p>16 A. Yes.</p> <p>17 Q. At that point in time, when you were parked up at the</p> <p>18 Raven Inn, were you told the position of the car when it</p> <p>19 parked in the car park, the Audi?</p> <p>20 A. I don't recall.</p> <p>21 Q. If you look at your witness statement, about three or</p> <p>22 four paragraphs further on you say:</p> <p>23 "I was driven to a car park at Jackson Avenue and</p> <p>24 Thompson Avenue. I was informed that the subject</p> <p>25 vehicle was parked in the far right corner of the car</p> <p style="text-align: center;">Page 1</p>	<p>1 Red, yes?</p> <p>2 A. Yes.</p> <p>3 Q. You drove to the car park?</p> <p>4 A. Yes.</p> <p>5 Q. At the point of entering the car park, what did you</p> <p>6 understand the plan was to be?</p> <p>7 A. That we would be deploying on the stolen Audi.</p> <p>8 Q. Anything more than that?</p> <p>9 A. If the subjects were out of the vehicle, then we would</p> <p>10 deal with them outside the vehicle.</p> <p>11 Q. At that point in time do you remember that there had</p> <p>12 been a period when there had been a loss of surveillance</p> <p>13 on the subjects?</p> <p>14 A. Yes.</p> <p>15 Q. Can you remember that being an issue of concern?</p> <p>16 A. I believe it was, yes.</p> <p>17 Q. Presumably because the subjects may have been out of the</p> <p>18 vehicle and difficult to find?</p> <p>19 A. Yes.</p> <p>20 Q. Or that they may have been committing an offence?</p> <p>21 A. Yes.</p> <p>22 Q. Can you recall a time when it was confirmed that there</p> <p>23 were occupants within the vehicle?</p> <p>24 A. Not that I recall, no.</p> <p>25 Q. In any event, you drove on to the car park and you say</p> <p style="text-align: center;">Page 3</p>
<p>1 park."</p> <p>2 The way it reads as if that was the first time you</p> <p>3 were told; would that be right?</p> <p>4 A. It is possible. Yes, possible, yes.</p> <p>5 Q. You say that at about 7.08, your vehicle was moved</p> <p>6 towards Culcheth. You were informed that you were now</p> <p>7 on State Amber, yes?</p> <p>8 A. Yes.</p> <p>9 Q. At that point, you don't describe any broadcast by the</p> <p>10 occupants of the alpha car, in particular X7, as to the</p> <p>11 tactics that were to be adopted if a strike was called</p> <p>12 on the vehicle. Is that because there wasn't such</p> <p>13 a broadcast?</p> <p>14 A. Again, I don't recall, sorry.</p> <p>15 Q. Do you remember now any broadcast by X7, the operational</p> <p>16 firearms commander in the alpha car, at all?</p> <p>17 A. Other than we was on Amber.</p> <p>18 Q. You don't recall?</p> <p>19 A. No.</p> <p>20 Q. Right.</p> <p>21 You were aware that the CS canister had been</p> <p>22 authorised for use and you put your respirator on at</p> <p>23 this point; is that right?</p> <p>24 A. Yes.</p> <p>25 Q. At about 7.12 you were told the operation was on State</p> <p style="text-align: center;">Page 2</p>	<p>1 you were informed that the subject vehicle was parked in</p> <p>2 the far right-hand corner of the car park, yes?</p> <p>3 A. Yes.</p> <p>4 Q. At what speed did you cross the car park?</p> <p>5 A. Relatively slow.</p> <p>6 Q. How far off the bravo vehicle were you?</p> <p>7 A. I don't know.</p> <p>8 Q. Your vehicle came to rest after the bravo vehicle, is</p> <p>9 that right?</p> <p>10 A. Yes.</p> <p>11 Q. And H9 shouted "Out, out, out"?</p> <p>12 A. Yes.</p> <p>13 Q. Were you the first out of your vehicle?</p> <p>14 A. I don't know.</p> <p>15 Q. You got out, yes, and where did you go?</p> <p>16 A. I exited via the offside rear of our vehicle.</p> <p>17 Q. Yes.</p> <p>18 A. Stepped on to the car park, and I could see a parked car</p> <p>19 in front of me. I ran towards the rear of that parked</p> <p>20 car, as a cut-off if there was anybody else out on foot,</p> <p>21 and towards the subject car.</p> <p>22 Q. If you just take open the second general firearms</p> <p>23 folder, please, and if you look in tab -- I hope it is</p> <p>24 28. I am looking for page 569.</p> <p>25 THE CHAIRMAN: Yes.</p> <p style="text-align: center;">Page 4</p>

1 **A. Yes.**
 2 MR BEER: Do you have that? Is that two photographs that
 3 look very similar, taken from a police helicopter?
 4 **A. Yes.**
 5 Q. Yes?
 6 Does that depict quite a good view of where you ran?
 7 Yes?
 8 **A. Yes.**
 9 Q. Can you describe, you come out of the rear offside door
 10 of the third vehicle that is positioned horizontally
 11 here, the charlie vehicle?
 12 **A. Yes.**
 13 Q. And you run where? You help us.
 14 **A. From the charlie vehicle, there was a parked car**
 15 **directly opposite. I ran between the third parked car**
 16 **and the second one to the rear. In the direction of the**
 17 **subject vehicle.**
 18 Q. Okay, so you are saying "the third parked car", the
 19 first one is the subject vehicle, the second one is
 20 a smaller, I think we know that it is a green car, yes?
 21 **A. Right.**
 22 Q. Then the third one is the very dark -- the black one,
 23 yes?
 24 **A. Yes.**
 25 Q. You ran between the second and third one, so past the

Page 5

1 bumper of the S-Max?
 2 **A. Yes.**
 3 Q. On to the grass, is that right?
 4 **A. Yes.**
 5 Q. You were doing that as a cut-off?
 6 **A. Yes.**
 7 Q. In case somebody had exited the subject vehicle --
 8 **A. The subject vehicle, yes.**
 9 Q. -- and had run along the grass?
 10 What, if any, weapons did you have drawn at that
 11 point?
 12 **A. I had my MP5.**
 13 Q. In what position was the MP5?
 14 **A. It would have been down at low port.**
 15 Q. Okay.
 16 Can you then describe what you did then, when you
 17 got to the grass, where did you go?
 18 **A. I proceeded round the back of the green vehicle and**
 19 **towards the rear of the subject vehicle.**
 20 THE CHAIRMAN: When you say the back of the green vehicle,
 21 you mean where the grass is, do you?
 22 **A. Yes.**
 23 THE CHAIRMAN: I think it is actually the front, but you
 24 mean where the grass is?
 25 **A. Yes.**

Page 6

1 MR BEER: And proceeded to the subject vehicle?
 2 **A. Yes.**
 3 Q. How close did you get to the red Audi?
 4 **A. I actually got to the red Audi.**
 5 Q. Whereabouts on the red Audi did you get to?
 6 **A. It was the rear nearside.**
 7 Q. Rear?
 8 **A. Rear nearside.**
 9 Q. You say in your statement:
 10 "As I approached the subject vehicle, I could see
 11 that the CS canister had been deployed into the
 12 vehicle."
 13 Yes?
 14 **A. Yes.**
 15 Q. How could you see that it had been deployed into the
 16 vehicle?
 17 **A. The window had been smashed and I think there was maybe**
 18 **CS dispersal there, from what I recall.**
 19 Q. Was there anyone else near the rear nearside door of the
 20 red Audi?
 21 **A. Yes.**
 22 Q. Who was that?
 23 **A. U9.**
 24 Q. What did you do?
 25 **A. I assisted U9 at that point. U9 had his carbine pointed**

Page 7

1 **on the vehicle and was doing a challenge to a subject**
 2 **there.**
 3 Q. So he was challenging -- could you see whether there was
 4 anyone in the rear nearside of the vehicle?
 5 **A. Not at that point.**
 6 Q. What, if anything, did you do with your MP5?
 7 **A. I slung my MP5, I placed it down to my side to free my**
 8 **hands.**
 9 Q. Did you shout anything?
 10 **A. Can I refer to my statement?**
 11 Q. Yes, of course. Tab 1, page 3, second paragraph.
 12 **A. I shouted, "Armed police, get out of the car".**
 13 Q. Was that shouted at the subject --
 14 **A. Yes.**
 15 Q. -- who you could by now see?
 16 **A. Yes.**
 17 Q. Did you take hold of the subject?
 18 **A. I did, yes.**
 19 Q. Who I think we know now to be Joseph Travers; is that
 20 right?
 21 **A. Yes.**
 22 Q. Did you pull him out of the car?
 23 **A. I did, yes.**
 24 Q. And take him to the floor?
 25 **A. Yes.**

Page 8

<p>1 Q. Whereabouts was he when he was placed to the floor?</p> <p>2 A. Approximately three feet from the door.</p> <p>3 Q. Did you then shout, "Put your hands behind your back",</p> <p>4 take hold of his right arm, lever his right arm from</p> <p>5 under his side and handcuff him in the rear back-to-back</p> <p>6 position.</p> <p>7 A. Yes.</p> <p>8 Q. Whilst you were doing that, were you aware of anything</p> <p>9 else going on or were you looking at what you were</p> <p>10 doing?</p> <p>11 A. At that specific time I was looking at what I was doing.</p> <p>12 Q. At that point, had you heard any shots fired?</p> <p>13 A. No.</p> <p>14 Q. Had you heard the glass being broken for the CSDC to be</p> <p>15 dispersed?</p> <p>16 A. No.</p> <p>17 Q. The CSDC dispersal canister to be thrown?</p> <p>18 A. No.</p> <p>19 Q. After you handcuffed Mr Travers, did you notice anything</p> <p>20 else?</p> <p>21 A. I noticed Z15 approach the rear tyre and discharge the</p> <p>22 shotgun.</p> <p>23 Q. Before you saw Z15 discharge the shotgun, had you</p> <p>24 noticed another subject?</p> <p>25 A. Yes.</p> <p style="text-align: center;">Page 9</p>	<p>1 Q. Did you see whether it had its lights on?</p> <p>2 A. I didn't.</p> <p>3 Q. What, you didn't see or it didn't?</p> <p>4 A. I can't recall.</p> <p>5 Q. Okay.</p> <p>6 How close were you to the vehicle when Z15</p> <p>7 discharged the shotgun into the rear tyre?</p> <p>8 A. I would have been the same distance as when Mr Travers</p> <p>9 was put on the floor, around 3 foot.</p> <p>10 Q. Did you only hear one shotgun round being fired?</p> <p>11 A. Yes.</p> <p>12 Q. Is that in the course of the entire incident, you only</p> <p>13 heard one shotgun round?</p> <p>14 A. Yes.</p> <p>15 Q. After Mr Travers was secured, was your attention drawn</p> <p>16 to something else?</p> <p>17 A. Yes.</p> <p>18 Q. What was that?</p> <p>19 A. There appeared to be a struggle at the offside passenger</p> <p>20 front door.</p> <p>21 Q. Who was the struggle between?</p> <p>22 A. It was U2 and whoever was in the vehicle.</p> <p>23 Q. You said the front offside passenger window there, in</p> <p>24 your statement you say the front nearside passenger</p> <p>25 door.</p> <p style="text-align: center;">Page 11</p>
<p>1 Q. Where was he?</p> <p>2 A. He was at the rear of the subject vehicle.</p> <p>3 Q. How close to you and Mr Travers was he?</p> <p>4 A. Again, probably two to three feet.</p> <p>5 Q. Was he closer to the vehicle than you?</p> <p>6 A. From what I recall, yes.</p> <p>7 Q. If you just look at your statement, the middle paragraph</p> <p>8 on page 3, you say:</p> <p>9 "To my right and closer to the rear nearside of the</p> <p>10 vehicle was another subject."</p> <p>11 Is David Totton?</p> <p>12 A. Yes.</p> <p>13 Q. What was happening to David Totton?</p> <p>14 A. He was being detained by other officers.</p> <p>15 Q. Can you identify who they are?</p> <p>16 A. No.</p> <p>17 Q. Did you see Mr Totton get out of the vehicle?</p> <p>18 A. No.</p> <p>19 Q. Were you aware of any signs that the vehicle, the Audi,</p> <p>20 was running? That its engine was running?</p> <p>21 A. I do not recall.</p> <p>22 Q. Can you recall hearing its engine running or revving?</p> <p>23 A. No.</p> <p>24 Q. Can you recall any smoke or other exhaust fumes?</p> <p>25 A. No.</p> <p style="text-align: center;">Page 10</p>	<p>1 A. Apologies, yes, it is the nearside.</p> <p>2 Q. Was U2 on your side of the vehicle then?</p> <p>3 A. Yes.</p> <p>4 Q. You say he was leaning into the front passenger door.</p> <p>5 Was that through the broken window or was the door by</p> <p>6 now open?</p> <p>7 A. The door was open.</p> <p>8 Q. You say he appeared to be struggling with a subject, who</p> <p>9 you later identified as Anthony Grainger. Is that</p> <p>10 right?</p> <p>11 A. Yes.</p> <p>12 Q. What gave the appearance of a struggle?</p> <p>13 A. It was his body position.</p> <p>14 Q. Whose body position, Mr Grainger's or U2?</p> <p>15 A. U2's body position was in the vehicle. I am not</p> <p>16 100 per cent sure if I heard a call of "Support", but</p> <p>17 again I can't be sure.</p> <p>18 Q. I think you went to help U2, is that right?</p> <p>19 A. That's correct, yes.</p> <p>20 Q. You say in your statement your first impression was that</p> <p>21 Mr Grainger was being uncooperative and refusing to exit</p> <p>22 via the driver's door.</p> <p>23 A. Yes.</p> <p>24 Q. When you leant in you took hold of one of his arms, you</p> <p>25 became aware of blood on his chest. Yes?</p> <p style="text-align: center;">Page 12</p>

3 (Pages 9 to 12)

<p>1 A. Yes.</p> <p>2 Q. Did you see Mr Grainger move at all?</p> <p>3 A. No.</p> <p>4 Q. He conduct a voluntary movement of his own body at all?</p> <p>5 A. No.</p> <p>6 Q. You noticed, I think, that Mr Grainger appeared</p> <p>7 unresponsive. Is that right?</p> <p>8 A. Yes.</p> <p>9 Q. And somebody shouted, "Support, he has been shot", yes?</p> <p>10 A. Yes.</p> <p>11 Q. Did you, U2 and perhaps other officers pull Mr Grainger</p> <p>12 from the nearside of the vehicle?</p> <p>13 A. Yes.</p> <p>14 Q. Did a shout for trauma kit go up?</p> <p>15 A. Yes.</p> <p>16 Q. Did you step away and return to Mr Travers?</p> <p>17 A. Yes.</p> <p>18 Q. Did you search Mr Travers?</p> <p>19 A. I did.</p> <p>20 Q. And did you find no weapons on him?</p> <p>21 A. No.</p> <p>22 Q. Was Mr Travers arrested and cautioned by U2?</p> <p>23 A. Yes.</p> <p>24 Q. You say in your statement that U2 told you that the</p> <p>25 arrest was made at 7.10?</p> <p style="text-align: center;">Page 13</p>	<p>1 A. No.</p> <p>2 Q. Why didn't you provide an initial account?</p> <p>3 A. I don't know. I don't think we was asked at that point.</p> <p>4 Q. Did you speak with other officers about what had</p> <p>5 happened?</p> <p>6 A. No.</p> <p>7 Q. Why not?</p> <p>8 A. It is procedure.</p> <p>9 Q. You were there till I think early in the morning, about</p> <p>10 6.00. Something like that?</p> <p>11 A. Yes.</p> <p>12 Q. Did everyone really sit in silence for the best part of</p> <p>13 10 or 12 hours?</p> <p>14 A. It wasn't in silence, but we didn't speak about what had</p> <p>15 occurred.</p> <p>16 Q. Did you know before you went off duty that Q9 had fired</p> <p>17 the shot that killed Mr Grainger?</p> <p>18 A. Yes.</p> <p>19 Q. How did you find that out?</p> <p>20 A. He wasn't present with us at that point.</p> <p>21 Q. But how -- what, and you drew an inference that because</p> <p>22 he wasn't present that he was the shooter?</p> <p>23 A. I drew an inference, yes. Yes. I didn't know for fact,</p> <p>24 it was just an inference.</p> <p>25 Q. You came to make your statement on 9 March, six days</p> <p style="text-align: center;">Page 15</p>
<p>1 A. Yes.</p> <p>2 Q. Yes?</p> <p>3 Which is of course two minutes before the time that</p> <p>4 you had given for when you drove onto the car park?</p> <p>5 A. Yes.</p> <p>6 Q. You say that at 7.35 you are aware that an ambulance had</p> <p>7 arrived on the scene, yes?</p> <p>8 A. Yes.</p> <p>9 Q. Where did you get that time from? I don't think that is</p> <p>10 something that we see in the flip chart, is it? If you</p> <p>11 look at the flip chart.</p> <p>12 A. No.</p> <p>13 Q. I don't think the time of arrival of the ambulance is</p> <p>14 included?</p> <p>15 A. No.</p> <p>16 Q. Can you help us as to where you got that time from?</p> <p>17 A. I may have looked at my watch around that time.</p> <p>18 Q. Did you later get transported back to Claytonbrook and</p> <p>19 take part in a post-incident procedure?</p> <p>20 A. Yes.</p> <p>21 Q. Were you asked to provide an initial account in the</p> <p>22 post-incident procedure?</p> <p>23 A. I don't recall.</p> <p>24 Q. Did you provide an initial account in the post-incident</p> <p>25 procedure?</p> <p style="text-align: center;">Page 14</p>	<p>1 later. Yes?</p> <p>2 A. Yes.</p> <p>3 Q. What accounted for the delay of six days in making your</p> <p>4 first account?</p> <p>5 A. I believe it was some wranglings between legal and IPCC,</p> <p>6 but I don't know definitively.</p> <p>7 Q. Who were you getting your information from?</p> <p>8 A. That would have been supervision.</p> <p>9 Q. And who in supervision?</p> <p>10 A. I am not sure, probably J3.</p> <p>11 Q. I think J3 in fact is Mr Nutter, so we can refer to him,</p> <p>12 he no longer has his anonymity.</p> <p>13 A. Okay.</p> <p>14 Q. That is the inspector, is it?</p> <p>15 A. Yes.</p> <p>16 Q. Can you remember what you were being told?</p> <p>17 A. No.</p> <p>18 Q. Did you want to make a statement?</p> <p>19 A. Yes.</p> <p>20 Q. Why?</p> <p>21 A. As a police officer, it is the course of action that we</p> <p>22 put down what we have seen and heard.</p> <p>23 Q. This may sound silly when you hear it, but you had a pen</p> <p>24 and a piece of paper available to you in that six days.</p> <p>25 A. Yes.</p> <p style="text-align: center;">Page 16</p>

4 (Pages 13 to 16)

<p>1 Q. Why didn't you use the pen and the piece of paper to 2 write down an account? 3 A. Again, because of legal advice and I was following 4 procedures. 5 Q. Who was the legal advice from? 6 A. I don't know. 7 Q. How was the legal advice not to pick up a pen and 8 a piece of paper communicated to you? 9 A. It wasn't. However, it wasn't told us to make 10 an account either. I was waiting on instructions. 11 Q. Okay, so it was the other way round, was it, you were 12 waiting to be told when to write -- 13 A. Yes. 14 Q. -- rather than -- 15 A. Not to write. 16 Q. Not to right write. Yes. 17 Did you attend a meeting on 8 March at, with the 18 Police Firearms Officers' Association? 19 A. I don't recall. 20 Q. If I can jog your memory, there was a man, you probably 21 knew him by his actual name but we know him as V53, the 22 man that shot Mark Duggan. Did you attend such 23 a meeting? 24 A. I don't recall, no. 25 Q. When you made your statement on 9 March at Nexus House,</p> <p style="text-align: center;">Page 17</p>	<p>1 MR WEATHERBY: No thank you. 2 MR DAVIES: Nor me, sir. 3 MR EVANS: No thank you, sir. 4 THE CHAIRMAN: Thank you, G11. 5 That is the end of your evidence, thank you for 6 helping the Inquiry. You are free to go. If you would 7 like to remain there for a moment, until Mrs Shaw comes 8 to fetch you and she will escort you away. 9 MR BEER: Sir, whilst that is being done could we rise now 10 to reconfigure the courtroom? We are going back into 11 fully open for the experts. 12 THE CHAIRMAN: Yes, certainly. Thank you. 13 (10.43 am) 14 (A short adjournment) 15 (10.54 am) 16 MR BEER: Sir, we now turn to the phase in the Inquiry where 17 we begin to consider the expert evidence. 18 THE CHAIRMAN: Yes. 19 MR BEER: Beginning with the pathological evidence. 20 Mrs Schofield and Ms Hadfield-Grainger have been 21 informed that the next witnesses to be heard relate to 22 pathological examination of Mr Grainger and they know 23 they can leave at any stage and that you will know that 24 no discourtesy is intended, it is just because of the 25 contents.</p> <p style="text-align: center;">Page 19</p>
<p>1 you say that you conferred with other officers in 2 relation to matters relating to vehicles, times and 3 locations, yes? 4 A. Yes. 5 Q. You say that the statement was taken at about 4.30 pm, 6 yes? 7 A. Yes. 8 Q. We know from other evidence that the statement taking 9 process began at about 1.15 -- 10 A. Yes. 11 Q. -- so if both of those times are correct, it was about 12 3 hours 15 minutes it took to write the statement, yes? 13 A. Yes. 14 Q. Your statement is four pages long. 15 A. Yes. 16 Q. What occupied you for the 3 hours and 15 minutes? 17 A. My statement writing. 18 Q. It is not a long statement. 19 A. No. 20 Q. Was there much discussion with other officers about the 21 contents of it? 22 A. No, nothing. 23 MR BEER: Thank you very much. Those are the questions that 24 I ask. 25 THE CHAIRMAN: Thank you, Mr Beer.</p> <p style="text-align: center;">Page 18</p>	<p>1 THE CHAIRMAN: Of course, I fully understand. 2 Thank you Mr Beer. 3 MR BEER: We have also dispensed with the need for oral 4 evidence from Simon Elliot, the toxicologist. All of 5 the core participants have been asked and are content 6 for his statement to be taken as read. 7 THE CHAIRMAN: Certainly, thank you. 8 MR BEER: In those circumstances, Dr Brian Rodgers, please. 9 THE CHAIRMAN: Where will I find his -- 10 MR BEER: In the pathology bundle, tab 1. 11 THE CHAIRMAN: I have it. 12 MR BEER: Sir, it appears he is not here. Can you rise for 13 a short while? 14 THE CHAIRMAN: Yes, certainly. 15 (10.58 am) 16 (A short adjournment) 17 (11.00 am) 18 MR BEER: Sir, just before Dr Rodgers is sworn, Dr Lawler is 19 in court and given the circumstances we have asked for 20 him to be in court to listen to his colleague's 21 evidence. 22 THE CHAIRMAN: Yes. 23 DR BRIAN RODGERS (sworn) 24 THE CHAIRMAN: Thank you, Dr Rodgers, do feel free to sit 25 down if you'd like to do so.</p> <p style="text-align: center;">Page 20</p>

5 (Pages 17 to 20)

<p>1 A. I am fine, my Lord.</p> <p>2 Questions from MR BEER</p> <p>3 MR BEER: Dr Rodgers, my name is Jason Beer and I ask</p> <p>4 questions on behalf of the Inquiry. In a bundle in</p> <p>5 front of you there, the white bundle, you should have</p> <p>6 a copy of your report in the form of a witness statement</p> <p>7 at tab 1.</p> <p>8 A. Yes.</p> <p>9 Q. I wonder whether you could just open that. Can you see</p> <p>10 that, it is dated 1 June 2012?</p> <p>11 A. Yes.</p> <p>12 Q. Are the contents of that true to the best of your</p> <p>13 knowledge and belief?</p> <p>14 A. Yes.</p> <p>15 Q. Can we start at the end, effectively, please, with your</p> <p>16 finding as to the cause of death, please?</p> <p>17 A. That was shock and haemorrhage, due to gunshot wound to</p> <p>18 the chest, penetrating both lungs and pulmonary trunk.</p> <p>19 Q. That is 1A and 1B respectively?</p> <p>20 A. Correct, yes.</p> <p>21 Q. You are a consultant pathologist, please tell the</p> <p>22 chairman your qualifications.</p> <p>23 A. Yes, I am a consultant forensic and Home Office</p> <p>24 pathologist. I hold standard medical qualifications,</p> <p>25 together with higher qualifications, in particular</p> <p style="text-align: center;">Page 21</p>	<p>1 level, or 147 centimetres --</p> <p>2 Q. Doctor, just stop there. I misread that when I first</p> <p>3 read it. Above heel level, that meant if Mr Grainger</p> <p>4 was standing up the distance from his heel to the wound?</p> <p>5 A. Yes, all these descriptions are given in the anatomical</p> <p>6 position of someone standing up in this position, so</p> <p>7 Mr Grainger's height was 180 centimetres, which is</p> <p>8 5 foot 11 inches, and the actual entry wound was 147</p> <p>9 centimetres, which is 4 foot 10 inches above heel level.</p> <p>10 That was positioned below the left clavicle, that was</p> <p>11 where the entry wound is, so it is here in the chest.</p> <p>12 Q. Clavicle is a collarbone to the rest of us?</p> <p>13 A. The collarbone, here, up top, yes.</p> <p>14 Q. Can you tell us the measurements in relation to the</p> <p>15 collarbone and the nipple please?</p> <p>16 A. Yes, it was 10 centimetres above nipple level, so</p> <p>17 approximately you have a line drawn through the nipples,</p> <p>18 that gives you a rough localisation of where the entry</p> <p>19 shot was.</p> <p>20 Q. In relation to the midline?</p> <p>21 A. Yes, 10 centimetres to the left of the midline.</p> <p>22 Q. The midline --</p> <p>23 A. Midline, centre line drawn down here, so 10 centimetres</p> <p>24 to the left and then you can triangulate where the entry</p> <p>25 wound was.</p> <p style="text-align: center;">Page 23</p>
<p>1 Fellow of the Royal College of Pathologists and</p> <p>2 a diploma in medical jurisprudence.</p> <p>3 Q. Thank you. You conducted I think a post mortem</p> <p>4 examination on 4 March in relation to a person</p> <p>5 identified to you as Anthony Grainger; is that right?</p> <p>6 A. That's correct.</p> <p>7 Q. Was that at the Royal Liverpool?</p> <p>8 A. Yes.</p> <p>9 Q. Can I start, please, with a summary of your findings.</p> <p>10 Did you find a 9 millimetre hollow point bullet hit</p> <p>11 Mr Grainger's left chest area?</p> <p>12 A. Yes.</p> <p>13 Q. Went through his left lung?</p> <p>14 A. Yes.</p> <p>15 Q. His pulmonary artery?</p> <p>16 A. Yes.</p> <p>17 Q. His right lung?</p> <p>18 A. Yes.</p> <p>19 Q. And embedded itself in his right chest wall?</p> <p>20 A. That's correct.</p> <p>21 Q. Is that a fair layman's description of what happened?</p> <p>22 A. That is a summary, yes.</p> <p>23 Q. Can you help us with a description of the dimensions and</p> <p>24 position of the gunshot wound, please?</p> <p>25 A. Yes. This was positioned 4 foot 10 inches above heel</p> <p style="text-align: center;">Page 22</p>	<p>1 Q. Thank you. Can you tell us more about the nature of the</p> <p>2 gunshot wound itself, please?</p> <p>3 A. Yes, the gunshot wound was ovoid in shape, so it was not</p> <p>4 a perfect circle. It comprised a central defect,</p> <p>5 2 centimetres by 1.3 centimetres, and there was</p> <p>6 a surrounding what is called "abrasion collar" or</p> <p>7 "abrasion rim" up to 0.2 centimetres wide.</p> <p>8 Q. Just explain a little more about the collar, please?</p> <p>9 A. When a bullet enters the body, in an entry wound, a high</p> <p>10 powered bullet like this, 9 millimetre, as it enters you</p> <p>11 get a little rim around the wound, quite often called</p> <p>12 an abrasion collar, which is caused by the passage of</p> <p>13 the bullet as it is going through and the heat of the</p> <p>14 bullet and everything else.</p> <p>15 The main point with this was that there was no close</p> <p>16 range effects, so in any gunshot wound as a forensic</p> <p>17 pathologist we would be looking for an estimate of the</p> <p>18 distance. Obviously that is down to the ballistic</p> <p>19 examination, because a gentleman from ballistics was</p> <p>20 present with me at the time.</p> <p>21 Q. Was that Mr Botha?</p> <p>22 A. That was Andre Botha, yes. In any gunshot discharge,</p> <p>23 you can get propellant and soot and other things, if it</p> <p>24 close range, impacting against the skin so you could see</p> <p>25 a pattern. When there is nothing like that, it means it</p> <p style="text-align: center;">Page 24</p>

6 (Pages 21 to 24)

1 is a distance shot. That fitted with the circumstances,
 2 I was told, so there were no close range effects.
 3 Q. You describe that in your statement as no sooting or
 4 tattooing.
 5 A. Yes.
 6 Q. I think we understand what sooting is --
 7 A. Tattooing is unburnt and burnt propellant that hits the
 8 skin and gives you the speckled appearance around the
 9 entry wound.
 10 Q. You found none of that?
 11 A. No, none of that. You would only get that in a close
 12 range shot, within a few feet or even closer.
 13 Q. Thank you. Can you tell us about the passage of the
 14 bullet, please, after it had entered Mr Grainger?
 15 A. The bullet has entered the left anterior chest, which is
 16 here, it has entered the chest wall between the left
 17 second and third ribs, five centimetres to the left of
 18 the centre of the sternum, which is the breastbone.
 19 The bullet is going in at an angle, because we
 20 measured 10 centimetres to the left of the entry wound
 21 in the skin, but as it is going through the chest it is
 22 a bit closer, so it is clearly going in at that angle.
 23 It passes between those ribs. It then enters the
 24 chest itself, passing through the free edge of the upper
 25 lobe of the left lung.

Page 25

1 Q. What do you mean by the "free edge of the upper lobe"?
 2 A. The lungs, which sit in the chest either side of the
 3 heart. The anterior edges of the lung are called the
 4 free edge and they just overlap the central structures,
 5 such as the heart.
 6 Q. By "anterior" do you mean those that are pointing
 7 inwards?
 8 A. They are forwards and pointing inwards. The anterior
 9 free edge would be in this position here, quite central.
 10 It is just the edge of the lung that is in the front of
 11 the chest. It has produced a defect there in the left
 12 lobe of the lungs, so that is the upper lobe, there are
 13 two lobes to the left lung, upper and lower, there is
 14 a 1 centimetre defect and it then exits on the inner
 15 aspect of the left lung, through a ragged 4 by
 16 1 centimetre defect.
 17 Q. Can you just explain that in more detail, please?
 18 A. Generally, if a bullet, for example, passes through the
 19 arm, the entry wound will, should be, small and round
 20 and the exit wound large and ragged. There are lots of
 21 exceptions, but that is general.
 22 It is a similar thing with internal organs, so you
 23 know that the bullet has entered the lung and then
 24 exited on the inner aspect, close to the heart. So that
 25 produces a more ragged torn appearance.

Page 26

1 Q. Why is it more ragged and torn?
 2 A. It is just the nature of the gunshot. I mean that is
 3 how it is. There will be other things, because as
 4 a bullet passes through tissues it starts to deform.
 5 I know that this bullet has already, if I am correct in
 6 saying, passed through the windscreen of the vehicle.
 7 Q. Yes.
 8 A. There is going to be a certain amount of deformation,
 9 but even so the entry wound was still fairly clear-cut.
 10 Sometimes if a bullet passes through an intermediate
 11 target, for example say the metal of a car door, then
 12 its trajectory is going to be significantly altered so
 13 the bullet can start to tumble and yaw. So instead of
 14 going straight, that is the point of the bullet, it can
 15 yaw and it can hit the body or hit the victim at a side
 16 angle or an oblique angle. But this has still hit
 17 fairly cleanly.
 18 Then as it passes through tissues, the energy is
 19 going to start to decrease.
 20 Q. Yes. Is that anything to do with the -- did you examine
 21 the residue of the bullet in this case?
 22 A. Yes, and if I remember, that was deformed.
 23 Q. Yes.
 24 A. I think it was a copper jacket with a lead core, I know
 25 it is in my report somewhere.

Page 27

1 Q. You were telling us about the trajectory.
 2 A. Basically it has gone through the left lung and then
 3 enters the apex of the mediastinum, now the mediastinum
 4 is all the central structures in the chest where the
 5 heart is. So the upper part, so it is quite high up, if
 6 the heart is down here it is higher than that. Then it
 7 exits the mediastinum and it enters the right lung.
 8 Q. Yes.
 9 A. In particular it is entering the right lower lobe.
 10 Q. Yes.
 11 A. What that means is, if it has entered the left upper
 12 lobe initially, it is now entering the right lower lobe.
 13 So you can see the path is downwards at an angle.
 14 Beneath the exit defect of that right lung, that is
 15 where I found the deformed projectile, that is the
 16 deformed bullet.
 17 Q. In fact had that been located by imaging already?
 18 A. Yes, before I carried out the autopsy we did some x-ray
 19 imaging. You could see the bullet somewhere in the
 20 right chest, but because it is only two dimensional you
 21 wouldn't see exactly where it was. But it was found
 22 there and it was clearly a copper jacketed bullet and
 23 the lead core was deformed.
 24 I think if I remember it was believed to be hollow
 25 point, 9 millimetre.

Page 28

<p>1 Q. Yes, it was. You say in your report: 2 "The copper jacket and lead core deformed, the lead 3 core showing stippling consistent with glass damage." 4 Can you explain what that means? 5 A. That is something I picked up from the ballistics expert 6 clearly. He is the expert on damage to the actual 7 projectile but he noted this stippling and he said, 8 I remember at the time, that that was consistent with it 9 passing through the windscreen of the vehicle. 10 Q. Yes. Did you find anything next to the defect in the 11 right lung? 12 A. Adjacent to the defect, in the right posterior chest 13 wall there was some pleural bruising, that is bruising 14 to the inner lining of the chest wall, associated again 15 with the path of the bullet. 16 Q. Yes. 17 A. Obviously, if the bullet has crossed from left to right, 18 it has damaged some central structures. 19 Q. Yes. 20 A. Although it didn't pass-through the heart, it has passed 21 through the pulmonary artery, the pulmonary trunk. 22 Q. Just tell the chairman and the court what the pulmonary 23 trunk is. 24 A. If you look at the heart, you have the left side which 25 is pumping the oxygenated blood around the body. You</p> <p style="text-align: center;">Page 29</p>	<p>1 Mr Grainger? 2 A. Yes. As I said, there was 1,400 ml so 1.4 litres in the 3 left chest, and in the right chest -- no, the other way 4 round, in the right chest cavity there was 1,400 ml and 5 1,500 ml in the left chest cavity, so almost 3 litres 6 total in the chest cavities. 7 Q. Yes. Taking a step back and looking at the autopsy more 8 generally, I am not going to go through the individual 9 areas of examination within the autopsy but as a whole, 10 did your autopsy reveal any evidence of natural disease 11 which may have caused or contributed to death? 12 A. No. I mean there was the note that Mr Grainger had had 13 a previous renal transplant, so he had had a previous 14 kidney transplant and the existing kidneys were shrunken 15 and scarred and damaged, indicative of chronic kidney 16 disease. Then there was a transplanted kidney present 17 in the pelvis, which is where it is normally sited. 18 Q. You found that in the pelvic brim area? 19 A. That's right. 20 Q. I think examination of that revealed that it was 21 functioning well? 22 A. Yes, looked like a normal kidney, yes. 23 Q. The answer is -- 24 A. No natural disease that would play any part in his 25 death, no.</p> <p style="text-align: center;">Page 31</p>
<p>1 have the right side of the heart that pumps the 2 de-oxygenated blood to the lungs and when you breathe in 3 that blood is oxygenated and then comes back to left 4 side of the heart. 5 In being pumped from the right ventricle into the 6 lungs it goes through the pulmonary artery. 7 Q. What damage did you find to the pulmonary trunk? 8 A. There was quite major damage to the pulmonary trunk, so 9 to the left lateral wall there was a 1.5 by 1 centimetre 10 defect and then towards the posterior wall area of the 11 trunk, there was a more ragged 3.5 by 2 centimetre 12 defect. That latter ragged defect is clearly the exit 13 of the bullet that has passed through the pulmonary 14 trunk. 15 Q. In your report you describe the latter of those defects 16 as a huge stellate ragged defect. What did you mean by 17 "huge stellate ragged"? 18 A. Stellate just means almost star shaped, but not 19 a classic star so it has tears in it, how can I describe 20 it, it would be like this, almost a star shape, ragged. 21 That is clearly the exit of the projectile as it has 22 passed through the pulmonary trunk. 23 Obviously that would cause catastrophic internal 24 bleeding within the chest, and there was. 25 Q. Did you find and measure blood in the chest of</p> <p style="text-align: center;">Page 30</p>	<p>1 Q. Yes. Is it right that the bullet had passed into 2 Mr Grainger, damaging soft tissues and organs, but had 3 caused no bony damage? 4 A. That's correct. Obviously because the bullet was found 5 in the chest cavity, there was no exit defect, so it 6 hasn't passed through the chest completely. That may be 7 that the bullet has been slowed by passage through the 8 intermediate target, ie the windscreen. 9 The one thing, sir, I didn't give you was the 10 orientation -- 11 Q. I am about to come to that. Could you tell us about the 12 orientation or the trajectory within the body of the 13 bullet? 14 A. We try and estimate the trajectory of the bullet and 15 what I thought was that the bullet has entered the left 16 anterior upper chest and it has then passed through the 17 chest at a downward angle from the horizontal of around 18 10 to 20 degrees. So if is that the horizontal, the 19 bullet is going downwards like that and 45 degrees 20 backwards, because obviously if it had gone in, it would 21 have just skimmed the chest but it has actually 22 penetrated through, so it is angled slightly downwards 23 and 45 degrees backwards. 24 Q. Yes. The gunshot damage to the pulmonary trunk, you 25 said I think already, led to significant or massive</p> <p style="text-align: center;">Page 32</p>

1 internal bleeding. Is that right?
 2 **A. Yes. Yes.**
 3 Q. How far was the overall penetration into the body?
 4 **A. I think it was about 23.5 centimetres, if I remember.**
 5 Q. Yes. The damage that you found to the pulmonary trunk,
 6 what effect would that have had upon Mr Grainger?
 7 **A. I mean these gunshot wounds like this, they are not**
 8 **instantaneously fatal, there is very few that are**
 9 **instantaneously fatal -- I mean a shot to the head going**
 10 **through the brain is probably going to be**
 11 **instantaneously fatal. In this case, what would happen**
 12 **is that Mr Grainger's blood pressure would rapidly be**
 13 **dropping.**
 14 Q. Yes.
 15 **A. I mean if you think what the cardiac output is per**
 16 **minute, something like 5 litres per minute, that is how**
 17 **much blood the heart is pumping out. Your circulation**
 18 **is going to collapse very quickly, so I would have**
 19 **thought, within -- and it is always difficult to put**
 20 **timescales on this, but from zero, where the bullet**
 21 **enters, time, it is going to be seconds as the**
 22 **circulation collapses and Mr Grainger would rapidly have**
 23 **become unconscious and died very shortly afterwards. He**
 24 **would have died very, very quickly but not actually**
 25 **instantaneously.**

Page 33

1 Q. In a clarificatory statement, that you made for the
 2 Independent Police Complaints Commission, you said:
 3 "The projectile having entered Mr Grainger's chest,
 4 traversing both lungs and penetrating his pulmonary
 5 trunk led principally to bleeding in both cavities, with
 6 1,400 ml of blood in the right chest cavity and 1,500 in
 7 the left."
 8 Then you said this:
 9 "This would take a few minutes to develop. In my
 10 view Mr Grainger would have died within minutes, but not
 11 instantaneously."
 12 **A. Yes.**
 13 Q. Do you stand by that view?
 14 **A. Yes, is that is a very rough estimate. We cannot tell**
 15 **exactly how long it took. It may be useful if there was**
 16 **any sign of circulation when Mr Grainger was taken out**
 17 **of the vehicle by the police, but I don't know on that.**
 18 Q. We haven't heard of any.
 19 **A. I think take it that it would have been a matter of**
 20 **minutes only before he died, but he would likely be**
 21 **unconscious very, very quickly.**
 22 Q. You go on to say:
 23 "I suspect he would have lost consciousness fairly
 24 rapidly, within a minute or so of being shot, but
 25 initially within seconds after the shot was delivered,

Page 34

1 he would still be able to respond to a certain degree
 2 and may still be able to move about."
 3 **A. That is general, yes. I mean I can't prove that beyond**
 4 **all reasonable doubt obviously, but there are instances**
 5 **where people are capable of certain actions when they**
 6 **have been shot. I have certainly seen cases myself.**
 7 **But this is all very rapid.**
 8 Q. As to the position, that Mr Grainger may have been in,
 9 at the point at which the bullet entered his left chest,
 10 you say in your report that:
 11 "It is impossible to determine from the autopsy
 12 examination whether or not Mr Grainger's arms were in
 13 the raised or lowered position at the time the gunshot
 14 wound was delivered to his chest."
 15 Is that right?
 16 **A. That's correct. I mean there is an absence of injuries**
 17 **really to both arms, apart from something minor, which**
 18 **I think I was looking at with regards to there was**
 19 **an issue maybe there was a weapon pointing into the car**
 20 **from someone else --**
 21 Q. Yes.
 22 **A. -- which may have been resting on his right arm and**
 23 **caused a little red mark.**
 24 Q. We have heard from that officer who said that he
 25 effectively jabbed the muzzle of his carbine into his

Page 35

1 right arm in order to provoke some sort of movement and
 2 to comply with an instruction he was giving.
 3 **A. There was a very faint red mark, but it was not**
 4 **confirmed beyond that and I can't take it any further**
 5 **because there was no bruising beneath that, so I can**
 6 **just say there was a red mark there, to the arm, which**
 7 **could fit with that scenario, that there was a muzzle of**
 8 **a gun jabbed into the arm.**
 9 Q. Yes.
 10 On the conclusion that you cannot say whether his
 11 arms were raised or lowered --
 12 **A. That's correct.**
 13 Q. -- at the point that the gunshot wound entered, was
 14 caused. Why is that, can you explain?
 15 **A. Well, there is an absence of pathology to the arms, so**
 16 **really we can't take it much further.**
 17 **If, for example, where the gunshot entered the**
 18 **chest, if there was damage to say the upper part of the**
 19 **left arm, from the passage of a bullet, either**
 20 **tangential, an abrasion or something, then you would be**
 21 **able to say, "That would fit with the arms being in**
 22 **a downwards position", but there was nothing to the arm**
 23 **so I can't say one way or the other.**
 24 Q. Thank you.
 25 You were also asked to opine on whether a chemical

Page 36

1 discharged as a result of a device called a CSDC, a CS
 2 dispersal canister, into the vehicle in which
 3 Mr Grainger was sitting --
 4 **A. Yes.**
 5 Q. -- was dispersed before or after he was shot.
 6 **A. Yes.**
 7 Q. Can you tell us what investigations you carried out in
 8 order to answer that question?
 9 **A. Yes, the simple answer to the question is I can't tell.**
 10 **But what I would always do in these kind of cases, if**
 11 **an incapacitant spray has been used, then there is the**
 12 **potential that someone may have an allergic type**
 13 **anaphylactic reaction to that spray, or whatever it is.**
 14 **I think I asked St George's hospital to carry out what**
 15 **is called a mast cell tryptase.**
 16 Q. Just tell us what that is.
 17 **A. In allergic reactions there is a particular white blood**
 18 **cell called a mast cell, which contains these active**
 19 **granules and in anaphylaxis these cells degranulate,**
 20 **releasing these chemicals into the blood, causing**
 21 **an anaphylactic reaction. The mast cell tryptase level**
 22 **in anaphylaxis is usually greater than 100 micrograms**
 23 **per litre, I think in this case it was about**
 24 **30 micrograms per litre.**
 25 Q. 30.4, yes.

Page 37

1 **A. It is a bit higher than the base level normal, but there**
 2 **can be sort of test explanations for that. In that, you**
 3 **know, you can have little things that alter the level,**
 4 **it is not a significant level, but the point is that it**
 5 **doesn't exclude or prove any evidence of anaphylaxis.**
 6 Q. Less still does it prove the absence or presence of CSDC
 7 before death?
 8 **A. My understanding was that the timescale was very tight,**
 9 **it is a matter of seconds with this shot, and whenever**
 10 **or at whatever time the incapacitant spray was**
 11 **delivered, it is far too quick to produce any**
 12 **significant anaphylaxis in anybody.**
 13 Q. I see, so --
 14 **A. You are going to need time to react to a substance.**
 15 Q. Breaking that down, slightly, the serum tryptase
 16 concentration that was found here was 30.4 micrograms in
 17 a litre.
 18 **A. In a litre, yes.**
 19 Q. The reference range I think is between 2 and 14, is that
 20 right?
 21 **A. 2 and 14.**
 22 Q. Therefore this was slightly above the reference range?
 23 **A. Yes, what they said, what the test examiner said was**
 24 **that the concentration is much more likely to be due to**
 25 **sample degradation, whatever that is, so that is the**

Page 38

1 **blood sample I have taken may have thrown up some errors**
 2 **because you are dealing with post mortem samples, and**
 3 **they are never as good as an in life sample.**
 4 Q. So they --
 5 **A. That was the explanation.**
 6 Q. I think they give some other reasons, they say due to
 7 sample degradation --
 8 **A. Haemolysis.**
 9 Q. Tell us what haemolysis is.
 10 **A. Haemolysis is actual breakdown of red blood cells in**
 11 **a sample.**
 12 Q. Yes.
 13 **A. Which can occur.**
 14 Q. They say secondary to any resuscitation process?
 15 THE CHAIRMAN: Do you have got a page reference for this.
 16 MR BEER: Yes, tab 5, page 147.
 17 THE CHAIRMAN: Thank you.
 18 MR BEER: This is the report from St George's.
 19 THE CHAIRMAN: Yes.
 20 **A. I mean essentially, my sort of interpretation of this is**
 21 **whatever the level is, you are going to have to**
 22 **interpret it with a great deal of caution because of the**
 23 **timescale. You see I don't believe you would see**
 24 **an anaphylactic reaction occurring in a matter of**
 25 **seconds.**

Page 39

1 MR BEER: Yes.
 2 **A. You are certainly not going to get a change in the mast**
 3 **cell tryptase that quickly.**
 4 Q. The other reasons given by St George's include secondary
 5 to any resuscitation process. Can you help us as to how
 6 the cell tryptase may be elevated because of attempted
 7 resuscitation?
 8 **A. No, I can't. Simply because I am not an immunologist**
 9 **and I think that is out of my area of expertise.**
 10 Q. They also say or associated with a non-immune mechanism,
 11 for example direct mast cell activation or complement
 12 activation, what does that mean?
 13 **A. This starts to get very complicated, the complement**
 14 **system in the blood is something I dealt with many years**
 15 **ago but have completely forgotten what it is all about**
 16 **at this stage.**
 17 Q. Okay.
 18 **A. It is all to do with the immunological mechanisms and**
 19 **the whole point of this is you need time for these**
 20 **things to develop. So once you are dying or dead, red**
 21 **blood cells will degrade, white cells will degrade, mass**
 22 **cells will lose their granules. So that slightly higher**
 23 **level can be put down to post mortem effect or**
 24 **peri mortem effect.**
 25 Q. Is the long and short of it that you were given a range

Page 40

1 of reasons by the experts at St George's as 1a result of
 2 their immunopathology analysis?
 3 **A. Yes.**
 4 Q. And you were satisfied that the elevated result was
 5 unlikely to be associated with a hypersensitivity
 6 reaction caused by CS?
 7 **A. That's right, and of course we didn't find anything in**
 8 **the glottis, which is the voice box, so if that was**
 9 **swollen, if there was a lot of oedema, soft tissue**
 10 **swelling of the vocal cords and the entrance to the**
 11 **glottis and it was reddened and inflamed then you might**
 12 **well be thinking of an anaphylactic type reaction, but**
 13 **again I don't believe you would get that kind of**
 14 **response within a matter of seconds.**
 15 Q. As an overall conclusion, would you agree with this,
 16 that the post mortem cell tryptase level does not prove
 17 one way or the other whether Mr Grainger was shot prior
 18 to the delivery of CS or after it?
 19 **A. Absolutely, it doesn't take us any further.**
 20 Q. I think you subsequently met with your colleague,
 21 Dr Lawler -- who sits in court -- on the 14th?
 22 **A. Yes.**
 23 Q. He conducted a second post mortem examination at the
 24 request of the coroner Mr Rheinberg; is that right?
 25 **A. Yes, that's right.**

Page 41

1 Q. Did you discuss your findings?
 2 **A. Yes, we would have gone through my findings and I think**
 3 **there was a representative of the IPCC present at the**
 4 **time.**
 5 Q. Yes.
 6 **A. I don't think there was anyone from Cheshire Police**
 7 **present, because I think the IPCC had taken over the**
 8 **investigation completely.**
 9 **It was a Jude Lee from the IPCC who was there, so**
 10 **Dr Lawler would have seen my autopsy report, certainly**
 11 **my provisional one, photographs, et cetera.**
 12 Q. Did you observe his second post mortem examination?
 13 **A. Yes, I did.**
 14 Q. Did you discuss the findings of each of you together?
 15 **A. Yes.**
 16 Q. Was there any disagreement between you?
 17 **A. Not as far as I am aware, no.**
 18 Q. For those reasons, is that why you give the cause of
 19 death as, 1A, shock and haemorrhage due to, 1B, gunshot
 20 wound to chest penetrating both lungs and pulmonary
 21 trunk?
 22 **A. Yes.**
 23 MR BEER: Thank you, if you wait there there may be some
 24 other questions?
 25 THE CHAIRMAN: Are there any questions?

Page 42

1 Yes, Mr Straw.
 2 Questions from MR STRAW
 3 MR STRAW: Dr Rodgers, you have told us that in general
 4 terms someone with this gunshot injury would be expected
 5 to lose consciousness very, very quickly.
 6 **A. Yes.**
 7 Q. Looking at this specific case, is there anything in the
 8 pathology evidence that tells us in fact whether
 9 Anthony Grainger did move after he was shot?
 10 **A. No, so I can't tell. I must make it clear that it is**
 11 **very individualistic, so if there was evidence presented**
 12 **to me that Anthony Grainger appeared dead immediately**
 13 **after that gunshot wound, then I would accept that. If**
 14 **there was some evidence to suggest there was some**
 15 **movement, then that would equally be acceptable, so you**
 16 **cannot just rely on the pathological findings but the**
 17 **likelihood is he would have been losing consciousness**
 18 **immediately after that bullet entered his chest and he**
 19 **wouldn't be capable of a great deal, I wouldn't have**
 20 **thought.**
 21 Q. Sorry, I should have said I represent the family of
 22 Mr Grainger.
 23 **A. Yes, sure.**
 24 Q. So to determine whether Mr Grainger in fact moved after
 25 he had been shot, we would have to look elsewhere to the

Page 43

1 eyewitness evidence?
 2 **A. The pathology doesn't help you in that area, no.**
 3 Q. The final question, is it right that Mr Grainger had
 4 a red abrasion injury 0.5 centimetres across to the
 5 right upper forehead?
 6 **A. Yes.**
 7 Q. Is there any explanation from a pathological point of
 8 view as to the cause of that?
 9 **A. I mean, there are, as I said, some minor injuries here**
 10 **and there. Some to the face I put down to probably**
 11 **resuscitation.**
 12 **The forehead injury, it is difficult to say. It was**
 13 **fresh. It looked fresh. It could have occurred at the**
 14 **time of the incident. It could have occurred, perhaps,**
 15 **although it didn't look classically like glass fragments**
 16 **but it may be related, certainly not related to the**
 17 **bullet at all. Is it possible that Mr Grainger's head**
 18 **just hit something in the vehicle? I think he was the**
 19 **driver, wasn't he, so did his head just hit the steering**
 20 **wheel after he was shot, it is possible. Or did this**
 21 **injury occur a little bit before this fatal incident?**
 22 **I wouldn't be able to tell you whether it occurred**
 23 **within a few hours or so, it could have occurred from**
 24 **something else that happened.**
 25 MR STRAW: Thank you very much.

Page 44

<p>1 Questions from MR WEATHERBY 2 MR WEATHERBY: I represent Mr Grainger's partner, I just 3 have two areas just of clarification. Can I pick up the 4 point that you have been asked about in terms of the 5 capability of Mr Grainger after being shot. 6 Is the position really that that is a question which 7 is rather beyond pathology? 8 A. Well, yes, we always try and answer that. 9 Q. Of course. 10 A. There are certain instances where, for example, I have 11 seen someone walk a considerable distance with a bullet 12 in the right ventricle of the heart, but everybody is 13 different. 14 Q. Yes. 15 A. I think Dr Lawler was actually involved in that case. 16 Q. Yes, I think I might have been too. 17 A. Essentially the pathology doesn't -- you know, I can't 18 tell. Mr Grainger may have just been totally 19 incapacitated and not moving at all and dying once that 20 shot hit him. 21 Q. Or alternatively -- 22 A. Alternatively there may be a bit of movement. 23 Q. With that in mind in fact, having given your first 24 report, the IPCC came back to you, didn't they, and they 25 wanted --</p> <p style="text-align: center;">Page 45</p>	<p>1 that is possible? 2 A. That is possible, yes. 3 Q. The other point is about angles and axes that I wanted 4 to just clarify with you. 5 You have given us two angles, 45 degrees and between 6 10 and 20 degrees? 7 A. Hmm. 8 Q. Can I just clarify with you, those are angles from the 9 standing up straight position? 10 A. Yes, so in this position, standing up, facing, so if the 11 bullet goes in here, the angle is 10 to 20 degrees 12 downwards and 45 degrees backwards. 13 Q. That is what I wanted to clarify with you. The 10 to 14 20 degrees is the Y axis, the vertical axis? 15 A. I have forgotten which is the X and Y axis is the X the 16 horizontal -- 17 THE CHAIRMAN: Perhaps we could use "vertical" and 18 "horizontal". 19 MR WEATHERBY: Absolutely, it is my fault, not yours. So 10 20 to 20 degrees on the vertical, so effectively the bullet 21 entered at one point and it went downwards in the body 22 very slightly 10 to 20 degrees. 23 A. It is 10 to 20 degrees downwards from the horizontal. 24 THE CHAIRMAN: Yes. 25 A. And backwards 45 degrees.</p> <p style="text-align: center;">Page 47</p>
<p>1 A. Yes, I think they wanted further clarification. 2 Q. They wanted clarification and they put the accounts from 3 two police officers to you, yes? 4 A. They may have done. I can't -- 5 Q. It is in your second report of 17 September 2012. They 6 put a scenario, of course it is up to the chair to 7 determine ultimately what the facts in this case were 8 but the IPCC were putting a scenario to you and asking 9 you effectively whether from a pathological viewpoint 10 there was anything that you could say couldn't have 11 happened, putting it shortly. Your conclusion was in 12 line with what you have told us today, which was that it 13 was possible what was being put before you as 14 a scenario? 15 A. Yes. 16 I mean basically I can make the pathology fit any 17 scenario that is put to me, if -- you know, if there is 18 evidence that there was movement then it would fit with 19 that, if there was evidence there was no movement or 20 anything at all then it would fit with that. The 21 pathology doesn't tell you exactly what happened. 22 Q. The bottom line is, if there is witness evidence to say 23 that Mr Grainger was capable of reacting to a command, 24 shortly after being shot, within maybe 10 seconds, 15 25 seconds of that, then, pathologically, you would say</p> <p style="text-align: center;">Page 46</p>	<p>1 MR WEATHERBY: By backwards, you mean across the body? 2 A. Yes, so it is going in here and it would have come out 3 here, so it is roughly going obliquely through the body. 4 Q. Yes. 5 A. But that is obviously standing up. 6 Q. That is the standing square on? 7 A. Yes. 8 Q. You were told, again you have recounted it in your 9 report, the view of Mr Botha about the position of 10 Mr Grainger -- 11 A. Hmm. 12 Q. -- when he was shot? 13 A. Hmm. 14 Q. Would I be right that you have simply recounted that 15 view -- 16 A. Yes. 17 Q. -- and from a pathological point of view you couldn't 18 say what position he was in? 19 A. No. 20 Q. Mr Botha, for your clarity, Mr Botha said that in his 21 opinion Mr Grainger was turned slightly to the right -- 22 A. Yes. 23 Q. -- and slightly leaning forward? 24 A. Yes. 25 Q. There is nothing pathologically that would gainsay that?</p> <p style="text-align: center;">Page 48</p>

1 **A. No, and that would fit with that passage, that**
 2 **trajectory.**
 3 **MR WEATHERBY: Thank you very much.**
 4 MR DAVIES: Mr Weatherby has asked all my questions, thank
 5 you.
 6 MR EVANS: Likewise, sir, thank you.
 7 THE CHAIRMAN: Anything else, Mr Beer?
 8 MR BEER: No, thank you, sir.
 9 THE CHAIRMAN: Thank you, Dr Rodgers. Thank you very much
 10 for assisting the Inquiry. That is the end of your
 11 evidence.
 12 MR BEER: Sir, very briefly then, Dr Lawler.
 13 DR WILLIAM LAWLER (sworn)
 14 THE CHAIRMAN: Thank you.
 15 Questions from MR BEER
 16 MR BEER: Could you take open the bundle, please, Dr Lawler.
 17 At tab 3 you should see a copy of a report that you
 18 wrote on 19 March 2012.
 19 **A. Yes, that's correct.**
 20 Q. Are the contents of that true to the best of your
 21 knowledge and belief?
 22 **A. Yes, they are.**
 23 Q. Can you tell the chairman, please, briefly your
 24 qualifications?
 25 **A. Yes, I have the same or similar basic medical**

Page 49

1 **qualifications as Dr Rodgers. I also have a doctorate**
 2 **in medicine by thesis, I'm a fellow of the Royal College**
 3 **of Pathologists by examination, and a member of the**
 4 **Faculty of Forensic and Legal Medicine by invitation.**
 5 Q. Did you conduct a second post mortem examination on
 6 behalf of the coroner for Cheshire, Mr Rheinberg, on
 7 14 March at the Royal Liverpool?
 8 **A. I did, sir, yes.**
 9 Q. Was Dr Rodgers present?
 10 **A. He was indeed.**
 11 Q. Were your conclusions, I am looking at page 5 of 7 of
 12 your report, here --
 13 **A. Yes.**
 14 Q. -- that you had no doubts that Mr Grainger died from the
 15 effects of the gunshot wound, yes?
 16 **A. Yes, indeed.**
 17 Q. Which went into the left side of his chest, transfixing
 18 his pulmonary trunk and terminated within his right
 19 lung?
 20 **A. Indeed.**
 21 Q. The cause of death was predominantly internal
 22 haemorrhaging?
 23 **A. That's right.**
 24 Q. You say you understand that the bullet responsible for
 25 Mr Grainger's death had passed through the windscreen of

Page 50

1 the car which he was driving, and that you thought the
 2 irregular and jagged appearances of the wounds in the
 3 skin and the pulmonary trunk would support this
 4 involvement of an intermediary target?
 5 **A. Yes, that's right.**
 6 Q. Just explain that a little bit more.
 7 **A. I think the point is what Dr Rodgers said. Had there**
 8 **not been the intermediate target, I think that they**
 9 **would have been even cleaner and even rounder than they**
 10 **were. It is a matter of judgment if you have seen**
 11 **a fair number of these, it just seemed a bit irregular,**
 12 **more than I would have expected had it not been for the**
 13 **involvement of the intermediate target.**
 14 Q. You said that the other recent injuries seen on external
 15 examination were minor and trivial and that they could
 16 have occurred as Mr Grainger was removed from the
 17 vehicle which he was driving?
 18 **A. Yes.**
 19 Q. Or could have occurred before the incident during which
 20 he had been shot, and therefore unconnected?
 21 **A. Yes.**
 22 Q. Yes?
 23 **A. Yes, indeed.**
 24 Q. As to the balance of the opinions that Dr Rodgers has
 25 given, do you agree with them?

Page 51

1 **A. Yes. I think I can say that I haven't heard anything**
 2 **from Dr Rodgers this morning with which I disagree.**
 3 Q. You gave the cause of death, I am looking at the top of
 4 page 5, as gunshot wound into the chest?
 5 **A. Yes, I tend to go for brevity but the essence is exactly**
 6 **the same.**
 7 Q. You don't disagree with the addition of a conclusion 1B,
 8 "Gunshot wound to chest penetrating both lungs and
 9 pulmonary trunk"?
 10 **A. No, not at all.**
 11 Q. It is a matter of style?
 12 **A. Indeed. Yes. Purely personal preference.**
 13 MR BEER: Thank you, sir.
 14 **A. Thank you.**
 15 MR BEER: Sir, those are the only questions I ask.
 16 THE CHAIRMAN: Anybody?
 17 Thank you very much, thank you for helping the
 18 Inquiry. That is the end of your evidence.
 19 **A. Thank you.**
 20 MR BEER: Dr Seaman, please.
 21 Sir, you will need bundle Q, please.
 22 THE CHAIRMAN: Thank you.
 23 I have P, R, S, T, U -- it is a small black folder,
 24 is it?
 25 Someone has kindly put it here for me, I do

Page 52

<p>1 apologise.</p> <p>2 DR PHILIP SEAMAN (sworn)</p> <p>3 THE CHAIRMAN: Thank you, Dr Seaman. Would you like to sit</p> <p>4 down?</p> <p>5 A. I am all right standing, thank you, sir.</p> <p>6 Questions from MR BEER</p> <p>7 MR BEER: Dr Seaman, my name is Jason Beer and I ask</p> <p>8 questions on behalf of the Inquiry.</p> <p>9 Can you open up the black ring binder in front of</p> <p>10 you there, please. At page 42 to begin with, please.</p> <p>11 Do you see there, between pages 42 and 63, a copy of</p> <p>12 a report that you wrote for the Inquiry, dated</p> <p>13 12 October 2016?</p> <p>14 A. Yes, that is the first of two reports, yes.</p> <p>15 Q. Yes. Then following it, do you see between pages 64 and</p> <p>16 75 the second report that you kindly wrote for the</p> <p>17 Inquiry, dated 18 November 2016?</p> <p>18 A. Yes, I do.</p> <p>19 Q. Thank you. Are the contents of both of those reports</p> <p>20 true to the best of your knowledge and belief?</p> <p>21 A. Yes.</p> <p>22 Q. Can you start, please, with your qualifications. Can</p> <p>23 you tell the chairman what your qualifications are,</p> <p>24 please?</p> <p>25 A. I hold a bachelors honours degree in applied biology,</p> <p style="text-align: center;">Page 53</p>	<p>1 Services Limited?</p> <p>2 A. Yes.</p> <p>3 Q. I think you received a letter of instruction from the</p> <p>4 Inquiry, which in summary -- core participants have</p> <p>5 it -- asked you to examine the physical evidence that</p> <p>6 was available in order to investigate the incident and</p> <p>7 give expert evidence as to, firstly, the trajectory of</p> <p>8 the a bullet that had been fired.</p> <p>9 Secondly, the relative positions of an officer known</p> <p>10 as Q9 and Mr Grainger.</p> <p>11 Thirdly, the sequence of events.</p> <p>12 Does that fairly summarise --</p> <p>13 A. It does, yes.</p> <p>14 Q. I think you were assisted in the provision of your</p> <p>15 expert opinion by some other experts at KFS; is that</p> <p>16 right?</p> <p>17 A. That's correct, we work as a small compact team and</p> <p>18 a lot of our work is quality assured by colleagues, some</p> <p>19 aspects of the test require two people's involvement or</p> <p>20 more.</p> <p>21 Q. At page 63 --</p> <p>22 A. Yes.</p> <p>23 Q. -- of your first report, in appendix B you list those</p> <p>24 people that have contributed to the case at KFS and</p> <p>25 their areas of expertise. Is that right?</p> <p style="text-align: center;">Page 55</p>
<p>1 a master of science degree in forensic science and</p> <p>2 a doctor of philosophy. I am also a member of the Royal</p> <p>3 Society of Biology formerly Institute of Biology, and</p> <p>4 I am a chartered biologist.</p> <p>5 THE CHAIRMAN: I can hear you all right.</p> <p>6 Can everybody else? Fine. Some difficulty?</p> <p>7 You are quite quietly spoken, Dr Seaman.</p> <p>8 A. Sorry, I shall speak up.</p> <p>9 THE CHAIRMAN: I am not having any trouble, but I think one</p> <p>10 or two people at the back may be.</p> <p>11 MR BEER: The microphones incidentally do not amplify, they</p> <p>12 just record.</p> <p>13 A. Okay.</p> <p>14 Q. As to your experience, please, I think you have been</p> <p>15 a forensic scientist since 1985. Is that right?</p> <p>16 A. That's correct, yes.</p> <p>17 Q. What is your specialism?</p> <p>18 A. I am both qualified in the matters to do with biological</p> <p>19 evidence and have specialised in firearm related matters</p> <p>20 since 2003.</p> <p>21 Q. Since 2003 have you great experience in crime scene</p> <p>22 reconstruction, including following shooting incidents?</p> <p>23 A. Yes.</p> <p>24 Q. When you prepared your reports, and now, were you</p> <p>25 employed by the independent company Key Forensic</p> <p style="text-align: center;">Page 54</p>	<p>1 A. Yes, either directly or through consultation. Yes.</p> <p>2 Q. If at any stage when you are giving your evidence you</p> <p>3 are unable to answer the question, because the basis of</p> <p>4 what you have said in the report is a matter more based</p> <p>5 on the contribution that one or more of those people has</p> <p>6 said than your own expertise, would you say so?</p> <p>7 A. Certainly for areas outside firearms, yes.</p> <p>8 Q. Thank you.</p> <p>9 Can I start then with an examination point by point</p> <p>10 of some of the physical evidence that was available to</p> <p>11 you. As a general starting point, you were looking at</p> <p>12 things about five years after the events that occurred?</p> <p>13 A. Yes, some years since the incident in fact.</p> <p>14 Q. To what extent did that hamper your investigations, in</p> <p>15 general terms?</p> <p>16 A. Well, a lot of it was documentary. In addition to that,</p> <p>17 the vehicle had physically deteriorated through storage</p> <p>18 and other causes presumably.</p> <p>19 Q. Can I start with the police firearm. I am on page 55 of</p> <p>20 the bundle here, if that helps.</p> <p>21 You examined an H&K MP5 9 millimetre self-loading</p> <p>22 carbine and magazine; is that right?</p> <p>23 A. Yes, the one allegedly used by officer Q9, yes.</p> <p>24 Q. They held the exhibits TM5 and TM5A, respectively?</p> <p>25 A. They did, yes.</p> <p style="text-align: center;">Page 56</p>

1 Q. Can you tell us what you found on your examination of
 2 the police firearm, as I am going to call it?
 3 **A. Well the magazine actually contained a number of**
 4 **bulleted cartridges, unfired. Those cartridges were of**
 5 **a type which are referred to as hollow point bullets,**
 6 **they are designed to predictably expand on impact and**
 7 **firing.**
 8 **The carbine itself was marked 847, I do not know the**
 9 **purpose of that number other than a property number, and**
 10 **it was fitted with a white light torch system, a green**
 11 **projecting laser system and also a specialised optical**
 12 **sight in which there is a red dot projected within the**
 13 **sight, but not beyond the gun for anybody else to see**
 14 **that red dot.**
 15 Q. Is that an Aimpoint micro T1 optical sight, which is
 16 a reticular sight --
 17 **A. It is.**
 18 Q. -- visible only to the person looking through the sight
 19 and not others?
 20 **A. That's correct.**
 21 Q. The green projecting laser, was that activated when
 22 pressure was applied to a pad at the foregrip?
 23 **A. Yes, and then it projects a green laser light forward.**
 24 Q. Was the white light push button operated?
 25 **A. It was, like any other torch.**

Page 57

1 Q. Can you tell us the sequence of operation of the
 2 carbine, please?
 3 **A. To load the cartridge or more cartridges in the magazine**
 4 **and insert that magazine loaded with cartridges on the**
 5 **underside of the gun. The bolt on the left side is**
 6 **retracted and on moving forward it draws a round into**
 7 **the chamber, turning the safety device off, on the side**
 8 **of the frame, it is ambidextrous safety catch, pulling**
 9 **the trigger results in the discharge.**
 10 Q. It is necessary, I think you say, to release and then
 11 repull the trigger to fire more than one shot?
 12 **A. Yes, a single shot.**
 13 Q. Was the MP5 tested?
 14 **A. Yes, it was in our range and subsequently used in tests**
 15 **and it was found to function quite normally.**
 16 Q. What do you mean by it was found to function normally?
 17 **A. All the respective catches and safety catches work. On**
 18 **pulling the trigger there is no defect, it cycles, as we**
 19 **say, and discharges bullets from the muzzle.**
 20 Q. Were tests conducted on the trigger pull?
 21 **A. Yes, they were. It is part of our standard mechanical**
 22 **tests and we estimate the amount of pressure that would**
 23 **have to be applied to the trigger to get it to fire and**
 24 **in this case it was around 8 pounds, or 3.6 kilograms,**
 25 **which is within the range expected of a gun of this**

Page 58

1 **type.**
 2 Q. Was the consistency of aim of the sighting systems
 3 tested?
 4 **A. Yes, it was.**
 5 Q. What were the results, please?
 6 **A. The point of impact, as it were, was assessed with**
 7 **respect to the red dot and the green laser systems up to**
 8 **a distance of about 4.5-metres.**
 9 **The carbine was fixed in a position and it was found**
 10 **that there was very consistent performance showing that**
 11 **the point of impact was slightly above the green laser**
 12 **position and slightly below the red dot view in the**
 13 **scope.**
 14 **You would see the red dot, green laser, and the**
 15 **impact point was somewhere in between. But very**
 16 **consistent.**
 17 Q. Did that mean that the sights were working consistently
 18 but giving different positions as to where in fact the
 19 bullet would impact?
 20 **A. Well, the sight and the laser are at different positions**
 21 **on the gun.**
 22 Q. Yes?
 23 **A. So because they are projected in a straight line or you**
 24 **view the red dot in a straight line, that isn't**
 25 **necessarily the point of impact of the bullet, either on**

Page 59

1 **the red point or the green point, but it is a guide to**
 2 **aim.**
 3 Q. The important point was the consistency of result?
 4 **A. Yes.**
 5 Q. Can I turn then to another set of physical objects that
 6 you examined. Mr Grainger's clothing, please. That is
 7 at page 49.
 8 I think you examined two items, respectively BR3 and
 9 BR8, which were a quilted jacket and a T-shirt?
 10 **A. Yes.**
 11 Q. Can you tell us what you found, please?
 12 **A. Well cuts were found through both garments and these**
 13 **were presumably made during medical intervention.**
 14 **A ragged perforating hole was found in the upper**
 15 **left front of the jacket in the vicinity of the gunshot**
 16 **wound location, taken from other information.**
 17 **This damage appeared to be consistent with the**
 18 **effect a 9 millimetre bullet would have made,**
 19 **particularly considering it would have passed through**
 20 **the windscreen. There was no, what we call, close range**
 21 **effects visible.**
 22 Q. What do you mean by those, please?
 23 **A. Close range effects can include things from soot**
 24 **staining, tattooing, and that is a term given to**
 25 **part-burnt propellant that strikes around the hole.**

Page 60

<p>1 Effectively there was no discolouration or markings, 2 just the actual damage to the fabric.</p> <p>3 The standard practice, debris would have been 4 recovered from these garments, including the pockets, 5 but none was tested further at that time.</p> <p>6 Visible soaked blood staining was found on the 7 jacket's inner surface at the damaged site, with diffuse 8 blood staining mixed with dirt across the back of the 9 jacket. A more concentrated area of blood was found on 10 the front left region.</p> <p>11 In my opinion the distribution of blood indicates 12 that the jacket has been worn over a bleeding injury and 13 that at some stage the outer surface had come into 14 contact with a source of wet blood.</p> <p>15 The T-shirt, again, had several areas of dilute 16 blood staining across the front and back of the garment, 17 with the most concentrated spot towards the lower right 18 front.</p> <p>19 I felt there was nothing in the form or distribution 20 of the blood staining to specifically indicate the 21 mechanism of transfer. The condition of this item, 22 including the intervention cuts, prevented reliable 23 assessment of any bullet damage. All the blood on those 24 garments hasn't been tested to this point.</p> <p>25 There was no obvious white deposits found on the</p> <p style="text-align: center;">Page 61</p>	<p>1 in photographs of the balaclava and clothing assumed to 2 be worn by Mr Totton, except possibly the gloves, RS6 3 and 7, but this is an assumption purely from 4 a photograph and I wouldn't know what that white 5 staining was on the items in the photograph.</p> <p>6 Q. In relation to each of Mr Grainger, Totton and Travers, 7 are you able to say whether they were in the vehicle or 8 not in the vehicle at the point at which the CSDC was 9 discharged, on the basis of the examination of the 10 clothes of Mr Grainger and the photographs of clothes of 11 Mr Travers and Mr Totton?</p> <p>12 A. I don't know how soon Mr Grainger may have been removed 13 from the car in relation to the canister being 14 introduced to the vehicle, and because I don't have any 15 scientific evidence to know what that white staining 16 was, if it is found to be the CS product, then if they 17 hadn't come into contact outside the car from such 18 a product, they could have been inside at the time the 19 gas was within the cabin, but I can't say because I have 20 not done any tests on that clothing.</p> <p>21 Q. Thank you.</p> <p>22 Can we move then to the vehicles. Did you, by 23 reference to in particular Andre Botha's notes and 24 photographs of the scene, estimate the respective 25 positions of the police Audi, which I am going to call</p> <p style="text-align: center;">Page 63</p>
<p>1 jacket, although there was some white staining apparent 2 on the T-shirt. Again, at that stage, this nature of 3 that staining wasn't investigated.</p> <p>4 Q. The absence of white deposits found on the jacket, were 5 you looking for those in the context of some knowledge 6 that a CSDC canister had been deployed into this 7 vehicle?</p> <p>8 A. Yes, consideration was given that there were white 9 deposits within the car, and so the garment was looked 10 for similar levels of white deposit. Of which none were 11 found.</p> <p>12 Q. Did you, moving on, also examine other clothing that was 13 attributed to Messrs Travers and Totton?</p> <p>14 A. No, but I was provided with photographs of those 15 garments.</p> <p>16 Q. Yes, I am so sorry, you looked at photographs, not the 17 exhibits?</p> <p>18 A. That's correct.</p> <p>19 Q. What did you see on the photographs?</p> <p>20 A. There were two individuals sitting on the ground at the 21 scene. These were presumed to be the other occupants of 22 the car, namely Mr Travers and Mr Totton, after the 23 incident. The photographs only indicated possible white 24 deposits on the hat and other clothing assumed to be 25 worn by Mr Travers. No such white deposits were visible</p> <p style="text-align: center;">Page 62</p>	<p>1 "the alpha vehicle", and the red Audi, which I am going 2 to call "the subject vehicle"?</p> <p>3 A. Yes.</p> <p>4 Q. I am at page, I think, 15 of the package as a whole, the 5 bundle as a whole.</p> <p>6 If you look at page 15, was this one of the 7 documents to which you had regard when -- which are 8 I think Mr Botha's scene notes -- giving your opinion 9 and when later conducting a reconstruction?</p> <p>10 A. Yes, I believe so. These form part of his original 11 notes but of course during the reconstruction we made 12 our own measurements. Certainly this was a guide, yes.</p> <p>13 Q. Yes. You say you made your own measurements, by 14 reference to what did you position your vehicles when 15 conducting the reconstruction?</p> <p>16 A. We had quite a few photographs taken at the time and it 17 was apparent from road markings, orientation of 18 shrubbery at this end bay and the position of this alpha 19 car relative to the subject car that one could be quite 20 confident that in the repositioning of the surrogate 21 cars during my tests we tried to obtain the same 22 position as best as possible.</p> <p>23 It cannot obviously be the exact position, but it is 24 as near as possible.</p> <p>25 The other consideration was that through the four</p> <p style="text-align: center;">Page 64</p>

1 years that passed before I saw the car, there had been
 2 various other tests and other things done to the
 3 interior of the subject car and again from photographs
 4 taken initially at the scene before location and/or in
 5 its initial stages, we repositioned seats, et cetera, as
 6 best as possible using specific features within the
 7 vehicle.
 8 Q. Thank you.
 9 Did you find any evidence of contact between the
 10 alpha vehicle and the subject vehicle?
 11 A. It was very close. I have never seen the police alpha
 12 vehicle, other than photographs of it.
 13 Q. Sorry you?
 14 A. I have never seen the police vehicle to examine.
 15 Q. Yes.
 16 A. Only the subject, the red -- Grainger's car.
 17 Q. Yes.
 18 A. From photographs, you could hardly put I think a piece
 19 of paper between the alpha police car and the front of
 20 Grainger's car. They are almost touching, from my
 21 recollection of the photographs.
 22 Q. Did you see any photographs of damage to the alpha
 23 vehicle?
 24 A. Not to my recollection, although there were several
 25 bundles to go through, which I haven't brought all those

Page 65

1 bundles with me. If I had have done, I wouldn't have
 2 taken any value or information from damage to the police
 3 vehicle.
 4 Q. I see.
 5 Did you examine the photographs of the wheels of the
 6 subject vehicle?
 7 A. Yes, I did.
 8 Q. Can you tell us, did you find damage to the front and
 9 rear nearside tyres?
 10 A. Yes, I did. Inasmuch that the shot fired into each of
 11 those wheels must have been at a very close oblique
 12 angle, because the exiting shot damaged the rim on which
 13 the tyre was fitted, so it wasn't a question of firing
 14 horizontal towards the car, you would have had to have
 15 been up very near to the car to fire downwards into the
 16 tyres.
 17 Q. Taking it in stages, was the sidewall damage consistent
 18 with a single shotgun discharge into each tyre?
 19 A. Yes, it was.
 20 Q. As you said, the angle was relatively steeply downwards,
 21 yes?
 22 A. Yes.
 23 Q. Did that suggest to you the shots were fired from very
 24 close to the car?
 25 A. Yes.

Page 66

1 Q. Yes?
 2 Did you examine the subject vehicle for white
 3 deposits?
 4 A. Yes. Visibly and with some additional testing.
 5 Q. What was the additional testing?
 6 A. The interior of the subject vehicle, when I saw it, was
 7 very much decayed and full of verdigris, mildew
 8 et cetera. Not of any particular colour, just general
 9 grey, but there was a pronounced area of white staining
 10 on the B pillar, that is the pillar where the seat belt
 11 gets secured on the nearside.
 12 A sample of that was taken and tested and found to
 13 be CS. I also noted from some of the glass in the
 14 footwell, emanating from the nearside front door window,
 15 some of it appeared discoloured. Now whether that be
 16 general dirt or possible residue, not knowing the
 17 surface at that time of the glass, whether it be the
 18 inner surface or outer surface, I tested a fragment for
 19 the discolouration but that proved not to be CS.
 20 Q. Did the nature of deposits found around the door frames
 21 imply to you that the front nearside door was closed
 22 when the material from the CSDC was deposited?
 23 A. Yes, there was nothing in that area of the frame that
 24 was protected with the door being closed. No, there was
 25 no staining.

Page 67

1 Q. But by contrast, may the rear nearside door have been
 2 partially open given the location of deposits found on
 3 an area of the door frame that was exposed?
 4 A. Yes, there was this slight residue, almost escaping
 5 between the frame of the car and the doorframe itself,
 6 whether that be a badly fitting doorframe or just
 7 slightly ajar, I can't say how far but allowing enough
 8 gas to escape between the gap.
 9 Q. Were there a lack of useful deposits on the offside
 10 doorframes, both front and rear, to prevent any
 11 assessment of whether the offside doors were open at the
 12 time of the deposit of the CSDC?
 13 A. Yes, there was nothing visible but I was aware of all
 14 the activity that has gone on with this car over the
 15 years.
 16 Q. Was the front passenger door's window frame relatively
 17 clear of white deposit?
 18 A. I think it was, yes.
 19 THE CHAIRMAN: I think you are looking at page 51, aren't
 20 you? Bottom of page 51.
 21 A. Yes.
 22 MR BEER: Yes, sir.
 23 A. Yes, the front passenger door window frame was
 24 relatively clear of any white deposit.
 25 Q. On the examination of the Audi, could you find anything

Page 68

1 to address the issue of whether the CSDC was deployed
 2 before or after the bullet had entered the front
 3 windscreen of the vehicle?
 4 **A. No, there was no scientific evidence to assist either**
 5 **way.**
 6 Q. You examined the Audi for blood; is that right?
 7 **A. Yes, very much limited to a visual search, yes.**
 8 Q. That came up with a negative result; is that right?
 9 **A. It did, yes.**
 10 Q. What was your assessment of the relevance of the absence
 11 of blood?
 12 **A. Well, again, because of the time interval, any blood**
 13 **there may have been either decayed, would have been**
 14 **removed or just not visibly detected, but equally so, in**
 15 **a wound of a single nature like this, blood can be lost,**
 16 **not necessarily extensively, if there is more internal**
 17 **bleeding than loss outwards and because the individual**
 18 **is wearing clothing as well, there is a small timeframe**
 19 **between that getting bloodstained and there being**
 20 **excess, if you like, to drip into the vehicle.**
 21 **If the casualty is taken out in such a manner that**
 22 **the wound is upwards or does not actually drag across**
 23 **the surface of anything, then that again would account**
 24 **for no contact or smeared staining.**
 25 Q. Can I turn then to the windows in the Audi. And start

Page 69

1 with the front passenger window. Did you find broken
 2 glass remaining within the top of the frame, yes?
 3 **A. Yes, but much less than was in the original photographs.**
 4 Q. Did that which remained still indicate to you that the
 5 window had been fully closed when it was broken?
 6 **A. Yes, wound up, because it was at the top section, yes.**
 7 Q. As to the windscreen, can you describe the windscreen
 8 and the bullet hole that you found within it, please?
 9 **A. Yes, there was perforating damage found through the**
 10 **front windscreen in the lower part of that screen,**
 11 **slightly off centre towards the nearside.**
 12 Q. Yes.
 13 **A. The height and windscreen location measurements for this**
 14 **damage were comparable to those taken in other notes**
 15 **previously recorded. The damage I thought was typical**
 16 **of that caused by the strike from a 9 millimetre bullet.**
 17 **The angle and relative dimensions of the damage**
 18 **provide information about the firing direction in**
 19 **relation to the windscreen itself. Small fragments of**
 20 **glass were visible on the top surface of the dashboard,**
 21 **consistent in appearance and location with originating**
 22 **from this particular damage. These fragments are**
 23 **distinguishable from the side window, which are pebbles**
 24 **of glass.**
 25 Q. Yes. Did you conduct firing tests, using similar

Page 70

1 windscreens from the Audi and the exhibit TM5?
 2 **A. Yes, similar windscreens were obtained and within the**
 3 **test firing range, tried to reorientate in such a way to**
 4 **reproduce the shot.**
 5 Q. Did you use both the carbine and the ammunition clip?
 6 **A. Yes, everything was tried to be tested like for like.**
 7 Q. What were the results of the test?
 8 **A. The tests were conducted to ensure that the bullet fired**
 9 **approached the windscreen at an angle similar to that**
 10 **suspected for the incident shot. The appearance of the**
 11 **test windscreen bullet damage was similar to the**
 12 **incident damage on the subject car.**
 13 **The appearance of the test fired bullet in fact was**
 14 **also similar to that recovered, BR27, from autopsy, in**
 15 **that it had mushroomed out, it had flattened as**
 16 **expected.**
 17 Q. Did you look at BR27, or pictures of BR27?
 18 **A. No, I have seen BR27, the bullet itself.**
 19 Q. You actually saw the slug itself?
 20 **A. Yes. The windscreen caused a slight downward deflection**
 21 **of the fired bullet, as might have been expected from**
 22 **this intermediary service.**
 23 Q. Just explain what you mean by that "as might have been
 24 expected"?
 25 **A. When a bullet passes through any intermediate object,**

Page 71

1 **there is the potential for its flightpath to be altered,**
 2 **and because of the nature of this windscreen, it was**
 3 **deflected downward, only a small amount, but no less**
 4 **deflected downwards.**
 5 Q. I think you had been moving now to the people rather
 6 than the objects concerned in this incident.
 7 You had been provided with information as to
 8 a description of dimensions of a position of the wound
 9 to Mr Grainger, is that right. I am looking at pages 47
 10 to 48 now.
 11 **A. Yes, I have read pathology reports and the notes of**
 12 **Mr Botha.**
 13 Q. We have heard evidence already that the gunshot wound
 14 was located 147 centimetres above the heel, ie if
 15 Mr Grainger was standing. 10 centimetres above the
 16 nipple and 10 centimetres left of the midline, yes?
 17 **A. Yes.**
 18 Q. You say that:
 19 "This was measured at 67 centimetres above the
 20 buttocks [ie in presumably a sitting position] but this
 21 figure was not helpful during bullet trajectory
 22 considerations."
 23 Why was that?
 24 **A. There was variability in terms of if this measurement is**
 25 **as I suspect, it was not clear in the notes but the**

Page 72

1 **weight of an individual can then compress the seat. If**
 2 **they are sitting in a particular way, you could be 2 or**
 3 **3 centimetres out. It is not that accurate, but it is**
 4 **a consideration for trying to do the reconstruction.**
 5 Q. Yes. The entry wound was described as oval and slightly
 6 irregular with dimensions 2 by 1.3 centimetres, with no
 7 soot or propellant tattooing, yes?
 8 **A. Yes.**
 9 Q. That was consistent with the bullet passing through the
 10 car windscreen first, and nothing to suggest a direct or
 11 very close range shot?
 12 **A. That's correct, as we found in the clothing as well.**
 13 Q. "The previous information from Dr Rodgers and Dr Lawler
 14 with Mr Botha indicated that the wound track indicated
 15 that the bullet had not hit bone, had travelled from
 16 left to right at a 45-degree angle with a downwards
 17 angle of 10 to 20 degrees."
 18 Yes?
 19 **A. Yes, that is the information I was provided with.**
 20 Q. And that damage to the pulmonary trunk led to bleeding
 21 and death?
 22 **A. So I understand, although I am not a medic.**
 23 Q. Yes, and you said that that information that you were
 24 provided appeared consistent with the notes and
 25 photographs that you had checked in relation to those

Page 73

1 issues?
 2 **A. Yes.**
 3 Q. Can we turn, please, to some of the conclusions that you
 4 were able to draw, starting with the firing location of
 5 Q9 and the position of Mr Grainger.
 6 **A. Yes, on page 56?**
 7 Q. Yes.
 8 Can you tell us the extent to which you can draw
 9 a conclusion on the basis of the evidence, firstly, that
 10 the shot was most likely discharged when Q9 was on the
 11 back seat of the alpha vehicle, firing through the open
 12 window of the offside passenger door?
 13 **A. Yes, the test results provide support for the reported**
 14 **locations of the firer, namely Q9 in the back of the**
 15 **alpha vehicle. Information around that position is**
 16 **a little bit unclear, apart from the right knee is**
 17 **resting on the squab of the rear seat and the left leg**
 18 **is -- somehow the foot is positioned in the footwell.**
 19 **There isn't any information to suggest where the head,**
 20 **shoulders and arms are relative to the open or downed**
 21 **rear nearside window.**
 22 **The red Audi and Mr Grainger's position in the**
 23 **driver's seat equally cannot be specific, but the**
 24 **position and posture of the victim when struck by**
 25 **a bullet as investigated considering its trajectory,**

Page 74

1 **then it would have been required that the victim was**
 2 **slightly forward, to allow the downward degree of angle,**
 3 **and also slightly twisted to the right, thereby**
 4 **accommodating the 45-degree right to left angle.**
 5 Q. You say on page 55 that:
 6 "Strictly speaking the physical evidence does not
 7 allow both of the above conclusions to be reached
 8 independently."
 9 **A. Yes.**
 10 Q. "Both of the above conclusions" I think are those that
 11 you set out on page 54 at numbers 1 and 2?
 12 **A. Yes.**
 13 Q. Yes. Ie conclusion 1 is:
 14 "Shot discharged by Q9 from the rear of the Audi
 15 through the open window of the offside passenger door."
 16 Conclusion 2:
 17 "Mr Grainger leaning slightly forward, turned
 18 slightly to his right."
 19 Why does the physical evidence not allow both of the
 20 conclusions to be reached independently?
 21 **A. It is based on an assumption that the firer's position**
 22 **is in that rear nearside. The angle, the downward**
 23 **deflection and the orientation of the casualty can be**
 24 **taken at least from the damage in the screen. I can't**
 25 **offer the exact position of the firer.**

Page 75

1 Q. You are saying to an extent they are interdependent
 2 conclusions?
 3 **A. Yes.**
 4 Q. An alteration of the position of Q9 may have an impact
 5 on the position of Mr Grainger at the point of impact of
 6 the bullet?
 7 **A. Yes, and I think that is demonstrated in the next report**
 8 **that offers some limitations.**
 9 Q. Yes. The conclusion that you reached here, in this
 10 first report, the sources of information that you drew
 11 upon, did they include the following.
 12 Firstly, the post mortem examination results?
 13 **A. Yes.**
 14 Q. Secondly, the examination of the scene?
 15 **A. Yes, Mr Botha, yes.**
 16 Q. Thirdly, your examination of the vehicle?
 17 **A. Yes.**
 18 Q. Fourthly, the relative positions of the vehicle as
 19 estimated by you from the photographs and scene notes?
 20 **A. Yes.**
 21 Q. Fifth, the window firing tests?
 22 **A. Yes.**
 23 Q. And, at this point, trajectory assessments?
 24 **A. Yes.**
 25 Q. Was there any other information that you took into

Page 76

<p>1 account in reaching those conclusions?</p> <p>2 A. There was obviously the consistency of the scope and the</p> <p>3 laser, although it showed very consistent results.</p> <p>4 Q. I think you were then asked by the Inquiry to conduct</p> <p>5 a reconstruction if possible, yes?</p> <p>6 A. Yes, the term "reconstruction" is used, I would like to</p> <p>7 say a physical illustration, really, because we can</p> <p>8 never totally reconstruct something because of the</p> <p>9 unknowns, but from the information available, then it</p> <p>10 will illustrate visually how the cars are positioned and</p> <p>11 possible events that took place.</p> <p>12 Q. In general terms, did the estimation that you have just</p> <p>13 described of the positions of the vehicle and the</p> <p>14 position of Q9 and Mr Grainger within them produce</p> <p>15 results that were consistent with those that you had</p> <p>16 reported in the first report?</p> <p>17 A. It did, yes. There is a slight proviso there from the</p> <p>18 position of the firer.</p> <p>19 Q. Explain the proviso, please.</p> <p>20 A. If the optical scope was used, and again this is</p> <p>21 unknown, I don't know the stature of Q9 but a colleague</p> <p>22 who took that role found that because of the head height</p> <p>23 position within the car over the rear seat, to actually</p> <p>24 take aim using the optical scope, the red dot, it meant</p> <p>25 that the barrel had a trajectory of about 5 degrees</p> <p style="text-align: center;">Page 77</p>	<p>1 much, however assuming they were deflated by the shotgun</p> <p>2 after the shot passed through the windscreen, in the</p> <p>3 reconstruction purposes that is to effectively make them</p> <p>4 the same height as when they were inflated.</p> <p>5 Q. I think we can see a photograph of that better, on</p> <p>6 page 67?</p> <p>7 A. Yes, that's correct.</p> <p>8 Q. You say on page 66:</p> <p>9 "The parking bay lines and adjacent hedge allow the</p> <p>10 original positions to be closely reproduced."</p> <p>11 You had a high level of confidence, is that right,</p> <p>12 in being able to reposition the vehicles accurately?</p> <p>13 A. That's correct, if one goes to the original photographs,</p> <p>14 you can see the bay line extension in front of</p> <p>15 Grainger's car, and it is still just about visible here,</p> <p>16 four years later. Equally the alignment of the alpha</p> <p>17 car, if one was to take the driver's door mirror, in</p> <p>18 line with a position to do with Grainger's car. So</p> <p>19 everything was tried to be reproduced as the original</p> <p>20 photographs, spatially anyway.</p> <p>21 Q. Over the page to page 67, the MP5, which was exhibit</p> <p>22 TM5, ie the actual weapon, was held by a person in the</p> <p>23 rear off seat of the alpha vehicle, yes, of the</p> <p>24 surrogate alpha vehicle, yes?</p> <p>25 A. Yes.</p> <p style="text-align: center;">Page 79</p>
<p>1 downward, whereas when the muzzle of the gun is outside</p> <p>2 the car, which means at least on or at the opening of</p> <p>3 the window, it allowed the gun to be moved such that you</p> <p>4 could get up to a 10-degree downward angle.</p> <p>5 Q. I see, let's take that in stages and look at the second</p> <p>6 report. If we start at page 66, which is page 3,</p> <p>7 internal pagination. Yours are not in colour?</p> <p>8 A. No, it is okay, I can recognise them.</p> <p>9 Q. You can see enough?</p> <p>10 A. It is fine.</p> <p>11 Q. This is a photograph of the attempt closely to</p> <p>12 reposition the vehicles in the manner in which they were</p> <p>13 positioned on 3 March, yes?</p> <p>14 A. It is. The alpha car is the one on the left, the silver</p> <p>15 car, that is in fact a lookalike, a surrogate vehicle.</p> <p>16 Q. A surrogate vehicle.</p> <p>17 A. Whereas the vehicle to the right, the red one, you will</p> <p>18 see it parked on a thick piece of wood, that is actually</p> <p>19 the subject, Mr Grainger's car.</p> <p>20 Q. It was positioned on a piece of wood because I think in</p> <p>21 the interim the tyres had deflated and you wished to</p> <p>22 account for the deflation in the tyres by effectively</p> <p>23 jacking the vehicle up to its correct height to allow</p> <p>24 for proper inflation of the tires?</p> <p>25 A. Yes, they were very low-profile tyres, so it didn't take</p> <p style="text-align: center;">Page 78</p>	<p>1 Q. With the window down, pointing the barrel towards the</p> <p>2 windscreen of the red Audi, yes?</p> <p>3 A. That's correct. That is a string coming out of the</p> <p>4 muzzle.</p> <p>5 Q. Yes. You say it was found that at the time that the</p> <p>6 reconstruction was taking place, the use of the firearm</p> <p>7 scope was restricted unless it was positioned outside of</p> <p>8 the vehicle?</p> <p>9 A. Yes, you can see on the picture on page 67 that if the</p> <p>10 firer tries to raise his head, he cannot because the</p> <p>11 roof lining, it is one of these that curves down, so</p> <p>12 there is very little leeway to manoeuvre that up and</p> <p>13 down. It can only be achieved at the opening really.</p> <p>14 Q. Over the page, to page 68, that shows I think the stooge</p> <p>15 in the outside firing position?</p> <p>16 A. Yes. The extreme outside for the purposes of this</p> <p>17 demonstration, yes.</p> <p>18 Q. Yes. You say in the report the test showed the scope</p> <p>19 could be positioned outside of the window with the</p> <p>20 firer's arm resting on the open window frame with his</p> <p>21 head just outside the window. It appeared to be more</p> <p>22 comfortable, yes?</p> <p>23 A. Yes.</p> <p>24 Q. According to the scene notes and the photographs taken</p> <p>25 together, the cartridge for the MP5 was found outside of</p> <p style="text-align: center;">Page 80</p>

1 the Audi on the ground midway between the front and rear
 2 doors, yes?
 3 **A. Yes.**
 4 Q. You say that:
 5 "Lab testing [I think that is done by KFS] resulted
 6 in ejection of the fired cartridge cases upwards and to
 7 right. Typically coming backwards, slightly rearwards
 8 of the muzzle."
 9 Is that right?
 10 **A. That's correct.**
 11 Q. That:
 12 "It appeared possible, based on limited testing,
 13 that the ejected cartridge might have landed within the
 14 alpha vehicle if the firearm's muzzle had not been
 15 protruding beyond the window frame."
 16 **A. Yes, there is always a possibility it could ricochet out**
 17 **of the open window, but one might expect a greater**
 18 **chance of it staying within the car, yes.**
 19 Q. You thereafter I think conducted during daylight and
 20 then at dusk, reconstructions, using my generic
 21 description --
 22 **A. Yes.**
 23 Q. -- of run throughs of the alpha vehicle arriving and
 24 filmed them both from within the subject vehicle and
 25 from within the alpha vehicle.

Page 81

1 **A. Yes.**
 2 Q. In both the "inside position", as you have described it,
 3 and in the "outside position", as you have described it?
 4 **A. Yes.**
 5 Q. We are going to show one of those in a little while. If
 6 you go over to page 70, you say:
 7 "The right to left incident angle to the windscreen
 8 was found to be consistent with that indicated by the
 9 shape of the windscreen damage and laboratory test
 10 results."
 11 What do you mean by that, please?
 12 **A. The damage in the subject vehicle was at an angle, and**
 13 **the test damage in screens fired at at the laboratory,**
 14 **gave very, very similar shapes, sizes and angle.**
 15 Q. Just explain that, I am not sure I have followed
 16 completely what you have said there?
 17 **A. Okay. As the bullet strikes the windscreen, which is**
 18 **itself at an angle, and it is coming in at an angle, the**
 19 **damage created forms if you like almost a relatively**
 20 **characteristic oval inner shape. That dictates the**
 21 **angle by way the missile strikes the windscreen.**
 22 **That damage, including the surface loss around,**
 23 **because it is a laminated screen, was almost duplicated**
 24 **exactly, almost, with the test screens firing under**
 25 **those set conditions as we discussed earlier.**

Page 82

1 Q. Thank you.
 2 Underneath the photograph at page 70 you say:
 3 "The effective trajectory elevation was then
 4 considered in relation to a person sitting in the
 5 driver's seat."
 6 Just explain what you found, please.
 7 **A. Yes, the tests were conducted initially with a dummy and**
 8 **then of a person of similar height to that recorded for**
 9 **Mr Grainger, which actually turned out to be myself.**
 10 **The autopsy report mentions where the bullet is, in**
 11 **terms of 10 above, 5 below and 10 in from the midline.**
 12 **When fired, the inside scenario, entering through**
 13 **the damage, then that impacted, as we see on page 71.**
 14 Q. Yes.
 15 **A. That is myself positioned in the seat in the normal way**
 16 **but the little dot you see there is a result of the**
 17 **green laser, there is a pre-marked area on the T-shirt,**
 18 **but of course garments do move up and down.**
 19 Q. Hmm.
 20 **A. But the order of the area of injury we said that the**
 21 **shot with downward deflection would strike in**
 22 **an appropriate area at least on the upper chest.**
 23 Q. Hmm.
 24 **A. But to get the downward trajectory of the missile to the**
 25 **body and carry on passing down that same angle, 10 to**

Page 83

1 **20 degrees, then it could not really be achieved from**
 2 **firing within the car because that line of string, if**
 3 **you like, is only 5 degrees.**
 4 Q. Yes.
 5 **A. We have explained that the sight outside allows more**
 6 **movement of the barrel to obtain that 10 degrees angle.**
 7 Q. Is that why you come to make the statement at the foot
 8 of page 70:
 9 "It was only possible to replicate the reported
 10 wound height during tests with the firer's head out of
 11 the window allowing a slightly steeper downward angle of
 12 firing, approximately 10 degrees from horizontal."
 13 **A. Yes, that's correct. The alternative to that is that**
 14 **the driver would have to be extremely leaning forward to**
 15 **compensate to make the 10- to 20-degree downward angle.**
 16 Q. You say that tests with the firer inside the car
 17 resulted in a predicted wound location higher than that
 18 reported at autopsy. Is that shown in the photograph --
 19 **A. Yes, it is.**
 20 Q. -- the difference between the mark on your T-shirt and
 21 the red mark of the green strobe?
 22 **A. Yes.**
 23 Q. Yes?
 24 **A. Is it a red mark? Mine is black and white.**
 25 Q. Yes, it is a red mark.

Page 84

<p>1 A. Yes, sorry, that is using our -- we have a red laser 2 system, I do apologise, for looking at trajectory in 3 a kit. So that red dot is nothing to do with red dot in 4 the optical scope, it is a piece of laboratory 5 equipment.</p> <p>6 Q. Yes. 7 You say in the middle of page 71: 8 "These assessments also indicated that for the 9 bullet to achieve the approximately 45 degrees left to 10 right angle in the body, which you took from the autopsy 11 report, a person in the driver's seat would have to turn 12 partly to his right towards the driver's door."</p> <p>13 A. Yes.</p> <p>14 Q. Can you just explain that, please?</p> <p>15 A. Yes, if I was sat facing here and the missile comes in 16 downwards, it might be at an angle of 20, 30, in order 17 to get the 45 degrees, by moving the torso, you can then 18 allow that angle to be created.</p> <p>19 If I just point out that we are talking about right 20 to lefts and left to rights. On page 71, the left to 21 right is the passage through the casualty --</p> <p>22 Q. Yes.</p> <p>23 A. -- whereas when we are outside the vehicle, facing the 24 subject car, we talk about right to left, from passenger 25 to driver's side.</p> <p style="text-align: center;">Page 85</p>	<p>1 A. Well the torchlight certainly could illuminate the 2 occupant of the red Audi. Being in that seated position 3 it produces an intense glare when looking forwards 4 through the windscreen.</p> <p>5 I think that effect can be noted in the video 6 footage, depending which one you are going to show, sir.</p> <p>7 Q. The intense glare, are you saying from the position that 8 Mr Grainger was in?</p> <p>9 A. Yes.</p> <p>10 Q. I wonder whether we could show that video clip, please. 11 I think this is what I am calling "Dusk video clip 12 2".</p> <p>13 It may take a little while for that to boot up. 14 Mr Seaman, there is a larger screen over your 15 shoulder there, or if more convenient one opposite?</p> <p>16 THE CHAIRMAN: Is there a problem with reflection of ceiling 17 lights, because we can turn those down? I can from 18 here, can you see --</p> <p>19 A. There is reflection, sir.</p> <p>20 THE CHAIRMAN: Shall we, Mrs Shaw, just turn those down? 21 Mrs Shaw knows the drill from previous cases. 22 I don't think they need to go right off, but just so 23 that they don't interfere, it is the ones at the back 24 that are interfering from my point of view.</p> <p>25 MR BEER: Mrs Curran, the Clickshare doesn't appear to be</p> <p style="text-align: center;">Page 87</p>
<p>1 Q. The second indication you gave was that the assessment 2 showed that for the bullet to achieve the approximately 3 10 to 20 degrees downwards angle in the body, a person 4 in the driver's seat may have to lean slightly forwards. 5 The extent of this would be less if the firing 6 trajectory was more steeply downwards, ie if the firer's 7 head had been out of the window, which you have 8 explained already, I think?</p> <p>9 A. Yes.</p> <p>10 Q. As an overall conclusion you say: 11 "It appears that a twisting of the body by a person 12 in the red Audi driver's seat, with the left shoulder 13 slightly forwards, could achieve the above conditions." 14 Is that right?</p> <p>15 A. It is, and we are not talking about gross repositioning, 16 we are talking about that sort of action, really. 17 (Indicates)</p> <p>18 Q. Just demonstrate that again whilst the chairman looks.</p> <p>19 A. Just that sort of action, sir. (Indicates) 20 You don't have to do that, but just a ...</p> <p>21 Q. I think you also conducted an examination of the effects 22 of the illumination of the MP5's white torch; is that 23 right?</p> <p>24 A. It is, yes.</p> <p>25 Q. At dusk, what did you see?</p> <p style="text-align: center;">Page 86</p>	<p>1 working. (Pause) 2 (Video footage was played to the Inquiry) 3 MR BEER: If that could be played again, please. 4 (Video footage was played to the Inquiry) 5 MR BEER: Thank you very much. 6 There were a large number of video clips, I am not 7 going to show them all for a variety of reasons.</p> <p>8 A. I think the recording of it in some way just lessens the 9 glare, but I think you can see there that you do get 10 this glare effect. This was reproduced around about 11 6.30 at night, just as dusk was falling and I do gather 12 the incident was a lot later than that, possibly in more 13 darkness, so who knows what effect and glare effect 14 there would have been from a bright light in darker 15 surroundings. Yes, there was the glare effect on the 16 screen.</p> <p>17 THE CHAIRMAN: What was the date of the test? 18 MR BEER: It was in November. 19 A. Mid/late November, sir.</p> <p>20 THE CHAIRMAN: Yes. When it gets darker earlier? 21 A. Yes, we were limited to that, to at least try to get it 22 in dusk conditions.</p> <p>23 THE CHAIRMAN: Yes. 24 MR BEER: I can't see a date, your report is dated 25 18 November.</p> <p style="text-align: center;">Page 88</p>

1 **A. Yes, in fact it would have been the week leading up to**
 2 **that, because there were time pressures to get this**
 3 **second report out.**
 4 Q. Yes.
 5 **A. I have the dates deep in another file, because there was**
 6 **an agreement with the Cheshire Police, et cetera, for**
 7 **the area.**
 8 Q. Overall, was the work that you did at the scene
 9 consistent with the results reported in your first
 10 report?
 11 **A. Yes, it was.**
 12 Q. Taken together with the list of sources that we went
 13 through earlier, does the scientific evidence provide
 14 support for the firer's head being just outside the
 15 window, rather than inside, if he was using the scope to
 16 aim?
 17 **A. Yes, I think the tests do support that but of course it**
 18 **isn't conclusive in terms of the position of the**
 19 **firearm.**
 20 THE CHAIRMAN: We heard evidence from Q9 as to --
 21 MR BEER: Yes.
 22 THE CHAIRMAN: Yes.
 23 MR BEER: Secondly, Mr Grainger being turned partly to his
 24 right and possibly leaning slightly forwards when the
 25 shot was fired.

Page 89

1 **A. Yes.**
 2 Q. You say that the firearm's illuminating torch could have
 3 produced considerable white light glare to the occupants
 4 of the Audi, particularly in dusk conditions?
 5 **A. That was my experience, yes.**
 6 MR BEER: Yes, thank you very much.
 7 If you wait there, there may be some more questions.
 8 MR THOMAS: Sir, just a few questions if I may.
 9 Questions from MR THOMAS
 10 MR THOMAS: Dr Seaman, may I introduce myself, my name is
 11 Mr Thomas and I am representing Mr Grainger's family.
 12 Can I just ask you just a few questions in relation
 13 to the first topic, which is the white powdery deposit
 14 from the CS canister. It is right, isn't it, that in
 15 your report, can you just confirm that there was no
 16 obvious white deposits found on Mr Grainger's jacket?
 17 **A. No, there was nothing visible.**
 18 Q. No?
 19 **A. I don't know the history of how it has been stored**
 20 **et cetera, but I didn't see anything.**
 21 Q. No.
 22 Similarly, from the photographs at least, no
 23 deposits could be seen on Mr Totton's?
 24 **A. I think I reported that. I do not have those**
 25 **photographs to hand to confirm with you.**

Page 90

1 Q. I am not asking you to turn the photographs up, unless
 2 you really need to see them.
 3 **A. No, I would accept that if there is nothing white**
 4 **visible in those images then there isn't anything, no.**
 5 Q. Is this canister something that you are familiar with?
 6 **A. No, it is not. I have to say that we don't see such**
 7 **canisters on a regular basis. We see the commercial**
 8 **products that the lay person in the street might buy,**
 9 **but not a canister of this type.**
 10 Q. Is it possible, because of your unfamiliarity with this
 11 particular product, that there may initially have been
 12 white deposits on Mr Totton but not visible by the time
 13 the photographs were taken. Are you able to assist on
 14 that?
 15 **A. I am not, other than general forensic principles in that**
 16 **if the initial contamination was such that subsequent**
 17 **activity could remove it, then that is a possibility.**
 18 Q. We do know that Mr Totton was, some time after this
 19 incident, was on the ground, there was wet grass around,
 20 he was handcuffed, faced to the rear and spent some time
 21 on the ground, in wet conditions.
 22 **A. Yes. As I say, if there was minimal contamination to**
 23 **start with, such contact with moisture and the ground**
 24 **may have removed it.**
 25 Q. Can you turn to bundle, I think it is O1, sir, and it is

Page 91

1 page 298.
 2 **A. Yes.**
 3 THE CHAIRMAN: Hang on.
 4 Yes.
 5 MR THOMAS: Just a couple of things. Firstly, if we
 6 concentrate on the driver's side, yes.
 7 **A. Yes.**
 8 Q. We have heard evidence that the canister was deployed
 9 into the car at the time that Mr Grainger was in the
 10 car.
 11 **A. Hmm.**
 12 Q. There doesn't appear to be any dispute about that. We
 13 have also heard evidence that the way that this canister
 14 works is that once it is deployed, the deposit, the
 15 powder, disperses and fogs the cabin inside the vehicle,
 16 yes?
 17 I don't know if you have seen a reconstruction video
 18 of that.
 19 **A. No, I haven't. I don't know if this has one aperture**
 20 **for the gas to escape or multiple apertures, but I have**
 21 **not seen a video of such demonstration, no.**
 22 Q. Let me see if I can continue, if you need to see that
 23 demonstration, I am sure that can be arranged. Can
 24 I just ask you now to concentrate on the front passenger
 25 seat.

Page 92

1 Can you see the way that the powder is deposited on
 2 that front passenger seat. It is only partially on the
 3 seat, can you see that?
 4 **A. Yes, and very much to the nearside, yes.**
 5 Q. As if where there isn't powder deposited, somebody may
 6 have been sitting, in other words an outline?
 7 **A. Yes, we refer to that as a void where is no staining.**
 8 **Therefore it could suggest that there was a person**
 9 **partly occupying the seat, and the same for the driver's**
 10 **seat, occupying that.**
 11 Q. Yes. All right.
 12 Can I ask you to turn to another page, please, in
 13 the same bundle. Just bear with me a second, I am just
 14 calling it up on the computer. If we look at page 382.
 15 Sir, I hope it is in the same bundle.
 16 **A. It is, yes.**
 17 THE CHAIRMAN: Hang on, let me find it.
 18 Yes.
 19 MR THOMAS: Again, it is just another angle illustrating
 20 what I describe as the outline, yes?
 21 **A. Yes, I am not sure if this is a trick of the light but**
 22 **equally there is some whitish discolouration towards the**
 23 **roof line and back across the top of the roof.**
 24 Q. Yes. Yes. Okay.
 25 Still in the same bundle, again just bear with me

Page 93

1 while I call it up on the computer.
 2 Again, sir, for your records, pages 297 and 298.
 3 THE CHAIRMAN: We have looked at 298.
 4 MR THOMAS: Sorry, we started with 298, didn't we?
 5 **A. 297, yes?**
 6 Q. Yes, 297.
 7 All right.
 8 Sir, I am moving on to a new topic now. Can I ask
 9 you to turn to page 163 in the same bundle.
 10 THE CHAIRMAN: Could you give me that again, sorry?
 11 MR THOMAS: 163, same bundle.
 12 THE CHAIRMAN: It will be in the earlier file.
 13 MR THOMAS: In fact, if we start at 162, we should be
 14 looking at photos of the alpha car, yes?
 15 **A. Yes.**
 16 Q. Yes.
 17 Sir, are you there? Thank you, sir.
 18 Am I right, doctor, that you didn't actually examine
 19 the alpha vehicle itself? Is that correct, did I
 20 understand you?
 21 **A. That's correct, I never had an opportunity to look at**
 22 **that vehicle, no.**
 23 Q. Did you have an opportunity to look at these photos, or
 24 are these photos new to you?
 25 **A. I think some of these are new to me.**

Page 94

1 Q. Can I take you through a couple of these photos.
 2 I wasn't too sure if you had seen them. You can see --
 3 MR BEER: Certainly our records suggest that the doctor has
 4 seen all of these photographs.
 5 MR THOMAS: I am grateful.
 6 **A. I may have seen some but, as I said earlier, not taken**
 7 **any note of damage to this vehicle.**
 8 MR THOMAS: Don't worry, there are a lot of documents in
 9 this case and it may well be that the significance of
 10 some of them may not have been apparent. Can I take you
 11 through these.
 12 **A. Certainly.**
 13 Q. One of the issues in this case is whether or not there
 14 was any collision or contact between the police vehicle
 15 and the red Audi, do you follow? I know that when you
 16 tried to recreate the scene, I know it is not
 17 a "reconstruction", but I am using that term loosely.
 18 I think you said that you positioned the vehicles or
 19 you understood that vehicles were in a position that you
 20 couldn't fit a paper in between them?
 21 **A. Yes, from the pictures we see at the scene.**
 22 Q. From the pictures you see at the scene. In fact, can
 23 I show you these photos, so if we look at page 162, can
 24 you see the red arrows?
 25 **A. Yes, I can.**

Page 95

1 Q. Can you see the scuff marks, I am not sure if your
 2 photos are clear, they are certainly clear on the
 3 computer.
 4 **A. Certainly the right-hand one, the left one, no, but**
 5 **I can see a discolouration next to the right arrow.**
 6 Q. Look at photograph 163.
 7 **A. Okay.**
 8 Q. Yes?
 9 **A. Again, the right arrow of the top picture is yes. Not**
 10 **a lot to be gained from the bottom one, but that could**
 11 **be the quality of the picture.**
 12 Q. Okay, just bear with me a second.
 13 Those marks on the alpha vehicle would suggest,
 14 would they not, because they would be in a very similar
 15 position to where the two vehicles were aligned and were
 16 T-boned, would suggest contact, would they not?
 17 **A. I think that is all they do, it is a suggestion.**
 18 **I would prefer to measure the height from the ground,**
 19 **look for transfer both ways of traces of material but**
 20 **I think they are of appropriate position. I can't say**
 21 **definitely they are as a result of that contact but yes.**
 22 Q. Thank you.
 23 Can I move on to another topic, please. You can
 24 close that bundle, just for the time being.
 25 If we come on to the topic of the glare from the

Page 96

1 light on the MP5, you have described it as considerable
 2 white glare. If the police officer who had that weapon
 3 with that torch illuminated, with that considerable
 4 glare, when you did your -- again, using the term
 5 reconstruction, but you understand what I mean, it would
 6 be difficult, would it not, to see any police markings,
 7 say for instance the officer with that weapon had
 8 a police cap on and was behind that torch, it would be
 9 very difficult to see or recognise that individual if
 10 they had any distinguishing markings. Would you agree?
 11 **A. No, I couldn't say that. What I could say is that the**
 12 **initial light might affect the eyes. How much of the**
 13 **vision/view is obstructed, there may be around the**
 14 **periphery sufficient to see detail, I couldn't say.**
 15 Q. Okay. Just bear with me.
 16 Can I just take you to your report, just a couple of
 17 questions on your report, please.
 18 Just bear with me, yes, can you go to your, I think
 19 it is your second report, it is page 9 of 12, our
 20 page 72 in the bundle.
 21 **A. Yes.**
 22 Q. Did you say that was you sitting in the --
 23 **A. It is, yes.**
 24 Q. I am concentrating on the red Audi in the two
 25 photographs of you sitting in the driver's seat where

Page 97

1 Anthony Grainger was positioned. Just to be clear on
 2 this, from your reconstruction -- again, I am using that
 3 term loosely but you understand what I mean -- of
 4 Anthony's position, you are looking towards the driver's
 5 door with your shoulder off the seat, correct, so you
 6 are not sitting back in the seat, correct?
 7 **A. That's correct, it is almost a natural action as you**
 8 **turn to raise that shoulder in a way.**
 9 Q. Yes.
 10 What you have said, if I have understood your
 11 evidence correctly, when trying to reproduce these
 12 angles, it was not possible to reproduce these angles if
 13 you were sat square. So if you imagine yourself sat
 14 square in the driver's seat -- exactly as you have just
 15 demonstrated. Sat back in the seat, looking straight on
 16 to the windscreen. It wasn't possible to reproduce the
 17 trajectory of the entry and exit wounds from the post
 18 mortem reports; is that right?
 19 **A. That's right, you couldn't generate this 45-degree track**
 20 **through the torso because you would have to align it**
 21 **such to create that.**
 22 Q. Right. Just one other thing, on the same page, if you
 23 look at the photograph above, this is where you have the
 24 officer who is trying to reconstruct firing from the
 25 police alpha vehicle, yes?

Page 98

1 **A. Yes.**
 2 Q. Again, just by way of clarity, we have heard evidence
 3 from the shooter in this case that he was not outside
 4 the window, certainly not in the position that we see
 5 here, okay?
 6 **A. Okay.**
 7 Q. If we look at -- just bear with me, if you go to
 8 page 70, that is page 7 of 12.
 9 **A. Yes.**
 10 Q. Yes? It is my understanding of the shooter's evidence
 11 in this case, Q9's evidence, his position was more akin
 12 to what we see in that photograph.
 13 **A. Hmm.**
 14 Q. If I have that wrong I will be corrected on that, but
 15 that is my understanding of his evidence.
 16 Can I just ask you a couple of questions arising out
 17 of that --
 18 THE CHAIRMAN: I think he also said he didn't use the red
 19 dot.
 20 MR THOMAS: Yes, that's correct, sir, he did.
 21 Can I just ask you just one or two questions arising
 22 out of that. If you look at the photograph that I have
 23 just taken you to on page 70, that is page 7 of 12, do
 24 I understand your evidence correctly, right, that from
 25 that position, you couldn't recreate as it were the

Page 99

1 angles because the individual, in other words
 2 Mr Grainger, would have had to have been, and I am just
 3 quoting the words you just used just a moment ago with
 4 Mr Beer, "Extremely leaning forward", those were the
 5 three words you just used?
 6 **A. Okay, we have got a whole variety of issues here, now**
 7 **I know the red dot system was not used. This weapon**
 8 **also has some fixed iron sights and it may be that it**
 9 **was just -- I know he aimed towards the central body**
 10 **mass, was reported. That could be purely a visual thing**
 11 **on where he perceives the green laser to strike. So no**
 12 **sight system may have been used at all, it was green in**
 13 **the centre body mass, fire, with relatively no aiming as**
 14 **it were conventionally.**
 15 **If that is the circumstances, then not being**
 16 **confined to head height and eye position to the optic**
 17 **scope, going if you like freelance, just by moving the**
 18 **weapon in your arms and looking where the green light**
 19 **hits, you could achieve the 10 degree downwards from**
 20 **within the car.**
 21 Q. Okay.
 22 **A. My results were saying that if you are reliant on the**
 23 **red dot in the scope, you need the scope outside to get**
 24 **10 degrees or more downwards.**
 25 **If it is still just 5 degrees inside the car, for**

Page 100

<p>1 whatever reason, then the 10 to 20 can still be achieved</p> <p>2 but as you have just said, sir, it would mean</p> <p>3 Mr Grainger would have had to be excessively leaning</p> <p>4 forward. But on the circumstances and information now,</p> <p>5 which I didn't know before today, it is possible the</p> <p>6 shot was done from within the car but I have still not</p> <p>7 explained why the cartridge case is outside -- there</p> <p>8 could be several reasons for that.</p> <p>9 Q. You have touched upon the second thing. If the shot was</p> <p>10 taken from within the car in that position, the</p> <p>11 probability is -- I think this is what you are saying</p> <p>12 and correct me if I am putting words into your mouth</p> <p>13 that you don't agree with, the probability is, if that</p> <p>14 shot was taken within the car, you would have expected</p> <p>15 the cartridge case to be found within the car.</p> <p>16 I am not saying it cannot happen, but the</p> <p>17 probability is you would have expected the cartridge</p> <p>18 case to be found within the car?</p> <p>19 A. Based on some limited testing in the range as well, not</p> <p>20 specifically looking at ejection patterns, but a gun of</p> <p>21 this time it is known to eject up, out and backwards to</p> <p>22 the right. So if you are in the car, you have to</p> <p>23 explain how did that cartridge case get out into the</p> <p>24 street. Now, there are many ways to do this, it could</p> <p>25 be trapped in the tread of a shoe, it could equally</p> <p style="text-align: center;">Page 101</p>	<p>1 the officer is inside the car, okay, and the officer is</p> <p>2 not reliant on the scopes, yes?</p> <p>3 A. Yes.</p> <p>4 Q. To achieve that downward angle, would I be right in</p> <p>5 thinking that the officer in the car, even though you</p> <p>6 have the roof of the car, would be, as it were, looking</p> <p>7 down on Mr Grainger from across the car at an angle, as</p> <p>8 opposed to just purely straight on, or are you unable to</p> <p>9 say?</p> <p>10 A. I think I am unable to say. The actual what you see,</p> <p>11 doesn't make any difference whether you are inside or</p> <p>12 outside the car, we are just referring to the angle of</p> <p>13 the muzzle assisted by being outside for the greater</p> <p>14 downward angle. But no, the view the firer would see</p> <p>15 wouldn't be very much different.</p> <p>16 Q. All right.</p> <p>17 If we come to the two photographs below on the same</p> <p>18 page, this is where you are sitting?</p> <p>19 A. Yes.</p> <p>20 Q. We can see the steering wheel?</p> <p>21 A. Yes.</p> <p>22 Q. We can see a little bit of the dashboard and we can see</p> <p>23 your shoulders. How tall are you?</p> <p>24 A. About 3 centimetres taller than Mr Grainger, I think.</p> <p>25 I was the nearest fit as it were.</p> <p style="text-align: center;">Page 103</p>
<p>1 ricochet somehow and bounce off a headrest and back out</p> <p>2 the open window, but I think the expectation is you</p> <p>3 might be more in favour of it being in the car but it is</p> <p>4 not again certain.</p> <p>5 Q. Okay, well we work in terms of probabilities. Can I ask</p> <p>6 you this, and this is my final area.</p> <p>7 Again still on that report, can I ask you just to</p> <p>8 turn back to page 9 of 12, page 72. Where we have the</p> <p>9 three photographs, yes?</p> <p>10 A. Yes.</p> <p>11 Q. Can you just help the chairman with this. Can you see</p> <p>12 where you have the firearms officer in the silver Audi?</p> <p>13 A. Yes.</p> <p>14 Q. Right. Did you sit in that position? I know that we</p> <p>15 have you as Mr Grainger in the two photographs below,</p> <p>16 but did you have a look at the view from that position,</p> <p>17 so where the firearms officer is?</p> <p>18 A. I have to say no, I relied on the camera fitted to that</p> <p>19 officer role.</p> <p>20 Q. Okay.</p> <p>21 If we come to the two photographs below.</p> <p>22 A. Yes.</p> <p>23 Q. We can see -- sorry, there is a question before that, if</p> <p>24 you look at the officer in the car. On the assumption</p> <p>25 that the officer is not leaning out of the window but</p> <p style="text-align: center;">Page 102</p>	<p>1 Q. How tall are you?</p> <p>2 A. 175 centimetres.</p> <p>3 Q. Actually, you are five centimetres shorter than</p> <p>4 Mr Grainger, not -- Mr Grainger, certainly the evidence</p> <p>5 that we have heard, was 5 foot 11, 180 centimetres, that</p> <p>6 is the evidence we have heard this morning?</p> <p>7 A. Yes, I have to say that the height of the individual</p> <p>8 will never vary but the degree of compression in the</p> <p>9 driver's seat may, depending on his weight, can I am</p> <p>10 obviously --</p> <p>11 Q. That is a different question though, I am just asking</p> <p>12 your height.</p> <p>13 A. Yes, sorry. Well I am the nearest amongst the people --</p> <p>14 Q. In fact you are the nearest one, but you are</p> <p>15 5 centimetres shorter than Mr Grainger, because you were</p> <p>16 175 and he was 180.</p> <p>17 A. Yes.</p> <p>18 Q. All right.</p> <p>19 Just this, I am just looking at this bottom</p> <p>20 photograph, the two photographs at the bottom. I know</p> <p>21 it is very difficult to reconstruct this, but we can</p> <p>22 see -- well, let me ask you this question. Are you able</p> <p>23 to say just how visible or otherwise your upper torso</p> <p>24 would have been to the driver or are you just unable to</p> <p>25 help us with that?</p> <p style="text-align: center;">Page 104</p>

<p>1 A. I really couldn't say, because obviously the conditions 2 aren't anything similar to a nighttime situation. 3 I don't know what the officer would have seen above the 4 dashboard height. I can't say. 5 MR THOMAS: Sir, that is all I ask. 6 THE CHAIRMAN: Yes. 7 We have gone just past 1.00. 8 MR WEATHERBY: Yes, I won't be very long. I don't know 9 about those behind me. 10 THE CHAIRMAN: Perhaps I had better ask others, because if 11 there is going to be further questioning I think we 12 should take a break really. 13 Mr Davies? 14 MR DAVIES: Up to, but probably less than, 10 minutes. 15 THE CHAIRMAN: Mr Evans. 16 MR EVANS: Less than five minutes, but maybe in part 17 depending on what is covered ahead of me. 18 THE CHAIRMAN: I think we should take a break, is it going 19 to cause grave inconvenience to you if we do that, 20 Dr Seaman? 21 A. Not at all, sir. No. 22 THE CHAIRMAN: Thank you very much. We will take the break 23 at this stage, and resume at 2.10. 24 (1.06 pm) 25 (The Luncheon Adjournment)</p> <p style="text-align: center;">Page 105</p>	<p>1 Q. Sorry, page 9 of 22 of your first report. 2 A. Which is in your bundle, sir, or mine? 3 Q. Tab 1, I think? 4 A. I have 9 of 22, yes. 5 Q. Yes. You have looked at the photographs of the two 6 arrested men, Mr Travers and Mr Totton, and you have 7 made the distinction that there are possible, 8 effectively, possible CS deposits on Mr Travers's 9 clothing, but not on Mr Totton's clothing? 10 A. Yes, and I have assumed the ownership of those clothes. 11 Q. Indeed, yes, and you have correctly assumed, with the 12 caveat of the gloves, which I will come to in a moment. 13 With the rider that I started with, can I just put 14 this to you. Looking at those photographs, your 15 comment, your opinion, in your report it would be 16 consistent with Mr Travers having been in the car when 17 the CS gas was put into the car, and consistent with 18 Mr Totton not being in the car. Is that right? It 19 doesn't prove that, but it would be consistent with 20 that? 21 A. Yes, at least Mr Totton was removed from the environment 22 before Mr Travers was, ie being exposed to more or less. 23 Q. It would be weakly supportive -- 24 A. Yes, very weak. 25 Q. -- of Mr Totton not being in the car and Mr Travers</p> <p style="text-align: center;">Page 107</p>
<p>1 (2.14 pm) 2 THE CHAIRMAN: Yes, Mr Weatherby. 3 MR WEATHERBY: Thank you very much. 4 Questions from MR WEATHERBY 5 MR WEATHERBY: Dr Seaman, I represent Mr Grainger's partner 6 and I just have a few follow-on questions. 7 Firstly, you have been asked some questions about CS 8 gas and clothing -- 9 A. Yes. 10 Q. -- deposits. 11 A. Yes. 12 Q. They are rather unfair questions to you, aren't they, 13 because you came into the picture rather late? 14 A. In respect of looking at the items four years on, yes. 15 Q. It is difficult for you to answer these questions about 16 deposits on clothing, because really you are looking at 17 pictures, photographs, yes? 18 A. Apart from Mr Grainger's clothing itself, yes. 19 Q. Indeed, apart from Mr Grainger's clothing. I am not 20 going to ask you about that. 21 The photographs that you looked at from Mr Travers 22 and Mr Totton. I am referring to our page 50, which is 23 9 of 22 of your first report, yes? 24 A. Yes, sorry I was looking for 50 thinking they were in 25 the photographic bundle.</p> <p style="text-align: center;">Page 106</p>	<p>1 being in the car, or at least Mr Totton being removed 2 more quickly? 3 A. Yes, I couldn't say whether he was in the vehicle at the 4 time the canister was going off, but minimal time, 5 maybe. 6 Q. Yes. The caveat on the gloves is that there were simply 7 some marks on the gloves, which I am going to suggest 8 was consistent with mud or something else. 9 A. It could be anything, it was just a photograph I was 10 looking at. 11 Q. Thank you very much. 12 Sticking with the CS gas for a moment, can I ask you 13 to look in bundle O1, please, and at page 253. Do you 14 have that? 15 A. I have the bundle, it is red against a black background. 16 THE CHAIRMAN: What was the page reference, again? 17 MR WEATHERBY: 253. 18 A. Yes. 19 Q. Would you help -- I think it may be a different bundle 20 actually the other one I want to look at, looking at 21 your bundle. Do you have page 519, which I think you 22 were shown before, could you have a look at that as 23 well. 24 A. Yes. 25 Q. Yes. That's right, yes, sorry, it was the angle.</p> <p style="text-align: center;">Page 108</p>

<p>1 THE CHAIRMAN: I have it. 2 MR WEATHERBY: Yes. 3 I just want to look at those two together if I may, 4 I know it is little bit awkward. I am afraid I am going 5 to have to ask you to have a third hand, because I have 6 the first of those photographs expanded on a computer 7 screen. I have asked Mr Beer about what I am about to 8 do, so I hope it is okay. Just an expanded version of 9 the first photograph. 10 THE CHAIRMAN: The one from? 11 MR WEATHERBY: The one from a bit of distance. 12 THE CHAIRMAN: 253? 13 MR WEATHERBY: Yes. On that all we have done is we have 14 expanded the screen. The points I am going to put to 15 you are that from that it would appear that the CS 16 deposits are all over the outside of the car around the 17 B pillar and over the top of the car slightly, is that 18 right? 19 A. We certainly saw in another image the white traces 20 leading on to the roof. 21 Q. From that angle, it is a photograph taken from a little 22 distance, which is why I have expanded it for you, that 23 would appear to be CS deposits on the outside of the 24 B frame and onto the roof, yes? 25 A. Yes, I am not sure about the nearside doorframe, it has</p> <p style="text-align: center;">Page 109</p>	<p>1 A. Yes, I would agree it is the rear aspect of that frame, 2 yes. 3 MR WEATHERBY: I am being a bit obtuse here, but there 4 appears to be CS deposits on the outside of the 5 doorframe and possibly above the doorframe. 6 A. Yes, with the window glass broken, yes. 7 Q. The point that I am coming to is would that tend to 8 indicate, or would it be consistent with either the CS 9 canister diffusing the gas as it went into the vehicle, 10 that is one possible reason for that gas getting there, 11 would that be -- 12 A. I really couldn't say, sir. The problem we have here is 13 that the canister, I see it in this image here, is on 14 the seat, with broken glass, where presumably there was 15 an occupant. The glass is broken. And the rear door, 16 there was gas escape as it were through a very narrow 17 opening. 18 Q. Well -- 19 A. The driver's window is down, I don't know how windy or 20 not the night might have been, but I presume a fine 21 vapour like this would try any route to escape and who 22 knows how it lingers around outside and then falls on to 23 the surface of the car. 24 Q. You are ahead of me. I was going to suggest that either 25 the first image that I have shown you, with the CS</p> <p style="text-align: center;">Page 111</p>
<p>1 broken glass against part of the frame, whether that is 2 a feature of the light, I am not sure, but I agree on 3 the roof there is some sort of haze. 4 Q. So on top of the B frame, the B pillar? 5 A. Yes, not on that one. 6 If I interpret the B pillar to be the black 7 separating the front door from the rear door, am I right 8 in thinking that is the area -- 9 Q. The pillar between the front and rear doors, yes. 10 A. There doesn't look to be much white deposits on it, no. 11 Q. Right. Perhaps if you would like to have a quick look 12 at that, yes. 13 THE CHAIRMAN: I can't see anything at the moment -- oh yes. 14 (Pause) 15 Right. Do we know whether the door is open or 16 closed in that image? 17 MR WEATHERBY: I am afraid I don't. 18 THE CHAIRMAN: It looks to me as though it might be open. 19 MR WEATHERBY: Yes, it may well be. 20 THE CHAIRMAN: It may actually be the side of the door, the 21 rear frame of the front passenger window that one can 22 see. 23 MR WEATHERBY: The rear frame of the passenger window, yes, 24 it is the same point. 25 THE CHAIRMAN: Same point, yes.</p> <p style="text-align: center;">Page 110</p>	<p>1 deposit on the outside of the doorframe, query above the 2 doorframe, would be consistent with the canister 3 diffusing on its way in, or it would be consistent with 4 the canister diffusing inside but the draft bringing the 5 gas out through that window? 6 A. Yes, I couldn't say which was the more likely. However, 7 there are no localised deposits low down on the 8 vehicles, if it was on the floor for instance, next to 9 the vehicle. 10 Q. Absolutely. 11 A. So I surmise that the most likely explanation is it is 12 venting from the vehicle, but I don't know where it 13 started to discharge. 14 Q. No, but it is consistent with either of those options. 15 Is that right? 16 A. More so from inside out but I couldn't exclude at the 17 point of the window. 18 Q. Okay then, following from that, it is likely that that 19 pattern of distribution of the CS deposit is caused by 20 the draft of air bringing the CS gas out of the vehicle 21 that way? 22 A. That would be an explanation. 23 Q. That would be an explanation. Going back to the first 24 of the photographs that I asked you to look at, sorry 25 the second but the earlier in the bundle, 519.</p> <p style="text-align: center;">Page 112</p>

<p>1 A. Hmm.</p> <p>2 Q. That would be consistent with that draft bringing the</p> <p>3 gas past the side of the seat?</p> <p>4 A. We certainly see throughout the interior of the vehicle,</p> <p>5 we can see it on the console armrest, around the</p> <p>6 shoulders of the driver's seat, on the dashboard in</p> <p>7 another image, but there is a localised nature of</p> <p>8 staining on this side of the backrest of the car --</p> <p>9 THE CHAIRMAN: I think I know what you are pointing at.</p> <p>10 A. There, sir, and on here but there is light deposits</p> <p>11 everywhere within the car.</p> <p>12 MR WEATHERBY: Yes, so it may be that that seat has that</p> <p>13 heavier deposit because that is the route out of the car</p> <p>14 for the gas on the draft scenario that you say is most</p> <p>15 likely?</p> <p>16 A. Well, I honestly couldn't say because I don't know if</p> <p>17 this canister was momentarily higher up here and for</p> <p>18 whatever reason discharged up there before being</p> <p>19 elsewhere in the car.</p> <p>20 Q. The point I am getting to is it doesn't mean that there</p> <p>21 was necessarily anybody in the passenger seat to leave</p> <p>22 that distribution?</p> <p>23 A. No. There isn't a clear void, but if there had have</p> <p>24 been initially, the vapour within the car would then</p> <p>25 dissipate down on to what was the void, clean</p> <p style="text-align: center;">Page 113</p>	<p>1 Q. That is because you hadn't been informed about the rest</p> <p>2 of the evidence?</p> <p>3 A. I wasn't aware, no.</p> <p>4 Q. That is fine.</p> <p>5 I think you used the word "freelance" earlier --</p> <p>6 A. Sorry, yes.</p> <p>7 Q. -- which -- don't apologise, I am going to suggest to</p> <p>8 you a perfectly reasonable explanation for that</p> <p>9 movement, so that without using the red dot, the firer</p> <p>10 is in a less robust position for aiming.</p> <p>11 A. Well he is certainly not relying on the accuracy of the</p> <p>12 scope system, he would be reliant on visual connection</p> <p>13 between the green area, if that is in fact what was</p> <p>14 used, and the target.</p> <p>15 Q. The second consequence, if that was the actual firing</p> <p>16 position, the other consequence of that, as I have</p> <p>17 understood your evidence, is that the positioning of</p> <p>18 Mr Grainger, you demonstrated it graphically, the</p> <p>19 twisted to the door position. That would be more</p> <p>20 pronounced.</p> <p>21 A. Yes. If using the optical scope system, firing from</p> <p>22 within the car, then at best you have this sort of</p> <p>23 5 degrees approach to the windscreen.</p> <p>24 Q. Yes.</p> <p>25 A. To get the 10-degree downward, accepting some minor</p> <p style="text-align: center;">Page 115</p>
<p>1 uncontaminated area. So it is difficult to say.</p> <p>2 Q. Thank you very much, that is all I ask about that.</p> <p>3 I am finished with those bundles, thank you very</p> <p>4 much.</p> <p>5 Just moving on to the position of Q9. You have</p> <p>6 carefully explained two bookends, if I can put it that</p> <p>7 way, of where Q9 might have fired from. Is that fair?</p> <p>8 A. Yes. Inside or outside the window.</p> <p>9 Q. It could have been the first or the second or somewhere</p> <p>10 in between?</p> <p>11 A. Yes.</p> <p>12 Q. Have I understood you right that if Q9 fired from the</p> <p>13 position where the gun was mainly inside the vehicle,</p> <p>14 with just maybe three or four inches poking out, that</p> <p>15 from that position it would be more difficult for the</p> <p>16 firer to aim?</p> <p>17 A. If the firer was using the optical scope with the red</p> <p>18 dot system, it wouldn't be possible to achieve the</p> <p>19 10-degree downward trajectory.</p> <p>20 Q. Yes.</p> <p>21 A. However, if that red dot system wasn't used and one</p> <p>22 relied on matching up the position of a green mark to</p> <p>23 the subject, then one might have more movement within</p> <p>24 the vehicle to achieve the 10-degree. It was my</p> <p>25 findings were conditioned for using the optical scope.</p> <p style="text-align: center;">Page 114</p>	<p>1 deflection by the windscreen, then the extra downward</p> <p>2 would have to come from leaning forward.</p> <p>3 Q. So the left shoulder would be more pronounced forward?</p> <p>4 A. Yes.</p> <p>5 Q. Yes.</p> <p>6 Finally this, you have explained that the ejection</p> <p>7 of the -- is it the cartridge?</p> <p>8 A. The cartridge case.</p> <p>9 Q. The cartridge case from the gun, would be one indicator</p> <p>10 that would suggest to you that the gun was more likely</p> <p>11 further out of the car than in?</p> <p>12 A. Yes, although I do accept, for whatever bizarre set of</p> <p>13 circumstances, fired from within the car, the cartridge</p> <p>14 might end up outside.</p> <p>15 Q. Yes. Can I take that a little further. Given that we</p> <p>16 know that the shot was fired in a diagonal?</p> <p>17 A. Yes.</p> <p>18 Q. It was fired to the left of the firer's position, yes?</p> <p>19 A. Yes.</p> <p>20 Q. That would put the gun on a diagonal when the shot was</p> <p>21 fired, yes?</p> <p>22 A. Yes.</p> <p>23 Q. As I have understood your evidence, the cartridge case</p> <p>24 is ejected not a true perpendicular but in that general</p> <p>25 direction. So at right angles to the gun, but possibly</p> <p style="text-align: center;">Page 116</p>

1 slightly backwards?

2 **A. Yes, but it is as ejected, it doesn't come out in**

3 **a single plane, it is tumbling, so if it was to strike**

4 **an object at that tumbling angular motion, it would then**

5 **be equally reflected back out so it is a very unknown**

6 **variable as to how it strikes the surface that it does**

7 **on ejection.**

8 Q. Yes, well even without striking at the surface, where

9 I am getting to is that if the shot is to the left-hand

10 side, so the gun is on a diagonal, the angle of ejection

11 might be out of the window anyway?

12 **A. It is possible, there is lots of factors to consider and**

13 **it would need some significant testing to support that.**

14 Q. Of course it would depend exactly where the gun was in

15 terms of being in or out of the car?

16 **A. Yes, upright, slightly at an angle, there are all sorts**

17 **of variables that might accommodate.**

18 Q. Given the angle of the gun for the shot, it is possible

19 that the cartridge could have ended up where it did

20 without hitting anything, apart from the floor?

21 **A. I can't say it is not possible.**

22 **MR WEATHERBY: Sure. Thank you very much.**

23 **THE CHAIRMAN: Mr Davies.**

24

25

Page 117

1 Questions from MR DAVIES

2 MR DAVIES: I am asking questions -- probably the

3 penultimate lap of the track, Dr Seaman -- on behalf of

4 Q9, who is the officer that discharged the shot.

5 Mr Totton first of all. There is no evidence, is

6 there, that he had he had any CS residue on his

7 clothing?

8 **A. I have not seen his clothing, just those photographs we**

9 **have just discussed.**

10 Q. Yes. You gave an answer this afternoon that, in

11 relation to the front nearside seat, the front passenger

12 seat of the red Audi, your answer was, "Presumably there

13 was an occupant".

14 **A. Yes.**

15 Q. Why are you presuming there was an occupant?

16 **A. The distribution of the staining and the amount of glass**

17 **on the seat and in the footwell, if there had been**

18 **an occupant there then I might have expected a more even**

19 **spread of the staining. And there wasn't. It was only**

20 **confined to the left-hand side.**

21 Q. The glass was all over the seat, wasn't it?

22 **A. Yes, but that could also be contributed by post activity**

23 **and further glass breaking from the window.**

24 Q. I see, but there was nothing on Totton's clothing

25 indicative --

Page 118

1 **A. I have not been informed that there was.**

2 Q. -- of CS discharge on it?

3 **A. I have not been informed there was or wasn't.**

4 Q. Did you do any testing to back up this presumption as to

5 the distribution of CS within the car?

6 **A. No. At the time I saw the vehicle, it was very confused**

7 **with mildew and other stains, plus the fact it has**

8 **already been subjected to a lot of testing by various**

9 **people.**

10 Q. Right. Okay.

11 The next subheading is the limitations of your

12 illustration exercise, which is not a criticism, it is

13 just an inherent feature of the exercise that you were

14 conducting, isn't it?

15 **A. Yes.**

16 Q. At page 73, or page 10 of 12 of your second statement,

17 and I appreciate these are in evidence, but you have

18 listed haven't you your heading "Uncertainties and

19 assumptions"?

20 **A. Yes, I have.**

21 Q. I will just quote it:

22 "The work described above has been carried out as

23 carefully as possible to reproduce the incident

24 conditions. However, it is recognised that there are

25 various uncertainties as listed below.

Page 119

1 "(1) the precise relative positions of the two

2 vehicles and the effect of tire inflation.

3 "(2) the exact angle of deflection to the bullet

4 caused by the windscreen.

5 "(3) the precision of the reported measurements and

6 angles derived from the autopsy.

7 "(4) the physical/anatomical characteristics of the

8 surrogate individuals compared with the actual firer,

9 Q9, and Mr Grainger.

10 "(5) the exact position of the driver's seat during

11 the incident.

12 "(6) the exact positions and postures of the firer

13 and Mr Grainger when the shot was fired.

14 "(7) the light conditions at the time of the

15 incident (in relation to what would have been visible to

16 the firer and Mr Grainger)."

17 I just want to ask about some of those, not all of

18 them.

19 You have said very clearly and fairly that what you

20 did was not a reconstruction, it is an illustration

21 because of the unknowns.

22 **A. Yes, it is trying to demonstrate that, given the data**

23 **I had, angles, alignments, trajectories, et cetera, it**

24 **was to try and illustrate the bullet path, it was not**

25 **a reconstruction to the millimetre, no.**

Page 120

1 Q. One of the variables was, "(4) the physical and
 2 anatomical characteristics of the surrogate individuals
 3 compared to Q9 and Mr Grainger".
 4 You didn't and still don't have Q9's height, do you?
 5 **A. No.**
 6 Q. Or weight?
 7 **A. No.**
 8 Q. What was the height and weight of the individual who
 9 acted as his surrogate during this exercise?
 10 **A. It wasn't acting particularly as a surrogate, he was**
 11 **acting as an operator of the gun but on the assumption**
 12 **that most people are plus or minus a certain size, he**
 13 **would have been on the larger size, six foot,**
 14 **substantially built, but this was always a concern, not**
 15 **knowing the stature of Q9.**
 16 Q. Is that recorded anywhere? That person's height and
 17 weight?
 18 **A. No, but it can be got from staff records. It wasn't**
 19 **recorded because I had nothing to compare it against.**
 20 Q. You don't need the comparison point do you to record
 21 someone's height and weight for an illustration exercise
 22 like this? It is intrinsically important information.
 23 **A. When I wrote the report, it did specify about the**
 24 **restriction and possible variances because of the**
 25 **headroom, if you like, for Q9, versus the headroom as**

Page 121

1 **this surrogate as you call him. But yes, I would very**
 2 **much have liked the details of Q9 but they were not**
 3 **apparent.**
 4 Q. Did you ask for them?
 5 **A. No.**
 6 Q. As to Mr Grainger's height, my learned friend Mr Thomas
 7 has established already that you, to use your word, were
 8 his surrogate for this illustration exercise.
 9 **A. Yes.**
 10 Q. You are 5 centimetres, or an imperial 2 inches, shorter
 11 than he is?
 12 **A. Yes.**
 13 Q. Why isn't that in your report?
 14 **A. I think I talk about "comparable to", but I don't say**
 15 **"the same as".**
 16 Q. At page 54 of the first statement, you say, "Using
 17 a person of appropriate height". At your second
 18 statement, page 70, you say, "A person of similar
 19 height".
 20 **A. Yes.**
 21 Q. This is a scientific exercise, doctor --
 22 **A. It is.**
 23 Q. -- so why not give your height rather than just language
 24 of that type?
 25 **A. I felt to express it in words rather than numbers.**

Page 122

1 **There is a factor to build in here, in the seating**
 2 **position and compression of the squab seat. So ultimate**
 3 **height, I don't know the distance between shoulder and**
 4 **waist of Mr Grainger for instance.**
 5 Q. I was going to come on to that.
 6 Did you seek to establish the trunk length of
 7 Mr Grainger, shoulder to waist, relative to your own?
 8 **A. No. When I was requested to do this work, I was**
 9 **provided with all the information. I did not seek to**
 10 **find further information.**
 11 Q. As a matter of interest, what was your weight when you
 12 conducted this exercise?
 13 **A. In the region of about 13 and a half stone.**
 14 Q. So you were in the region of a stone heavier than
 15 Mr Grainger?
 16 **A. Yes.**
 17 Q. Let's go to item 6, "The exact positions and postures of
 18 the firer and Mr Grainger when the shot was fired". One
 19 of your uncertainties and assumptions.
 20 Have you factored in that Mr Grainger may have been
 21 sitting higher in his seat than you were from a starting
 22 position of having his arms up as reported by Q9?
 23 **A. He may have been sat more upright than I was, yes.**
 24 Q. That could make a difference of a couple of inches,
 25 couldn't it?

Page 123

1 **A. Yes.**
 2 Q. Your whole report, your reports, your illustration, has
 3 proceeded on the assumption I think effectively that he
 4 was using his optical scope?
 5 **A. Yes because I wasn't informed he wasn't using it.**
 6 Q. If I have understood your answers correctly, if he was
 7 not using his optical scope, then within the vehicle
 8 that could make quite a difference to whether the five
 9 or 10 degrees trajectory was achieved. Is that right?
 10 **A. It would be a contributory factor, yes. In fact I don't**
 11 **know other than aiming for the central body mass how the**
 12 **officer aimed his weapon.**
 13 Q. If we are talking about a difference of between 5 and
 14 10 degrees, not using the optical scope and simply using
 15 the green laser would readily explain the different
 16 trajectory, wouldn't it?
 17 **A. It would enable the trajectory to be achieved from**
 18 **firing from within the car, yes.**
 19 Q. To take page 70 of your second report, the photograph we
 20 see on page 70 is one that is recreating the proposition
 21 that Q9 is using his optical scope and is accordingly
 22 positioned within the vehicle?
 23 **A. Yes, and that is attaining the 5 degrees, it is all**
 24 **different now on the basis he was not using the scope.**
 25 Q. If he is not using the scope, the starting position

Page 124

1 within his, Q9's, window could be --
 2 **A. Higher.**
 3 THE CHAIRMAN: It would have to be higher to produce the
 4 same angle, Pythagoras.
 5 MR DAVIES: 10 degrees. Exactly.
 6 All right. Next point, you have described in your
 7 statements, starting with page --
 8 THE CHAIRMAN: I should say -- sorry to interrupt. Not to
 9 reproduce the same angle, to reproduce the damage to the
 10 windscreen, it would have to be higher, strictly.
 11 Sorry, Mr Davies.
 12 MR DAVIES: If the trajectory from within Q9's vehicle is
 13 10 degrees.
 14 **A. Yes.**
 15 Q. Then we have the slight twisting of Mr Grainger's body
 16 at the point of impact?
 17 **A. Yes, with not as much forward motion possibly because we**
 18 **have attained a higher start point.**
 19 Q. You could have 10 degrees angle without the scope,
 20 carbine within the alpha vehicle --
 21 **A. Yes.**
 22 Q. -- and with not the necessity of as much twisting from
 23 Mr Grainger?
 24 **A. He would only have to lean forward 10 degrees not**
 25 **15 degrees and the degree of twist would be the same for**

Page 125

1 **the 45 degrees.**
 2 Q. You have said in your first statement in relation to
 3 this, page 56, and this even assumes the scope is used,
 4 page 56, the last four lines:
 5 "Although it is necessary to assume a particular
 6 firing position before the victim's posture can be
 7 accurately assessed, the reported firing location would
 8 imply that the victim had been turned slightly to his
 9 right and leaning slightly forwards when struck."
 10 Looking at page 72 of your second statement, please,
 11 there are a couple of photographs there, and indeed on
 12 page 71. Are these -- I mean you have described it to
 13 the Inquiry but it is very hard for the record, everyone
 14 gets a different impression of your demonstration. Do
 15 these photographs on 71 and 72 reflect the degree of
 16 twisting that you are seeking to articulate?
 17 **A. The image on page 71 is just illustrating the impact of**
 18 **what might be perceived as the shot, with that being the**
 19 **red dot from the lab laser system.**
 20 Q. Yes.
 21 **A. That will obviously move up and down, subject to the**
 22 **height of the individual sat in the seat and to what**
 23 **degree they lean forward and twist.**
 24 **On page 72, the smaller left picture is trying to**
 25 **illustrate, if you like, the 5 degree from within the**

Page 126

1 **police vehicle using the scope, and the one on the right**
 2 **a 10 degree, with me also just looking away in the first**
 3 **one and slightly turning the shoulder in the right-hand**
 4 **one.**
 5 Q. That is the degree of difference in twisting we are
 6 talking about, is it?
 7 **A. Yes. There is more twist, if one calls it that, in the**
 8 **left picture, you can see there is more of my back**
 9 **showing when it is at 5 degrees. Less twist and/or**
 10 **forward action with the 10 degree.**
 11 Q. Yes, that is very helpful, thank you.
 12 Final topic, and it follows on from Mr Weatherby's
 13 questions about the cartridge and the angle from which
 14 Q9 was firing from the alpha vehicle, in other words to
 15 Q9's left exposing to some degree or another the
 16 right-hand side of his weapon to the window?
 17 **A. Yes.**
 18 Q. It is from the right-hand side of the weapon that the
 19 cartridge is discharged?
 20 **A. It is.**
 21 Q. This is the point I think Mr Weatherby was making, and
 22 indeed it was the point he was making because it was
 23 very clear.
 24 I am not going to repeat that analysis but did you
 25 do any testing within the vehicle as to the discharge of

Page 127

1 the cartridge, the ejection of the cartridge, from the
 2 alpha vehicle itself or did you simply do it on the
 3 range?
 4 **A. No, the ejection patterns were not comprehensively**
 5 **studied. This was an observation when we were firing at**
 6 **the surrogate screens. It would be impractical to try**
 7 **and do that without some very specialist open-air**
 8 **facilities from a vehicle which (a) we didn't have and**
 9 **it wasn't considered part of the primary remit.**
 10 MR DAVIES: Thank you very much.
 11 THE CHAIRMAN: Mr Evans.
 12 MR EVANS: Yes, please, sir.
 13 Questions from MR EVANS
 14 MR EVANS: Just one topic if I may, Dr Seaman, and it is in
 15 relation to the effects of the bullet being fired
 16 through the windscreen of the subject car, okay.
 17 If I could just ask you to look at two passages just
 18 in your first report, it is page 47 in the bundle, it is
 19 page 6 of 22. In this part of the report, I think you
 20 told us about this already, you were dealing here with
 21 some of the expectations that you and your colleagues
 22 who were helping to contribute towards the opinion were
 23 setting out.
 24 It is expectation number 2:
 25 "Glass fragments would be propelled into the vehicle

Page 128

<p>1 interior from the windscreen when struck by the fired 2 bullets." 3 A. Sorry, the opinions are mine not my colleagues, they are 4 purely assistant hands. The opinions are mine. 5 Q. We see that they would be propelled into the vehicle 6 interior and from the front passenger side window, when 7 that window was broken by external impact as well? 8 A. Yes, the difference being the front screen is laminated 9 and the plastic film separating the outer and inner, 10 there is probably going to be more of the inner pane but 11 some of the outer pane can enter. The side window is 12 predominantly pebble glass and does not form these very 13 fine salt grain sized particles. 14 Q. That is the distinction you make a little while ahead in 15 the report and I will ask you about that in a moment. 16 Carrying on just with expectation 2: 17 "Although the propelled fragments may have reached 18 the vehicle occupants, not possible to determine whether 19 any fragments, if they were found on clothing, had come 20 from impacts or secondary transfer." 21 Just dealing with the fired bullet for a moment, 22 through the windscreen. Is that saying that you would 23 expect occupants inside the vehicle to be exposed to 24 glass fragments coming from the windscreen as a result 25 of the bullet being fired into the car?</p> <p style="text-align: center;">Page 129</p>	<p>1 damage was across the top of dashboard. 2 Q. The important point is those fragments were small and 3 distinguishable, as you say as the paragraph continues: 4 "... from the more pebble like appearance of glass 5 caused by the disturbance to the window on the 6 nearside." 7 With that in mind, in terms of then the 8 expectations, would it be right then that a bullet fired 9 through that windscreen would cause glass fragments to 10 be propelled into the interior of the car with some 11 force? 12 A. Well, certainly propelled into the car. I can't say 13 with what particular force but enough to travel into the 14 car. 15 Q. Given the speed the bullet is firing at, you would 16 expect it to be quite forceful in terms of the glass 17 coming into the interior of the car. Wouldn't you? 18 A. It would certainly make a good punch, yes. 19 Q. It is just really this finally, in terms of a statement 20 that has been provided by Mr Totton, okay, in 21 a statement he provided to the IPCC as part of the 22 investigations. 23 Sir, for the reference it is a statement in the 24 A bundle, it begins at page 188 but page 190 is the 25 relevant passage, I would just like to ask, if I can,</p> <p style="text-align: center;">Page 131</p>
<p>1 A. Yes, the potential for these small fragments to travel 2 the short distance to at least the front seat occupants 3 and possibly beyond. 4 Q. Front seat occupants both in terms of passenger seat and 5 of course driver's seat? 6 A. Yes. 7 Q. If we just move on a few pages in the report now to 8 page 53, it is page 12 of 22. You are dealing there 9 under the heading "Windscreen damage", you noted: 10 "Perforating damage found through the front 11 windscreen." 12 Yes? 13 A. Yes. 14 Q. "Slightly off centre, towards the nearside, damage 15 typical of that caused by a direct strike." 16 Then this, last paragraph on that page: 17 "Small fragments of glass visible on the top surface 18 of the dashboard." 19 A. Yes. 20 Q. Those fragments, and indeed their position, is it right, 21 consistent then firstly with appearances as having come 22 from the windscreen but also as having originated from 23 the damage to the windscreen? 24 A. There was no refractive index or chemical analysis done, 25 but they certainly followed the direction of where the</p> <p style="text-align: center;">Page 130</p>	<p>1 Dr Seaman about. 2 It is page 190. Dr Seaman, if I just read this 3 short passage to you and it is just really to ask for 4 your view as to the consistency or otherwise of 5 a particular scenario. 6 He describes, so you know he is sitting in the front 7 passenger seat of the subject vehicle, and he describes 8 at the top of page 190 he remembers seeing a light at 9 the back end of the silver car, that is the alpha car, 10 which he says prevents him from seeing anything: 11 "... after realising what was going on and trying to 12 think what to do next, I remember shards of glass in my 13 face. I thought something had penetrated the car. 14 I knew that something had come through the window 15 screen, wasn't too sure what it was. I knew it wasn't 16 at me as it had gone in a different direction than at 17 me. I say that because I couldn't feel anything on me, 18 but I did feel quite a force on the right side of my 19 face, on my cheek, from the shards of glass." 20 That description there that we see is really just 21 your views as to whether that is then consistent with 22 him, Mr Totton, describing what he felt, sat in that 23 front passenger seat, as the bullet is fired through the 24 front windscreen? 25 A. Well, it certainly is consistent in terms of the right</p> <p style="text-align: center;">Page 132</p>

1 **side, if he is seated here, the damage will be to his**
 2 **right side, not the left window being damaged, shards**
 3 **versus pebbles --**
 4 Q. We are not talking here about the left window --
 5 **A. No.**
 6 Q. -- we are talking here about the windscreen, what is
 7 being described here is shards of glass which he says
 8 a force to the right side of his face, I am not asking
 9 about the window, this is just about the windscreen
 10 please. If that is consistent with what he is
 11 describing here as the effect of glass being propelled
 12 into the vehicle as a result of the bullet being fired
 13 through the windscreen?
 14 **A. Yes, there is no reason to think other.**
 15 MR EVANS: Thank you, I have no further questions.
 16 THE CHAIRMAN: Anything further?
 17 MR BEER: Just one from me, please.
 18 Further questions from MR BEER
 19 MR BEER: Can you turn up page 32 of the bundle, please.
 20 This is part of the witness statement of Andre Botha.
 21 Who had the benefit, I think, of conducting
 22 an examination of the scene with the vehicles in situ,
 23 yes?
 24 **A. Yes.**
 25 Q. Can you see three paragraphs from the bottom it says:

Page 133

1 "With information relating to the circumstances of
 2 the incident and evidence pertaining to the location and
 3 trajectory of the gunshot wound, a reconstruction was
 4 done."
 5 Yes? Stopping there for the moment, can we go back
 6 to page 22 in the bundle, please. You should have nine
 7 colour photographs, or are yours black and white?
 8 **A. Black and white, sir.**
 9 THE CHAIRMAN: So are mine.
 10 MR BEER: If it is necessary, I can hand mine up, which are
 11 colour.
 12 THE CHAIRMAN: I don't think it is necessary.
 13 MR BEER: Can you see the vehicles there in situ?
 14 **A. Yes.**
 15 Q. As we understand it, this was done on 4 March, so the
 16 following day, yes?
 17 **A. Yes.**
 18 Q. Can you see in the top right photograph somebody sitting
 19 in the driver's seat with a rod?
 20 **A. Yes.**
 21 Q. A trajectory rod, yes?
 22 **A. Yes.**
 23 Q. Can you go over the page to page 23, please, can you
 24 similarly see I think eight photographs, maybe nine,
 25 with trajectory rods in place there?

Page 134

1 **A. Yes.**
 2 Q. Does that appear to be the reconstruction that Mr Botha
 3 is referring to, is that what you treated it as?
 4 **A. I assume that, yes. I don't know who the person is**
 5 **wearing the crime scene suit, it may be Mr Botha**
 6 **himself, I don't know, but I assume those were his**
 7 **experiments at the time.**
 8 Q. This would benefit, would this be right, in a couple of
 9 ways, over your reconstruction, in that it is the actual
 10 alpha vehicle being used in its actual position, yes?
 11 **A. That is my understanding from if you like the middle**
 12 **picture on the top row, yes.**
 13 Q. Yes. It is the actual subject vehicle, which you did
 14 use, but in its exact position?
 15 THE CHAIRMAN: With its tyres deflated.
 16 MR BEER: Albeit with its tyres deflated, yes.
 17 **A. Yes, and I assume at this point these tyres are deflated**
 18 **as well. I don't know the height of Mr Botha by the**
 19 **way.**
 20 Q. No. Can you see the conclusion that Mr Botha came to on
 21 page 32, please. Carrying on from where we were
 22 reading, three paragraphs from the bottom:
 23 "... and a likely bullet trajectory was
 24 extrapolated, which indicated that the victim was seated
 25 in the driver's seat, most likely leaning slightly

Page 135

1 forward and turned slightly to his right when the shot
 2 was discharged."
 3 **A. Yes, I do.**
 4 Q. Can you help us, or help me -- other people probably
 5 understand this more than me -- there are three things
 6 that you are taking into account when estimating
 7 a trajectory of the bullet.
 8 Firstly, the position of the firer?
 9 **A. Yes.**
 10 Q. Secondly, the intermediate target, the windscreen?
 11 **A. Yes, and any effect it may have.**
 12 Q. Then, thirdly, the location of the wound on the gunshot
 13 victim?
 14 **A. Yes, and the subsequent trajectory track of that wound.**
 15 Q. Well, I was going to ask that. Do you do two lots of
 16 calculations, one which starts with an assumed position
 17 of firer, tracks the rod through the windscreen and
 18 lands on the position of the wound of the victim. And
 19 then, secondly, do one the other way round. Knowing the
 20 trajectory of the bullet within the body, pointing the
 21 rod outwards back the other way through the windscreen,
 22 ie using your knowledge of what happened to the bullet
 23 once it had entered the body to project back outside the
 24 other way?
 25 **A. Yes, if one uses the windscreen as the fixed point, and**

Page 136

1 **we have the medical information for the wound position**
 2 **and trajectory. Following that alignment, if that is**
 3 **in accord, then one can project out from the car to see**
 4 **where the firer position was.**
 5 Q. You can see at the top of page 32, it seems that
 6 Mr Botha had this knowledge. Certainly by the time he
 7 made his witness statement on 26 April he says:
 8 "The trajectory of the wound was from left to right,
 9 slightly downwards and front to back, passing between
 10 the second and third rib ..."
 11 **A. Yes.**
 12 Q. Then when he is setting out his views in the paragraph
 13 we have both read, he says:
 14 "... with information relating to the circumstances
 15 of the incident and evidence pertaining to the location
 16 and trajectory of the gunshot wound."
 17 **A. Yes.**
 18 Q. That is a reference you think to what happened to the
 19 bullet once it had entered?
 20 **A. I suspect so, yes.**
 21 Q. Yes. You came to very similar conclusions, "Most likely
 22 leaning slightly forward, turned slightly to his right".
 23 Yes?
 24 **A. Yes, so much so that if I can guide you to the**
 25 **right-hand top picture of page 22, isn't too dissimilar**

Page 137

1 **to the right-hand small picture I present on I think**
 2 **page 72.**
 3 Q. Yes.
 4 **A. The degree of twist, as it were, with Mr Botha in that**
 5 **position is slightly more than I am, but there again he**
 6 **might be a thinner frame, I don't know. Our two**
 7 **pictures, indicating the angle of his rod and my string**
 8 **as it were, are not too far apart.**
 9 Q. No, that is what I was coming to.
 10 Which way round, in my two methods of conducting the
 11 experiment, do these pictures demonstrate? Is it
 12 assumed position of firer, rod into the vehicle and
 13 therefore this must be the position of Mr Grainger or is
 14 it projecting outwards from Mr Grainger backwards?
 15 **A. Well, I can't speak for Mr Botha's work. In my case we**
 16 **have measurements, heights and angle assessments of the**
 17 **damage. That was then used to align with the post**
 18 **mortem measurements and as a natural progression,**
 19 **projection back from the car at either 5 or 10 degrees.**
 20 **Hence the inside and outside options, assuming the scope**
 21 **was used. But we now know it wasn't.**
 22 Q. Yes, the only difficulty with that is that if it is
 23 projecting outwards from the vehicle back through the
 24 windscreen, it has been established that you were
 25 a different height to Mr Grainger.

Page 138

1 **A. Yes, sorry the damage alone in the windscreen projected**
 2 **back out at the necessary angle and both right to left**
 3 **and down.**
 4 Q. So not the damage to Mr Grainger?
 5 **A. No.**
 6 Q. I understand, thank you.
 7 **A. The two are joined effectively through two separate**
 8 **experiments through the windscreen.**
 9 MR BEER: Sir, do you have any questions arising?
 10 THE CHAIRMAN: No.
 11 Thank you very much.
 12 MR BEER: Thank you, sir.
 13 THE CHAIRMAN: Thank you, Dr Seaman, that is the end of your
 14 evidence. Thank you for assisting the Inquiry. You are
 15 now free to go.
 16 MR BEER: Sir, that is all of the evidence today.
 17 Tomorrow we move to the occupants of the delta car,
 18 and Ms Cartwright is adducing that evidence.
 19 MR THOMAS: Sir, can I ask what time tomorrow?
 20 THE CHAIRMAN: What time?
 21 MR BEER: 10.30, sir.
 22 THE CHAIRMAN: I thought we were going to start at 10.30.
 23 Were you wanting to ask for a specific time or just
 24 wanting to know what time?
 25 MR THOMAS: I just wanted to know what time.

Page 139

1 THE CHAIRMAN: 10.30, unless anybody thinks we need to start
 2 earlier. I am not keen to start earlier.
 3 MR DAVIES: There is no reason to, but it would just be
 4 an earlier finish, pro rata. Since people are here,
 5 I think certainly for core participants, I know your
 6 team are doing potentially more work than us before we
 7 sit, but it is a Bank Holiday starting --
 8 MR BEER: I would agree that sentence, apart from the
 9 "potentially".
 10 THE CHAIRMAN: Mr Beer, what is your view? In the end,
 11 I don't want to be awkward about this but it rather
 12 depends on your position and that of Ms Cartwright
 13 tomorrow morning, how much time you will need before we
 14 start?
 15 MR BEER: Sir, I think we are in a position to --
 16 THE CHAIRMAN: Ms Cartwright primarily.
 17 MR BEER: I think we are in a position to start at any time.
 18 There may be a certain north-south divide conversation
 19 going on here in the shadows.
 20 THE CHAIRMAN: To which I am not entirely neutral.
 21 MR WEATHERBY: May I join in, for childcare reasons we would
 22 prefer 10.30.
 23 THE CHAIRMAN: Right.
 24 MR BEER: That is probably the clincher.
 25 THE CHAIRMAN: I think we will start at 10.15. Best I can

Page 140

<p>1 do. 2 MR BEER: Thank you, sir. 3 (3.05 pm) 4 (The Inquiry adjourned until 10.15 am the following day) 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p> <p style="text-align: center;">Page 141</p>	
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<p>1 2 3 I N D E X 4 5 G11 (continued)1 6 Questions from MR BEER (continued)1 7 DR BRIAN RODGERS (sworn)20 8 Questions from MR BEER21 9 Questions from MR STRAW43 10 Questions from MR WEATHERBY45 11 DR WILLIAM LAWLER (sworn)49 12 Questions from MR BEER49 13 DR PHILIP SEAMAN (sworn)53 14 Questions from MR BEER53 15 Questions from MR THOMAS90 16 Questions from MR WEATHERBY106 17 Questions from MR DAVIES118 18 Questions from MR EVANS128 19 Further questions from MR BEER133 20 21 22 23 24 25</p> <p style="text-align: center;">Page 142</p>	
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

A				
able 35:1,2 36:21 44:22 63:7 74:4 79:12 91:13 104:22	activity 68:14 91:17 118:22	allergic 37:12,17	75:22 78:4 82:7	71:10,13 131:4
abrasion 24:6,7,12 36:20 44:4	actual 17:21 23:8 29:6 39:10 61:2 79:22 103:10 115:15 120:8 135:9,10,13	allow 75:2,7,19 78:23 79:9 85:18	82:12,14,18,18,21 83:25 84:6,11,15 85:10,16,18 86:3 93:19 103:4,7,12 103:14 108:25 109:21 117:10,16 117:18 120:3 125:4,9,19 127:13 138:7,16 139:2	appearances 51:2 130:21
absence 35:16 36:15 38:6 62:4 69:10	addition 52:7 56:16	allowed 78:3	109:21 117:10,16 117:18 120:3 125:4,9,19 127:13 138:7,16 139:2	appeared 11:19 12:8 13:6 43:12 60:17 67:15 73:24 80:21 81:12
Absolutely 41:19 47:19 112:10	additional 67:4,5	allowing 68:7 84:11	109:21 117:10,16 117:18 120:3 125:4,9,19 127:13 138:7,16 139:2	appears 20:12 86:11 111:4
accept 43:13 91:3 116:12	address 69:1	allows 84:5	angled 32:22	appendix 55:23
acceptable 43:15	adducing 139:18	alpha 2:10,16 64:1 64:18 65:10,11,19 65:22 74:11,15 78:14 79:16,23,24 81:14,23,25 94:14 94:19 96:13 98:25 125:20 127:14 128:2 132:9 135:10	angles 47:3,5,8 98:12,12 100:1 116:25 120:6,23	applied 53:25 57:22 58:23
accepting 115:25	adjacent 29:12 79:9	alter 38:3	98:12,12 100:1 116:25 120:6,23	appreciate 119:17
accommodate 117:17	adjourned 141:4	alteration 76:4	angular 117:4	approach 9:21 115:23
accommodating 75:4	adjournment 19:14 20:16 105:25	altered 27:12 72:1	anonymity 16:12	approached 7:10 71:9
accord 137:3	adopted 2:11	alternative 84:13	answer 31:23 37:8 37:9 45:8 56:3 106:15 118:10,12	appropriate 83:22 96:20 122:17
account 14:21,24 15:2 16:4 17:2,10 69:23 77:1 78:22 136:6	advice 17:3,5,7	alternatively 45:21 45:22	answers 124:6	approximately 9:2 23:17 84:12 85:9 86:2
accounted 16:3	affect 97:12	Amber 2:7,17	anterior 25:15 26:3 26:6,8 32:16	April 1:1 137:7
accounts 46:2	afraid 109:4 110:17	ambidextrous 58:8	Anthony 12:9 22:5 43:9,12 98:1	area 22:11 30:10 31:18 40:9 44:2 61:9 67:9,23 68:3 83:17,20,22 89:7 102:6 110:8 114:1 115:13
accuracy 115:11	afternoon 118:10	ambulance 14:6,13	Anthony's 98:4	areas 31:9 45:3 55:25 56:7 61:15
accurate 73:3	ago 40:15 100:3	ammunition 71:5	anybody 4:20 38:12 52:16 57:13 113:21 140:1	arising 99:16,21 139:9
accurately 79:12 126:7	agree 41:15 51:25 97:10 101:13 110:2 111:1 140:8	amount 27:8 58:22 72:3 118:16	anyway 79:20 117:11	arm 9:4,4 26:19 35:22 36:1,6,8,19 36:22 80:20
achieve 85:9 86:2 86:13 100:19 103:4 114:18,24	agreement 89:6	analysis 41:2 127:24 130:24	apart 35:17 74:16 106:18,19 117:20 138:8 140:8	Armed 8:12
achieved 80:13 84:1 101:1 124:9 124:17	ahead 105:17 111:24 129:14	amplify 54:11	aperture 92:19	armrest 113:5
acted 121:9	aim 59:2 60:2 77:24 89:16 114:16	analysis 41:2 127:24 130:24	apertures 92:20	arms 12:24 35:12 35:17 36:11,15,21 74:20 100:18 123:22
acting 121:10,11	aimed 100:9 124:12	anaphylactic 37:13 37:21 39:24 41:12	apex 28:3	arranged 92:23
action 16:21 86:16 86:19 98:7 127:10	aiming 100:13 115:10 124:11	anaphylaxis 37:19 37:22 38:5,12	Apologies 12:1	arrest 13:25
actions 35:5	Aimpoint 57:15	anatomical 23:5 121:2	apologise 53:1 85:2 115:7	arrested 13:22
activated 57:21	air 112:20	and/or 65:4 127:9	apparent 62:1 64:17 95:10 122:3	
activation 40:11,12	ajar 68:7	Andre 24:22 63:23 133:20	appear 87:25 92:12 109:15,23 135:2	
active 37:18	akin 99:11	angle 25:19,22 27:16,16 28:13 32:17 47:11 66:12 66:20 70:17 71:9 73:16,17 75:2,4	appearance 12:12 25:8 26:25 70:21	
	Albeit 135:16			
	align 98:20 138:17			
	aligned 96:15			
	alignment 79:16 137:2			
	alignments 120:23			
	allegedly 56:23			

107:6 arrival 14:13 arrived 14:7 arriving 81:23 arrow 96:5,9 arrows 95:24 artery 22:15 29:21 30:6 articulate 126:16 asked 14:21 15:3 20:5,19 36:25 37:14 45:4 49:4 55:5 77:4 106:7 109:7 112:24 asking 46:8 91:1 104:11 118:2 133:8 aspect 26:15,24 111:1 aspects 55:19 assessed 59:6 126:7 assessment 61:23 68:11 69:10 86:1 assessments 76:23 85:8 138:16 assist 69:4 91:13 assistant 129:4 assisted 7:25 55:14 103:13 assisting 49:10 139:14 associated 29:14 40:10 41:5 Association 17:18 assume 126:5 135:4 135:6,17 assumed 62:24 63:1 107:10,11 136:16 138:12 assumes 126:3 assuming 79:1 138:20 assumption 63:3 75:21 102:24 121:11 124:3	assumptions 119:19 123:19 assured 55:18 attained 125:18 attaining 124:23 attempt 78:11 attempted 40:6 attend 17:17,22 attention 11:15 attributed 62:13 Audi 1:19 3:7 7:3,4 7:5,20 10:19 63:25 64:1 68:25 69:6,25 71:1 74:22 75:14 80:2 81:1 86:12 87:2 90:4 95:15 97:24 102:12 118:12 authorised 2:22 autopsy 28:18 31:7 31:9,10 35:11 42:10 71:14 83:10 84:18 85:10 120:6 available 16:24 55:6 56:10 77:9 Avenue 1:23,24 awaited 1:13 aware 2:21 9:8 10:19 12:25 14:6 42:17 68:13 115:3 awkward 109:4 140:11 axes 47:3 axis 47:14,14,15	98:15 102:1,8 112:23 117:5 119:4 127:8 132:9 134:5 136:21,23 137:9 138:19,23 139:2 back-to-back 9:5 background 108:15 backrest 113:8 backwards 32:20 32:23 47:12,25 48:1 81:7 101:21 117:1 138:14 badly 68:6 balaclava 63:1 balance 51:24 ballistic 24:18 ballistics 24:19 29:5 Bank 140:7 barrel 77:25 80:1 84:6 base 38:1 based 56:4 75:21 81:12 101:19 basic 49:25 basically 28:2 46:16 basis 56:3 63:9 74:9 91:7 124:24 bay 64:18 79:9,14 bear 93:13,25 96:12 97:15,18 99:7 Beer 1:5,6,7 5:2 7:1 18:23,25 19:9,16 19:19 20:2,3,8,10 20:12,18 21:2,3,3 39:16,18 40:1 42:23 49:7,8,12 49:15,16 52:13,15 52:20 53:6,7,7 54:11 68:22 87:25 88:3,5,18,24	89:21,23 90:6 95:3 100:4 109:7 133:17,18,19 134:10,13 135:16 139:9,12,16,21 140:8,10,15,17,24 141:2 142:6,8,12 142:14,19 began 18:9 Beginning 19:19 begins 131:24 behalf 21:4 50:6 53:8 118:3 belief 21:13 49:21 53:20 believe 3:16 16:5 39:23 41:13 64:10 believed 28:24 belt 67:10 beneath 28:14 36:5 benefit 133:21 135:8 best 15:12 21:12 49:20 53:20 64:22 65:6 115:22 140:25 better 79:5 105:10 beyond 35:3 36:4 45:7 57:13 81:15 130:3 binder 53:9 biological 54:18 biologist 54:4 biology 53:25 54:3 54:3 bit 25:22 38:1 44:21 45:22 51:6 51:11 74:16 103:22 109:4,11 111:3 bizarre 116:12 black 5:22 52:23 53:9 84:24 108:15 110:6 134:7,8 bleeding 30:24 33:1	34:5 61:12 69:17 73:20 blood 12:25 29:25 30:2,3,25 33:12 33:17 34:6 37:17 37:20 39:1,10 40:14,21 61:6,8,9 61:11,14,16,20,23 69:6,11,12,15 bloodstained 69:19 body 12:13,14,15 13:4 24:9 27:15 29:25 32:12 33:3 47:21 48:1,3 83:25 85:10 86:3 86:11 100:9,13 124:11 125:15 136:20,23 bolt 58:5 bone 73:15 bony 32:3 bookends 114:6 boot 87:13 Botha 24:21,22 48:9,20,20 72:12 73:14 76:15 133:20 135:2,5,18 135:20 137:6 138:4 Botha's 63:23 64:8 138:15 bottom 46:22 68:20 96:10 104:19,20 133:25 135:22 bounce 102:1 box 41:8 BR27 71:14,17,17 71:18 BR3 60:8 BR8 60:9 brain 33:10 bravo 4:6,8 break 105:12,18,22 breakdown 39:10 breaking 38:15
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

118:23	bullets 57:5 58:19	5:14,15,18,20	cartridges 57:4,4	24:5,5,7 25:17,20
breastbone 25:18	129:2	8:12,22 14:4	58:3,4	33:4 44:4 72:14
breathe 30:2	bumper 6:1	27:11 35:19 51:1	Cartwright 139:18	72:15,16,19 73:3
breavity 52:5	bundle 1:11 20:10	62:9,22 63:13,17	140:12,16	73:6 103:24 104:2
Brian 20:8,23	21:4,5 49:16	64:19,19 65:1,3	case 6:7 27:21	104:3,5,15 122:10
142:7	52:21 56:20 64:5	65:16,19,20 66:14	33:11 37:23 43:7	central 24:4 26:4,9
briefly 49:12,23	91:25 93:13,15,25	66:15,24 68:5,14	45:15 46:7 55:24	28:4 29:18 100:9
bright 88:14	94:9,11 96:24	71:12 73:10 77:23	58:24 95:9,13	124:11
brim 31:18	97:20 106:25	78:2,14,15,19	99:3,11 101:7,15	centre 23:23 25:18
bringing 112:4,20	107:2 108:13,15	79:15,17,18 81:18	101:18,23 116:8,9	70:11 100:13
113:2	108:19,21 112:25	84:2,16 85:24	116:23 138:15	130:14
broadcast 2:9,13	128:18 131:24	92:9,10 94:14	cases 35:6 37:10	certain 27:8 35:1,5
2:15	133:19 134:6	100:20,25 101:6	81:6 87:21	45:10 102:4
broken 9:14 12:5	bundles 65:25 66:1	101:10,14,15,18	casualty 69:21	121:12 140:18
70:1,5 110:1	114:3	101:22 102:3,24	75:23 85:21	certainly 19:12
111:6,14,15 129:7	burnt 25:7	103:1,5,6,7,12	catastrophic 30:23	20:7,14 35:6 40:2
brought 65:25	buttocks 72:20	107:16,17,18,25	catch 58:8	42:10 44:16 56:7
bruising 29:13,13	button 57:24	108:1 109:16,17	catches 58:17,17	64:12 87:1 95:3
36:5	buy 91:8	111:23 113:8,11	cause 21:16 30:23	95:12 96:2,4 99:4
build 123:1		113:13,19,24	42:18 44:8 50:21	104:4 109:19
built 121:14	C	115:22 116:11,13	52:3 105:19 131:9	113:4 115:11
bullet 22:10 24:9	cabin 63:19 92:15	117:15 119:5	caused 24:12 31:11	130:25 131:12,18
24:10,13,14 25:14	calculations 136:16	124:18 128:16	32:3 35:23 36:14	132:25 137:6
25:15,19 26:18,23	call 12:16 57:2	129:25 131:10,12	41:6 70:16 71:20	140:5
27:4,5,10,13,14	60:20 63:25 64:2	131:14,17 132:9,9	112:19 120:4	cetera 42:11 65:5
27:21 28:16,19,22	94:1 122:1	132:13 137:3	130:15 131:5	67:8 89:6 90:20
29:15,17 30:13	called 2:11 24:6,11	138:19 139:17	causes 56:18	120:23
32:1,4,7,13,14,15	26:3 37:1,15,18	carbine 7:25 35:25	causing 37:20	chair 46:6
32:19 33:20 35:9	calling 87:11 93:14	56:22 57:8 58:2	caution 39:22	chairman 1:4 4:25
36:19 43:18 44:17	calls 127:7	59:9 71:5 125:20	cautioned 13:22	6:20,23 18:25
45:11 47:11,20	camera 102:18	cardiac 33:15	caveat 107:12	19:4,12,18 20:1,7
50:24 55:8 59:19	canister 2:21 7:11	carefully 114:6	108:6	20:9,11,14,22,24
59:25 60:18 61:23	9:17 37:2 62:6	119:23	cavities 31:6 34:5	21:22 29:22 39:15
69:2 70:8,16 71:8	63:13 90:14 91:5	carried 28:18 37:7	cavity 31:4,5 32:5	39:17,19 42:25
71:11,13,18,21,25	91:9 92:8,13	119:22	34:6	47:17,24 49:7,9
72:21 73:9,15	108:4 111:9,13	carry 37:14 83:25	ceiling 87:16	49:14,23 52:16,22
74:25 76:6 82:17	112:2,4 113:17	Carrying 129:16	cell 37:15,18,18,21	53:3,23 54:5,9
83:10 85:9 86:2	canisters 91:7	135:21	40:3,6,11 41:16	68:19 86:18 87:16
120:3,24 128:15	cap 97:8	cars 64:21 77:10	cells 37:19 39:10	87:20 88:17,20,23
129:21,25 131:8	capability 45:5	cartridge 58:3	40:21,21,22	89:20,22 92:3
131:15 132:23	capable 35:5 43:19	80:25 81:6,13	cent 12:16	93:17 94:3,10,12
133:12 135:23	46:23	101:7,15,17,23	centimetre 26:14	99:18 102:11
136:7,20,22	car 1:18,19,23,25	116:7,8,9,13,23	26:16 30:9,11	105:6,10,15,18,22
137:19	2:10,16 3:3,5,25	117:19 127:13,19	centimetres 23:1,7	106:2 108:16
bulleted 57:4	4:2,4,18,18,20,21	128:1,1	23:9,16,21,23	109:1,10,12

110:13,18,20,25 113:9 117:23 125:3,8 128:11 133:16 134:9,12 135:15 139:10,13 139:20,22 140:1 140:10,16,20,23 140:25 challenge 8:1 challenging 8:3 chamber 58:7 chance 81:18 change 40:2 characteristic 82:20 characteristics 120:7 121:2 charlie 5:11,14 chart 14:10,11 chartered 54:4 checked 73:25 cheek 132:19 chemical 36:25 130:24 chemicals 37:20 Cheshire 42:6 50:6 89:6 chest 12:25 21:18 22:11,19 23:11 25:15,16,21,24 26:2,11 28:4,20 29:12,14 30:24,25 31:3,3,4,5,6 32:5 32:6,16,17,21 34:3,6 35:9,14 36:18 42:20 43:18 50:17 52:4,8 83:22 childcare 140:21 chronic 31:15 circle 24:4 circulation 33:17 33:22 34:16 circumstances 20:8 20:19 25:1 100:15	101:4 116:13 134:1 137:14 clarification 45:3 46:1,2 clarificatory 34:1 clarify 47:4,8,13 clarity 48:20 99:2 classic 30:19 classically 44:15 clavicle 23:10,12 Claytonbrook 14:18 clean 113:25 cleaner 51:9 cleanly 27:17 clear 43:10 68:17 68:24 72:25 96:2 96:2 98:1 113:23 127:23 clear-cut 27:9 clearly 25:22 28:22 29:6 30:12,21 120:19 Clickshare 87:25 clincher 140:24 clip 71:5 87:10,11 clips 88:6 close 7:3 10:3 11:6 24:15,24 25:2,11 26:24 60:20,23 65:11 66:11,24 73:11 96:24 closed 67:21,24 70:5 110:16 closely 78:11 79:10 closer 10:5,9 25:12 25:22 clothes 63:10,10 107:10 clothing 60:6 62:12 62:24 63:1,20 69:18 73:12 106:8 106:16,18,19 107:9,9 118:7,8 118:24 129:19	collapse 33:18 collapses 33:22 collar 24:6,8,12 collarbone 23:12 23:13,15 colleague 41:20 77:21 colleague's 20:20 colleagues 55:18 128:21 129:3 College 22:1 50:2 collision 95:14 colour 67:8 78:7 134:7,11 come 5:9 32:11 48:2 61:13 63:17 84:7 96:25 102:21 103:17 107:12 116:2 117:2 123:5 129:19 130:21 132:14 comes 19:7 30:3 85:15 comfortable 80:22 coming 80:3 81:7 82:18 111:7 129:24 131:17 138:9 command 46:23 commander 2:16 comment 107:15 commercial 91:7 Commission 34:2 committing 3:20 communicated 17:8 compact 55:17 company 54:25 comparable 70:14 122:14 compare 121:19 compared 120:8 121:3 comparison 121:20 compensate 84:15	Complaints 34:2 complement 40:11 40:13 completely 32:6 40:15 42:8 82:16 complicated 40:13 comply 36:2 comprehensively 128:4 compress 73:1 compression 104:8 123:2 comprised 24:4 computer 93:14 94:1 96:3 109:6 concentrate 92:6 92:24 concentrated 61:9 61:17 concentrating 97:24 concentration 38:16,24 concern 3:15 121:14 concerned 72:6 conclusion 36:10 41:15 46:11 52:7 74:9 75:13,16 76:9 86:10 135:20 conclusions 50:11 74:3 75:7,10,20 76:2 77:1 137:21 conclusive 89:18 condition 61:21 conditioned 114:25 conditions 82:25 86:13 88:22 90:4 91:21 105:1 119:24 120:14 conduct 13:4 50:5 70:25 77:4 conducted 22:3 41:23 58:20 71:8 81:19 83:7 86:21	123:12 conducting 64:9,15 119:14 133:21 138:10 conferred 18:1 confidence 79:11 confident 64:20 confined 100:16 118:20 confirm 90:15,25 confirmed 3:22 36:4 confused 119:6 connection 115:12 consciousness 34:23 43:5,17 consequence 115:15,16 consider 19:17 117:12 considerable 45:11 90:3 97:1,3 consideration 62:8 64:25 73:4 considerations 72:22 considered 83:4 128:9 considering 60:19 74:25 consistency 59:2 60:3 77:2 132:4 consistent 29:3,8 59:10,16 60:17 66:17 70:21 73:9 73:24 77:3,15 82:8 89:9 107:16 107:17,19 108:8 111:8 112:2,3,14 113:2 130:21 132:21,25 133:10 consistently 59:17 console 113:5 consultant 21:21 21:23
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

consultation 56:1	73:12 78:23 79:7	cycles 58:18	43:19	84:1,3,6,12 85:9
contact 61:14 63:17	79:13 80:3 81:10	<hr/> D <hr/>	dealing 39:2 128:20	85:17 86:3 100:24
65:9 69:24 91:23	84:13 94:19,21	D 142:3	129:21 130:8	100:25 115:23
95:14 96:16,21	98:5,6,7 99:20	damage 29:3,6 30:7	dealt 40:14	124:9,14,23 125:5
contained 57:3	101:12	30:8 32:3,24 33:5	death 21:16 31:11	125:13,19,24,25
contains 37:18	corrected 99:14	36:18 60:17 61:2	31:25 38:7 42:19	126:1 127:9
contamination	correctly 98:11	61:23 65:22 66:2	50:21,25 52:3	138:19
91:16,22	99:24 107:11	66:8,17 70:9,14	73:21	delay 16:3
content 20:5	124:6	70:15,17,22 71:11	debris 61:3	delivered 34:25
contents 18:21	couple 92:5 95:1	71:12 73:20 75:24	decayed 67:7 69:13	35:14 38:11
19:25 21:12 49:20	97:16 99:16	82:9,12,13,19,22	decrease 27:19	delivery 41:18
53:19	123:24 126:11	83:13 95:7 125:9	deep 89:5	delta 139:17
context 62:5	135:8	130:9,10,14,23	defect 24:4 26:11	demonstrate 86:18
continue 92:22	course 8:11 11:12	131:1 133:1	26:14,16 28:14	120:22 138:11
continued 1:3,6	14:3 16:21 20:1	138:17 139:1,4	29:10,12 30:10,12	demonstrated 76:7
142:5,6	41:7 45:9 46:6	damaged 29:18	30:12,16 32:5	98:15 115:18
continues 131:3	64:11 83:18 89:17	31:15 61:7 66:12	58:18	demonstration
contrast 68:1	117:14 130:5	133:2	defects 30:15	80:17 92:21,23
contribute 128:22	court 20:19,20	damaging 32:2	definitely 96:21	126:14
contributed 31:11	29:22 41:21	dark 5:22	definitively 16:6	depend 117:14
55:24 118:22	courtroom 19:10	darker 88:14,20	deflated 78:21 79:1	depending 87:6
contribution 56:5	covered 105:17	darkness 88:13	135:15,16,17	104:9 105:17
contributory	create 98:21	dashboard 70:20	deflation 78:22	depends 140:12
124:10	created 82:19	103:22 105:4	deflected 72:3,4	depict 5:6
convenient 87:15	85:18	113:6 130:18	deflection 71:20	deployed 7:11,15
conventionally	crime 54:21 135:5	131:1	75:23 83:21 116:1	62:6 69:1 92:8,14
100:14	criticism 119:12	data 120:22	120:3	deploying 3:7
conversation	cross 4:4	date 88:17,24	deform 27:4	deposit 62:10 68:12
140:18	crossed 29:17	dated 21:10 53:12	deformation 27:8	68:17,24 90:13
copper 27:24 28:22	CS 2:21 7:11,18	53:17 88:24	deformed 27:22	92:14 112:1,19
29:2	37:1 41:6,18	dates 89:5	28:15,16,23 29:2	113:13
copy 21:6 49:17	63:16 67:13,19	David 10:11,13	degradation 38:25	deposited 67:22
53:11	90:14 106:7 107:8	Davies 19:2 49:4	39:7	93:1,5
cords 41:10	107:17 108:12	105:13,14 117:23	degrade 40:21,21	deposits 61:25 62:4
core 20:5 27:24	109:15,23 111:4,8	118:1,2 125:5,11	degranulate 37:19	62:9,24,25 67:3
28:23 29:2,3 55:4	111:25 112:19,20	125:12 128:10	degree 35:1 53:25	67:20 68:2,9
140:5	118:6 119:2,5	140:3 142:17	54:1 75:2 100:19	90:16,23 91:12
corner 1:25 4:2	CSDC 9:14,17 37:1	day 134:16 141:4	104:8 125:25	106:10,16 107:8
41:24	38:6 62:6 63:8	daylight 81:19	126:15,23,25	109:16,23 110:10
coroner 50:6	67:22 68:12 69:1	days 15:25 16:3,24	127:2,5,10,15	111:4 112:7
correct 12:19 18:11	Culcheth 2:6	de-oxygenated	138:4	113:10
21:20 22:6,20	Curran 87:25	30:2	degrees 32:18,19	derived 120:6
27:5 32:4 35:16	curves 80:11	dead 40:20 43:12	32:23 47:5,6,11	describe 2:9 5:9
36:12 49:19 54:16	cut-off 4:20 6:5	deal 3:10 39:22	47:12,14,20,22,23	6:16 25:3 30:15
55:17 57:20 62:18	cuts 60:12 61:22		47:25 73:17 77:25	30:19 70:7 93:20

described 73:5 77:13 82:2,3 97:1 119:22 125:6 126:12 133:7	dimensional 28:20 dimensions 22:23 70:17 72:8 73:6 diploma 22:2 direct 40:11 73:10 130:15 direction 5:16 70:18 116:25 130:25 132:16 directly 5:15 56:1 dirt 61:8 67:16 disagree 52:2,7 disagreement 42:16 discharge 9:21,23 24:22 58:9 66:18 112:13 119:2 127:25 discharged 11:7 37:1 63:9 74:10 75:14 113:18 118:4 127:19 136:2 discharges 58:19 discolouration 61:1 67:19 93:22 96:5 discoloured 67:15 discourtesy 19:24 discuss 42:1,14 discussed 82:25 118:9 discussion 18:20 disease 31:10,16,24 dispensed 20:3 dispersal 7:18 9:17 37:2 dispersed 9:15 37:5 disperses 92:15 dispute 92:12 dissimilar 137:25 dissipate 113:25 distance 11:8 23:4 24:18 25:1 45:11 59:8 109:11,22 123:3 130:2	distinction 107:7 129:14 distinguishable 70:23 131:3 distinguishing 97:10 distribution 61:11 61:19 112:19 113:22 118:16 119:5 disturbance 131:5 divide 140:18 doctor 23:2 54:2 94:18 95:3 122:21 doctorate 50:1 documentary 56:16 documents 64:7 95:8 doing 6:5 8:1 9:8 9:10,11 140:6 door 5:9 7:19 9:2 11:20,25 12:4,5,7 12:22 27:11 67:14 67:20,21,24 68:1 68:3,23 74:12 75:15 79:17 85:12 98:5 110:7,7,15 110:20 111:15 115:19 door's 68:16 doorframe 68:5,6 109:25 111:5,5 112:1,2 doorframes 68:10 doors 68:11 81:2 110:9 dot 57:12,14 59:7 59:12,14,24 77:24 83:16 85:3,3 99:19 100:7,23 114:18,21 115:9 126:19 doubt 35:4 doubts 50:14 downed 74:20	downward 32:17 71:20 72:3 75:2 75:22 78:1,4 83:21,24 84:11,15 103:4,14 114:19 115:25 116:1 downwards 28:13 32:19,22 36:22 47:12,21,23 66:15 66:20 72:4 73:16 85:16 86:3,6 100:19,24 137:9 Dr 20:8,18,18,23 20:24 21:3 41:21 42:10 43:3 45:15 49:9,12,13,16 50:1,9 51:7,24 52:2,20 53:2,3,7 54:7 73:13,13 90:10 105:20 106:5 118:3 128:14 132:1,2 139:13 142:7,11 142:13 draft 112:4,20 113:2,14 drag 69:22 draw 74:4,8 drawn 6:10 11:15 23:17,23 draws 58:6 drew 15:21,23 76:10 drill 87:21 drip 69:20 driven 1:23 driver 44:19 84:14 104:24 driver's 12:22 74:23 79:17 83:5 85:11,12,25 86:4 86:12 92:6 93:9 97:25 98:4,14 104:9 111:19 113:6 120:10	130:5 134:19 135:25 driving 51:1,17 dropping 33:13 drove 3:3,25 14:4 due 21:17 38:24 39:6 42:19 Duggan 17:22 dummy 83:7 uplicated 82:23 dusk 81:20 86:25 87:11 88:11,22 90:4 duty 15:16 dying 40:20 45:19
E				
E 142:3 earlier 82:25 88:20 89:13 94:12 95:6 112:25 115:5 140:2,2,4 early 15:9 edge 25:24 26:1,4,9 26:10 edges 26:3 effect 33:6 40:23,24 60:18 87:5 88:10 88:13,13,15 120:2 133:11 136:11 effective 83:3 effectively 21:15 35:25 46:9 47:20 61:1 78:22 79:3 107:8 124:3 139:7 effects 24:16 25:2 50:15 60:21,23 86:21 128:15 eight 134:24 either 17:10 26:2 36:19 56:1 59:25 69:4,13 111:8,24 112:14 138:19 eject 101:21 ejected 81:13				

116:24 117:2 ejection 81:6 101:20 116:6 117:7,10 128:1,4 elevated 40:6 41:4 elevation 83:3 Elliot 20:4 emanating 67:14 embedded 22:19 employed 54:25 enable 124:17 ended 117:19 energy 27:18 engine 10:20,22 ensure 71:8 enter 129:11 entered 25:14,15 25:16 26:23 28:11 32:15 34:3 35:9 36:13,17 43:18 47:21 69:2 136:23 137:19 entering 3:5 28:9 28:12 83:12 enters 24:9,10 25:23 28:3,7 33:21 entire 11:12 entirely 140:20 entrance 41:10 entry 23:8,11,18,24 24:9 25:9,20 26:19 27:9 73:5 98:17 environment 107:21 equally 43:15 69:14 74:23 79:16 93:22 101:25 117:5 equipment 85:5 errors 39:1 escape 68:8 92:20 111:16,21 escaping 68:4 escort 19:8	essence 52:5 essentially 39:20 45:17 establish 123:6 established 122:7 138:24 estimate 24:17 32:14 34:14 58:22 63:24 estimated 76:19 estimating 136:6 estimation 77:12 et 42:11 65:5 67:8 89:6 90:20 120:23 Evans 19:3 49:6 105:15,16 128:11 128:12,13,14 133:15 142:18 event 3:25 events 55:11 56:12 77:11 everybody 45:12 54:6 evidence 18:8 19:5 19:17,19 20:4,21 31:10 38:5 43:8 43:11,14 44:1 46:18,19,22 49:11 52:18 54:19 55:5 55:7 56:2,10 63:15 65:9 69:4 72:13 74:9 75:6 75:19 89:13,20 92:8,13 98:11 99:2,10,11,15,24 104:4,6 115:2,17 116:23 118:5 119:17 134:2 137:15 139:14,16 139:18 exact 64:23 75:25 120:3,10,12 123:17 135:14 exactly 28:21 34:15 46:21 52:5 82:24	98:14 117:14 125:5 examination 19:22 22:4 24:19 31:9 31:20 35:12 41:23 42:12 50:3,5 51:15 56:9 57:1 63:9 68:25 76:12 76:14,16 86:21 133:22 examine 27:20 55:5 62:12 65:14 66:5 67:2 94:18 examined 56:21 60:6,8 69:6 examiner 38:23 example 26:18 27:11 36:17 40:11 45:10 exceptions 26:21 excess 69:20 excessively 101:3 exclude 38:5 112:16 exercise 119:12,13 121:9,21 122:8,21 123:12 exhaust 10:24 exhibit 71:1 79:21 exhibits 56:24 62:17 existing 31:14 exit 12:21 26:20 28:14 30:12,21 32:5 98:17 exited 4:16 6:7 26:24 exiting 66:12 exits 26:14 28:7 expand 57:6 expanded 109:6,8 109:14,22 expect 81:17 129:23 131:16 expectation 102:2	128:24 129:16 expectations 128:21 131:8 expected 43:4 51:12 58:25 71:16 71:21,24 101:14 101:17 118:18 experience 54:14 54:21 90:5 experiment 138:11 experiments 135:7 139:8 expert 19:17 29:5,6 55:7,15 expertise 40:9 55:25 56:6 experts 19:11 41:1 55:15 explain 24:8 26:17 29:4 36:14 51:6 71:23 77:19 82:15 83:6 85:14 101:23 124:15 explained 84:5 86:8 101:7 114:6 116:6 explanation 39:5 44:7 112:11,22,23 115:8 explanations 38:2 exposed 68:3 107:22 129:23 exposing 127:15 express 122:25 extension 79:14 extensively 69:16 extent 56:14 74:8 76:1 86:5 external 51:14 129:7 extra 116:1 extrapolated 135:24 extreme 80:16 extremely 84:14 100:4	eye 100:16 eyes 97:12 eyewitness 44:1 <hr/> F <hr/> fabric 61:2 face 44:10 132:13 132:19 133:8 faced 91:20 facilities 128:8 facing 47:10 85:15 85:23 fact 15:23 16:11 28:17 43:8,24 45:23 56:13 59:18 71:13 78:15 89:1 94:13 95:22 104:14 115:13 119:7 124:10 factor 123:1 124:10 factored 123:20 factors 117:12 facts 46:7 Faculty 50:4 faint 36:3 fair 22:21 51:11 114:7 fairly 27:9,17 34:23 55:12 120:19 falling 88:11 falls 111:22 familiar 91:5 family 43:21 90:11 far 1:25 4:2,6 33:3 38:11 42:17 68:7 138:8 fatal 33:8,9,11 44:21 fault 47:19 favour 102:3 feature 110:2 119:13 features 65:6 feel 20:24 132:17 132:18
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

feet 9:2 10:4 25:12	120:13 123:18	flattened 71:15	86:13 87:3 89:24	69:2 70:1,10
fellow 22:1 50:2	128:15 129:1,21	flightpath 72:1	126:9	79:14 81:1 92:24
felt 61:19 122:25	129:25 131:8	flip 14:10,11	found 25:10 28:15	93:2 110:7,9,21
132:22	132:23 133:12	floor 8:24 9:1 11:9	28:21 31:18 32:4	118:11,11 129:6,8
fetch 19:8	firer 74:14 75:25	112:8 117:20	33:5 38:16 57:1	130:2,4,10 132:6
Fifth 76:21	77:18 80:10 84:16	fogs 92:15	58:15,16 59:9	132:23,24 137:9
figure 72:21	103:14 114:16,17	folder 4:23 52:23	60:11,12,14 61:6	full 67:7
file 89:5 94:12	115:9 120:8,12,16	follow 95:15	61:9,25 62:4,11	fully 19:11 20:1
film 129:9	123:18 136:8,17	follow-on 106:6	63:16 67:12,20	70:5
filmed 81:24	137:4 138:12	followed 82:15	68:2 70:8,9 73:12	fumes 10:24
final 44:3 102:6	firer's 75:21 80:20	130:25	77:22 80:5,25	function 58:15,16
127:12	84:10 86:6 89:14	following 17:3	82:8 83:6 90:16	functioning 31:21
finally 116:6	116:18	53:15 54:22 76:11	101:15,18 129:19	further 1:14,22
131:19	firing 57:7 66:13	112:18 134:16	130:10	36:4,16 41:19
find 3:18 13:20	70:18,25 71:3	137:2 141:4	four 1:22 18:14	46:1 61:5 105:11
15:19 20:9 22:10	74:4,11 76:21	follows 127:12	64:25 79:16	116:11,15 118:23
29:10 30:7,25	80:15 82:24 84:2	foot 4:20 11:9	106:14 114:14	123:10 133:15,16
41:7 65:9 66:8	84:12 86:5 98:24	22:25 23:8,9	126:4	133:18 142:19
68:25 70:1 93:17	115:15,21 124:18	74:18 84:7 104:5	Fourthly 76:18	
123:10	126:6,7 127:14	121:13	fragment 67:18	G
finding 21:16	128:5 131:15	footage 87:6 88:2,4	fragments 44:15	G11 1:3,7 19:4
findings 22:9 42:1	first 2:2 4:13 5:19	footwell 67:14	70:19,22 128:25	142:5
42:2,14 43:16	12:20 16:4 23:2	74:18 118:17	129:17,19,24	gained 96:10
114:25	45:23 53:14 55:23	force 131:11,13	130:1,17,20 131:2	gainsay 48:25
fine 21:1 54:6	73:10 76:10 77:16	132:18 133:8	131:9	gap 68:8
78:10 111:20	89:9 90:13 106:23	forceful 131:16	frame 58:8 67:23	garment 61:16 62:9
115:4 129:13	107:1 109:6,9	foregrip 57:22	68:3,5,16,23 70:2	garments 60:12
finish 140:4	111:25 112:23	forehead 44:5,12	80:20 81:15	61:4,24 62:15
finished 114:3	114:9 118:5	forensic 21:23	109:24 110:1,4,21	83:18
fire 58:11,23 66:15	122:16 126:2	24:16 50:4 54:1	110:23 111:1	gas 63:19 68:8
100:13	127:2 128:18	54:15,25 91:15	138:6	92:20 106:8
firearm 54:19	firstly 55:7 74:9	forgotten 40:15	frames 67:20	107:17 108:12
56:19 57:2 80:6	76:12 92:5 106:7	47:15	free 8:7 19:6 20:24	111:9,10,16 112:5
89:19	130:21 136:8	form 21:6 61:19	25:24 26:1,4,9	112:20 113:3,14
firearm's 81:14	fit 36:7,21 46:16,18	64:10 129:12	139:15	gather 88:11
90:2	46:20 49:1 95:20	formerly 54:3	freelance 100:17	general 4:22 26:21
firearms 2:16 4:22	103:25	forms 82:19	115:5	35:3 43:3 56:11
17:18 56:7 102:12	fitted 25:1 57:10	forward 48:23	fresh 44:13,13	56:15 67:8,16
102:17	66:13 102:18	57:23 58:6 75:2	friend 122:6	77:12 91:15
fired 9:12 11:10	fitting 68:6	75:17 84:14 100:4	front 4:19 6:23	116:24
15:16 55:8 66:10	five 25:17 56:12	101:4 116:2,3	11:20,23,24 12:4	generally 26:18
66:23 71:8,13,21	104:3 105:16	125:17,24 126:23	21:5 26:10 53:9	31:8
81:6 82:13 83:12	124:8	127:10 136:1	60:15 61:10,16,18	generate 98:19
89:25 114:7,12	fixed 59:9 100:8	137:22	65:19 66:8 67:14	generic 81:20
116:13,16,18,21	136:25	forwards 26:8 86:4	67:21 68:10,16,23	gentleman 24:19

George's 37:14 39:18 40:4 41:1	39:21 40:2 48:2,3 57:2 63:25 64:1	granules 37:19 40:22	haemolysis 39:8,9 39:10	30:1,4 33:17 45:12
getting 16:7 69:19 111:10 113:20 117:9	82:5 87:6 88:7 100:17 105:11,18 106:20 108:4,7	graphically 115:18	haemorrhage 21:17 42:19	heat 24:13
give 32:9 39:6 42:18 55:7 94:10 122:23	109:4,14 111:24 112:23 115:7 123:5 127:24	grass 6:3,9,17,21 6:24 91:19	haemorrhaging 50:22	heavier 113:13 123:14
given 14:4 20:19 23:5 40:4,25 45:23 47:5 51:25 60:24 62:8 68:2 116:15 117:18 120:22 131:15	129:10 132:11 136:15 139:22 140:19	grateful 95:5	half 123:13	hedge 79:9
gives 23:18 25:8	good 5:6 39:3 131:18	grave 105:19	hamper 56:14	heel 22:25 23:3,4,9 72:14
giving 36:2 56:2 59:18 64:8	grain 129:13	great 39:22 43:19 54:21	hand 90:25 109:5 134:10	height 23:7 70:13 77:22 78:23 79:4 83:8 84:10 96:18 100:16 104:7,12 105:4 121:4,8,16 121:21 122:6,17 122:19,23 123:3 126:22 135:18 138:25
glare 87:3,7 88:9 88:10,13,15 90:3 96:25 97:2,4	Grainger 12:9,21 13:2,6,11 15:17 19:22 22:5 23:3 25:14 31:1,12 32:2 33:6,22 34:10,16 35:8 37:3 41:17 43:9 43:12,22,24 44:3 45:5,18 46:23 48:10,21 50:14 51:16 55:10 63:6 63:10,12 72:9,15 74:5 75:17 76:5 77:14 83:9 87:8 89:23 92:9 98:1 100:2 101:3 102:15 103:7,24 104:4,4,15 115:18 120:9,13,16 121:3 123:4,7,15,18,20 125:23 138:13,14 138:25 139:4	greater 37:22 81:17 103:13	handcuff 9:5 handcuffed 9:19 91:20	help 5:13 12:18 14:16 22:23 40:5 44:2 102:11 104:25 108:19 136:4,4
glass 9:14 29:3 44:15 67:13,17 70:2,20,24 110:1 111:6,14,15 118:16,21,23 128:25 129:12,24 130:17 131:4,9,16 132:12,19 133:7 133:11	Grainger's 12:14 22:11 23:7 33:12 34:3 35:12 44:17 45:2 50:25 60:6 65:16,20 74:22 78:19 79:15,18 90:11,16 106:5,18 106:19 122:6 125:15	green 5:20 6:18,20 57:10,21,23 59:7 59:11,14 60:1 83:17 84:21 100:11,12,18 114:22 115:13 124:15	hands 8:8 9:3 129:4 Hang 92:3 93:17 happen 33:11 101:16 happened 15:5 22:21 44:24 46:11 46:21 136:22 137:18	helpful 72:21 127:11
glottis 41:8,11		grey 67:9	happening 10:13	helping 19:6 52:17 128:22
gloves 63:2 107:12 108:6,7		gross 86:15	hard 126:13	helps 56:20
go 4:15 6:17 13:14 19:6 31:8 34:22 52:5 65:25 82:6 87:22 97:18 99:7 123:17 134:5,23 139:15		ground 62:20 81:1 91:19,21,23 96:18	hat 62:24	Hey 1:9
goes 30:6 47:11 79:13		guide 60:1 64:12 137:24	haze 110:3	high 24:9 28:5 79:11
going 9:9 19:10 24:13 25:19,21,22 27:8,12,14,19 31:8 32:19 33:9 33:10,18,21 38:14		gun 36:8 57:13 58:5,25 59:21 78:1,3 101:20 114:13 116:9,10 116:20,25 117:10 117:14,18 121:11	head 33:9 44:17,19 74:19 77:22 80:10 80:21 84:10 86:7 89:14 100:16	higher 21:25 28:6 38:1 40:22 84:17 113:17 123:21 125:2,3,10,18
		gunshot 21:17 22:24 24:2,3,16 24:22 27:2 32:24 33:7 35:13 36:13 36:17 42:19 43:4 43:13 50:15 52:4 52:8 60:15 72:13 134:3 136:12 137:16	heading 119:18 130:9	history 90:19
		H	headrest 102:1	hit 22:10 27:15,15 27:16 44:18,19 45:20 73:15
		H&K 56:21	headroom 121:25 121:25	hits 25:7 100:19
		H9 4:11	hear 11:10 16:23 54:5	hitting 117:20
		Hadfield-Grainger 19:20	heard 9:12,14 11:13 12:16 16:22 19:21 34:18 35:24 52:1 72:13 89:20 92:8,13 99:2 104:5,6	Hmm 47:7 48:11 48:13 83:19,23
			hearing 10:22	
			heart 26:3,5,24 28:5,6 29:20,24	

92:11 99:13 113:1 hold 8:17 9:4 12:24 21:24 53:25 hole 60:14,25 70:8 Holiday 140:7 hollow 22:10 28:24 57:5 Home 21:23 honestly 113:16 honours 53:25 hope 4:23 93:15 109:8 horizontal 32:17,18 47:16,18,23 66:14 84:12 horizontally 5:10 hospital 37:14 hours 15:13 18:12 18:16 44:23 House 17:25 huge 30:16,17 hypersensitivity 41:5	immediately 43:12 43:18 immunological 40:18 immunologist 40:8 immunopathology 41:2 impact 57:6 59:6 59:11,15,19,25 76:4,5 125:16 126:17 129:7 impacted 83:13 impacting 24:24 impacts 129:20 imperial 122:10 imply 67:21 126:8 important 60:3 121:22 131:2 impossible 35:11 impractical 128:6 impression 12:20 126:14 incapacitant 37:11 38:10 incapacitated 45:19 inches 22:25 23:8,9 114:14 122:10 123:24 incident 11:12 44:14,21 51:19 55:6 56:13 62:23 71:10,12 72:6 82:7 88:12 91:19 119:23 120:11,15 134:2 137:15 incidentally 54:11 incidents 54:22 include 40:4 60:23 76:11 included 14:14 including 54:22 61:4,22 82:22 inconvenience 105:19	independent 34:2 54:25 independently 75:8 75:20 index 130:24 indicate 61:20 70:4 111:8 indicated 62:23 73:14,14 82:8 85:8 135:24 indicates 61:11 86:17,19 indicating 138:7 indication 86:1 indicative 31:15 118:25 indicator 116:9 individual 31:8 69:17 73:1 97:9 100:1 104:7 121:8 126:22 individualistic 43:11 individuals 62:20 120:8 121:2 inference 15:21,23 15:24 inflamed 41:11 inflated 79:4 inflation 78:24 120:2 information 1:14 16:7 60:16 66:2 70:18 72:7 73:13 73:19,23 74:15,19 76:10,25 77:9 101:4 121:22 123:9,10 134:1 137:1,14 informed 1:24 2:6 4:1 19:21 115:1 119:1,3 124:5 inherent 119:13 initial 14:21,24 15:2 65:5 91:16	97:12 initially 28:12 34:25 65:4 83:7 91:11 113:24 injuries 35:16 44:9 51:14 injury 43:4 44:4,12 44:21 61:12 83:20 Inn 1:8,13,18 inner 26:14,24 29:14 61:7 67:18 82:20 129:9,10 Inquiry 19:6,16 21:4 49:10 52:18 53:8,12,17 55:4 77:4 88:2,4 126:13 139:14 141:4 insert 58:4 inside 63:18 82:2 83:12 84:16 89:15 92:15 100:25 103:1,11 112:4,16 114:8,13 129:23 138:20 Insomuch 66:10 inspector 16:14 instance 97:7 112:8 123:4 instances 35:4 45:10 instantaneously 33:8,9,11,25 34:11 Institute 54:3 instruction 36:2 55:3 instructions 17:10 intended 19:24 intense 87:3,7 interdependent 76:1 interest 123:11 interfere 87:23 interfering 87:24	interim 78:21 interior 65:3 67:6 113:4 129:1,6 131:10,17 intermediary 51:4 71:22 intermediate 27:10 32:8 51:8,13 71:25 136:10 internal 26:22 30:23 33:1 50:21 69:16 78:7 interpret 39:22 110:6 interpretation 39:20 interrupt 125:8 interval 69:12 intervention 60:13 61:22 intrinsically 121:22 introduce 90:10 introduced 63:14 investigate 55:6 investigated 62:3 74:25 investigation 42:8 investigations 37:7 56:14 131:22 invitation 50:4 involved 45:15 involvement 51:4 51:13 55:19 inwards 26:7,8 IPCC 16:5 42:3,7,9 45:24 46:8 131:21 iron 100:8 irregular 51:2,11 73:6 issue 3:15 35:19 69:1 issues 74:1 95:13 100:6 item 61:21 123:17 items 60:8 63:5
I				
identified 12:9 22:5 identify 10:15 illuminate 87:1 illuminated 97:3 illuminating 90:2 illumination 86:22 illustrate 77:10 120:24 126:25 illustrating 93:19 126:17 illustration 77:7 119:12 120:20 121:21 122:8 124:2 image 109:19 110:16 111:13,25 113:7 126:17 images 91:4 imagine 98:13 imaging 28:17,19				

106:14	77:21 90:19 91:18	142:11	letter 55:3	lobe 25:25 26:1,12
<hr/> J <hr/>	92:17,19 95:15,16	lay 91:8	level 23:1,3,9,16	26:12 28:9,12,12
J3 16:10,11	100:7,9 101:5	layman's 22:21	37:21 38:1,3,4	lobes 26:13
jabbed 35:25 36:8	102:14 104:20	lead 27:24 28:23	39:21 40:23 41:16	localisation 23:18
jacket 27:24 29:2	105:3,8 109:4	29:2,2	79:11	localised 112:7
60:9,15 61:9,12	110:15 111:19	leading 89:1 109:20	levels 62:10	113:7
62:1,4 90:16	112:12 113:9,16	lean 86:4 125:24	lever 9:4	located 28:17 72:14
jacket's 61:7	116:16 123:3	126:23	life 39:3	location 60:16 65:4
jacketed 28:22	124:11 132:6	leaning 12:4 48:23	light 57:10,23,24	68:2 70:13,21
jacking 78:23	135:4,6,18 138:6	75:17 84:14 89:24	88:14 90:3 93:21	74:4 84:17 126:7
Jackson 1:23	138:21 139:24,25	100:4 101:3	97:1,12 100:18	134:2 136:12
jagged 51:2	140:5	102:25 116:2	110:2 113:10	137:15
Jason 21:3 53:7	knowing 67:16	126:9 135:25	120:14 132:8	locations 18:3
jog 17:20	121:15 136:19	137:22	lights 11:1 87:17	74:14
join 140:21	knowledge 21:13	leant 12:24	liked 122:2	long 18:14,18 34:15
joined 139:7	49:21 53:20 62:5	learned 122:6	likelihood 43:17	40:25 105:8
Joseph 8:19	136:22 137:6	leave 19:23 113:21	Likewise 49:6	longer 16:12
Jude 42:9	known 55:9 101:21	led 32:25 34:5	limitations 76:8	look 1:11,21 4:23
judgment 51:10	knows 87:21 88:13	73:20	119:11	5:3 10:7 14:11
junction 1:8	111:22	Lee 42:9	limited 55:1 69:7	29:24 43:25 44:15
June 21:10	<hr/> L <hr/>	leeway 80:12	81:12 88:21	64:6 71:17 78:5
jurisprudence 22:2	lab 81:5 126:19	left 22:11,13 23:10	101:19	93:14 94:21,23
<hr/> K <hr/>	laboratory 82:9,13	23:21,24 25:15,16	line 23:17,23 46:12	95:23 96:6,19
keen 140:2	85:4	25:17,20,25 26:11	46:22 59:23,24	98:23 99:7,22
Key 54:25	lack 68:9	26:13,15 28:2,11	79:14,18 84:2	102:16,24 108:13
KFS 55:15,24 81:5	laminated 82:23	29:17,24 30:3,9	93:23	108:20,22 109:3
kidney 31:14,15,16	129:8	31:3,5 32:15 34:7	lines 79:9 126:4	110:10,11 112:24
31:22	landed 81:13	35:9 36:19 50:17	lingers 111:22	128:17
kidneys 31:14	lands 136:18	58:5 60:15 61:10	lining 29:14 80:11	lookalike 78:15
killed 15:17	Lane 1:9	72:16 73:16 74:17	list 55:23 89:12	looked 14:17 31:22
kilograms 58:24	language 122:23	75:4 78:14 82:7	listed 119:18,25	44:13 62:9,16
kind 37:10 41:13	lap 118:3	85:9,20,20,24	listen 20:20	94:3 106:21 107:5
kindly 52:25 53:16	large 26:20 88:6	86:12 96:4 116:3	litre 37:23,24 38:17	looking 4:24 9:9,11
kit 13:14 85:3	larger 87:14 121:13	116:18 126:24	38:18	24:17 31:7 35:18
knee 74:16	laser 57:11,21,23	127:8,15 133:2,4	litres 31:2,5 33:16	43:7 50:11 52:3
knew 17:21 132:14	59:7,11,14,20	137:8 139:2	little 24:8,11 35:23	56:11 57:18 62:5
132:15	77:3 83:17 85:1	left-hand 117:9	38:3 44:21 51:6	68:19 72:9 85:2
know 4:7,14 5:20	100:11 124:15	118:20	74:16 80:12 82:5	87:3 94:14 98:4
8:19 15:3,16,23	126:19	lefts 85:20	83:16 87:13	98:15 100:18
16:6 17:6,21 18:8	late 106:13	leg 74:17	103:22 109:4,21	101:20 103:6
19:22,23 26:23	lateral 30:9	legal 16:5 17:3,5,7	116:15 129:14	104:19 106:14,16
27:5,24 34:17	Lawler 20:18 41:21	50:4	Liverpool 22:7	106:24 107:14
38:3 45:17 46:17	42:10 45:15 49:12	length 123:6	50:7	108:10,20 126:10
57:8 63:4,12,15	49:13,16 73:13	lessens 88:8	load 58:3	127:2
		let's 78:5 123:17	loaded 58:4	looks 86:18 110:18

loosely 95:17 98:3	markings 61:1	28:3,7	missile 82:21 83:24	N 142:3
Lord 21:1	64:17 97:6,10	medic 73:22	85:15	name 17:21 21:3
lose 40:22 43:5	marks 96:1,13	medical 21:24 22:2	mixed 61:8	53:7 90:10
losing 43:17	108:7	49:25 60:13 137:1	ml 31:2,4,5 34:6	narrow 111:16
loss 3:12 69:17	mass 40:21 100:10	medicine 50:2,4	moisture 91:23	natural 31:10,24
82:22	100:13 124:11	meeting 17:17,23	moment 19:7 100:3	98:7 138:18
lost 34:23 69:15	massive 32:25	member 50:3 54:2	107:12 108:12	nature 24:1 27:2
lot 41:9 55:18	mast 37:15,18,21	memory 17:20	110:13 129:15,21	62:2 67:20 69:15
56:16 88:12 95:8	40:2,11	men 107:6	134:5	72:2 113:7
96:10 119:8	master 54:1	mentions 83:10	momentarily	near 7:19 64:24
lots 26:20 117:12	matching 114:22	Messrs 62:13	113:17	66:15
136:15	material 67:22	met 41:20	morning 15:9 52:2	nearest 103:25
low 6:14 112:7	96:19	metal 27:11	104:6 140:13	104:13,14
low-profile 78:25	matter 34:19 38:9	methods 138:10	mortem 22:3 39:2	nearside 7:6,8,19
lower 26:13 28:9	39:24 41:14 51:10	micro 57:15	40:23,24 41:16,23	8:4 10:9 11:24
28:12 61:17 70:10	52:11 56:4 123:11	micrograms 37:22	42:12 50:5 76:12	12:1 13:12 66:9
lowered 35:13	matters 18:2 54:18	37:24 38:16	98:18 138:18	67:11,14,21 68:1
36:11	54:19	microphones 54:11	motion 117:4	70:11 74:21 75:22
Luncheon 105:25	mean 6:21,24 26:1	Mid/late 88:19	125:17	93:4 109:25
lung 22:13,17	26:6 27:2 30:16	middle 10:7 85:7	mouth 101:12	118:11 130:14
25:25 26:3,10,13	31:12 33:7,9,15	135:11	move 13:2 35:2	131:6
26:15,23 28:2,7	35:3,16 39:20	midline 23:20,21	43:9 63:22 83:18	necessarily 59:25
28:14 29:11 50:19	40:12 44:9 46:16	23:22,23 72:16	96:23 126:21	69:16 113:21
lungs 21:18 26:2,12	48:1 58:16 59:17	83:11	130:7 139:17	necessary 58:10
30:2,6 34:4 42:20	60:22 71:23 82:11	midway 81:1	moved 2:5 43:24	126:5 134:10,12
52:8	97:5 98:3 101:2	mildew 67:7 119:7	78:3	139:2
	113:20 126:12	millimetre 22:10	movement 13:4	necessity 125:22
M	means 24:25 28:11	24:10 28:25 56:21	36:1 43:15 45:22	need 20:3 38:14
magazine 56:22	29:4 30:18 78:2	60:18 70:16	46:18,19 84:6	40:19 52:21 87:22
57:3 58:3,4	meant 23:3 77:24	120:25	114:23 115:9	91:2 92:22 100:23
main 24:15	measure 30:25	mind 45:23 131:7	moving 45:19 58:6	117:13 121:20
major 30:8	96:18	mine 84:24 107:2	62:12 72:5 85:17	140:1,13
making 16:3	measured 25:20	129:3,4 134:9,10	94:8 100:17 114:5	negative 69:8
127:21,22	72:19	minimal 91:22	MP5 6:12,13 8:6,7	neutral 140:20
man 17:20,22	measurement	108:4	56:21 58:13 79:21	never 39:3 65:11
manner 69:21	72:24	minor 35:17 44:9	80:25 97:1	65:14 77:8 94:21
78:12	measurements	51:15 115:25	MP5's 86:22	104:8
manoeuvre 80:12	23:14 64:12,13	minus 121:12	mud 108:8	new 94:8,24,25
March 15:25 17:17	70:13 120:5	minute 33:16,16	multiple 92:20	Nexus 17:25
17:25 22:4 49:18	138:16,18	34:24	mushroomed 71:15	night 88:11 111:20
50:7 78:13 134:15	mechanical 58:21	minutes 14:3 18:12	muzzle 35:25 36:7	nighttime 105:2
mark 17:22 35:23	mechanism 40:10	18:16 34:9,10,20	58:19 78:1 80:4	nine 134:6,24
36:3,6 84:20,21	61:21	105:14,16	81:8,14 103:13	nipple 23:15,16
84:24,25 114:22	mechanisms 40:18	mirror 79:17		72:16
marked 57:8	mediastinum 28:3	misread 23:2	N	nipples 23:17

non-immune 40:10	111:15 118:13,15	ones 87:23	outside 3:10 56:7	128:18,19 130:8,8
normal 31:22 38:1	118:18	open 4:22 12:6,7	63:17 78:1 80:7	130:16 131:24,24
83:15	occupants 2:10	19:11 21:9 49:16	80:15,16,19,21,25	132:2,8 133:19
normally 31:17	3:23 62:21 90:3	53:9 68:2,11	82:3 84:5 85:23	134:6,23,23
58:15,16	129:18,23 130:2,4	74:11,20 75:15	89:14 99:3 100:23	135:21 137:5,25
north-south 140:18	139:17	80:20 81:17 102:2	101:7 103:12,13	138:2
note 31:12 95:7	occupied 18:16	110:15,18	109:16,23 111:4	pages 18:14 53:11
noted 29:7 67:13	occupying 93:9,10	open-air 128:7	111:22 112:1	53:15 72:9 94:2
87:5 130:9	occur 39:13 44:21	opening 78:2 80:13	114:8 116:14	130:7
notes 63:23 64:8,11	occurred 15:15	111:17	136:23 138:20	pagination 78:7
70:14 72:11,25	44:13,14,22,23	operated 57:24	outwards 69:17	pane 129:10,11
73:24 76:19 80:24	51:16,19 56:12	operation 2:25 58:1	136:21 138:14,23	paper 16:24 17:1,8
notice 9:19	occurring 39:24	operational 2:15	oval 73:5 82:20	65:19 95:20
noticed 9:21,24	October 53:13	operator 121:11	overall 33:3 41:15	paragraph 1:12
13:6	oedema 41:9	opine 36:25	86:10 89:8	8:11 10:7 130:16
November 53:17	offence 3:20	opinion 48:21	overlap 26:4	131:3 137:12
88:18,19,25	offer 75:25	55:15 61:11 64:8	ovoid 24:3	paragraphs 1:22
number 51:11 57:3	offers 76:8	107:15 128:22	ownership 107:10	133:25 135:22
57:9,9 88:6	Office 21:23	opinions 51:24	oxygenated 29:25	park 1:19,23 2:1
128:24	officer 16:21 35:24	129:3,4	30:3	3:3,5,25 4:2,4,18
numbers 75:11	55:9 56:23 97:2,7	opportunity 94:21		14:4
122:25	98:24 102:12,17	94:23	P	parked 1:8,13,17
Nutter 16:11	102:19,24,25	opposed 103:8	P 52:23	1:19,25 4:1,18,19
	103:1,1,5 105:3	opposite 5:15 87:15	package 64:4	5:14,15,18 78:18
O	118:4 124:12	optic 100:16	pad 57:22	parking 79:9
O1 91:25 108:13	officers 10:14	optical 57:11,15	page 1:12 4:24 8:11	part 14:19 15:12
object 71:25 117:4	13:11 15:4 18:1	77:20,24 85:4	10:8 39:15,16	28:5 31:24 36:18
objects 60:5 72:6	18:20 46:3	114:17,25 115:21	50:11 52:4 53:10	58:21 64:10 70:10
oblique 27:16	Officers' 17:18	124:4,7,14,21	55:21 56:19 60:7	105:16 110:1
66:11	offside 4:16 5:9	options 112:14	64:4,6 68:19,20	128:9,19 131:21
obliquely 48:3	11:19,23 68:9,11	138:20	74:6 75:5,11 78:6	133:20
observation 128:5	74:12 75:15	oral 20:3	78:6 79:6,8,21,21	part-burnt 60:25
observe 42:12	oh 110:13	order 36:1 37:8	80:9,14,14 82:6	partially 68:2 93:2
obstructed 97:13	okay 5:18 6:15 11:5	55:6 83:20 85:16	83:2,13 84:8 85:7	participants 20:5
obtain 64:21 84:6	16:13 17:11 40:17	organs 26:22 32:2	85:20 92:1 93:12	55:4 140:5
obtained 71:2	54:13 78:8 82:17	orientation 32:10	93:14 94:9 95:23	particles 129:13
obtuse 111:3	93:24 96:7,12	32:12 64:17 75:23	97:19,20 98:22	particular 2:10
obvious 61:25	97:15 99:5,6	original 64:10 70:3	99:8,8,23,23	21:25 28:9 37:17
90:16	100:6,21 102:5,20	79:10,13,19	102:8,8 103:18	63:23 67:8 70:22
obviously 24:18	103:1 109:8	originated 130:22	106:22 107:1	73:2 91:11 126:5
29:17 30:23 32:4	112:18 119:10	originating 70:21	108:13,16,21	131:13 132:5
32:20 35:4 48:5	128:16 131:20	outer 61:13 67:18	119:16,16 122:16	particularly 60:19
64:23 77:2 104:10	once 40:20 45:19	129:9,11	122:18 124:19,20	90:4 121:10
105:1 126:21	92:14 136:23	outline 93:6,20	125:7 126:3,4,10	partly 85:12 89:23
occupant 87:2	137:19	output 33:15	126:12,17,24	93:9

<p>partner 45:2 106:5 pass-through 29:20 passage 24:12 25:13 32:7 36:19 49:1 85:21 131:25 132:3 passages 128:17 passed 27:6 29:20 30:13,22 32:1,6 32:16 50:25 60:19 65:1 79:2 passenger 11:19,23 11:24 12:4 68:16 68:23 70:1 74:12 75:15 85:24 92:24 93:2 110:21,23 113:21 118:11 129:6 130:4 132:7 132:23 passes 25:23 26:18 27:4,10,18 71:25 passing 25:24 29:9 73:9 83:25 137:9 path 28:13 29:15 120:24 pathological 19:19 19:22 43:16 44:7 46:9 48:17 pathologically 46:25 48:25 pathologist 21:21 21:24 24:17 Pathologists 22:1 50:3 pathology 20:10 36:15 43:8 44:2 45:7,17 46:16,21 72:11 pattern 24:25 112:19 patterns 101:20 128:4 Pause 88:1 110:14 pebble 129:12 131:4</p>	<p>pebbles 70:23 133:3 pelvic 31:18 pelvis 31:17 pen 16:23 17:1,7 penetrated 32:22 132:13 penetrating 21:18 34:4 42:20 52:8 penetration 33:3 penultimate 118:3 people 35:5 54:10 55:24 56:5 72:5 104:13 119:9 121:12 136:4 140:4 people's 55:19 perceived 126:18 perceives 100:11 perfect 24:4 perfectly 115:8 perforating 60:14 70:9 130:10 performance 59:10 peri 40:24 period 3:12 periphery 97:14 perpendicular 116:24 person 22:4 57:18 79:22 83:4,8 85:11 86:3,11 91:8 93:8 122:17 122:18 135:4 person's 121:16 personal 52:12 pertaining 134:2 137:15 phase 19:16 PHILIP 53:2 142:13 philosophy 54:2 photograph 63:4,5 78:11 79:5 83:2 84:18 96:6 98:23</p>	<p>99:12,22 104:20 108:9 109:9,21 124:19 134:18 photographic 106:25 photographs 5:2 42:11 62:14,16,19 62:23 63:1,10,24 64:16 65:3,12,18 65:21,22 66:5 70:3 73:25 76:19 79:13,20 80:24 90:22,25 91:1,13 95:4 97:25 102:9 102:15,21 103:17 104:20 106:17,21 107:5,14 109:6 112:24 118:8 126:11,15 134:7 134:24 photos 94:14,23,24 95:1,23 96:2 physical 55:5 56:10 60:5 75:6,19 77:7 121:1 physical/anatomi... 120:7 physically 56:17 pick 17:7 45:3 picked 29:5 picture 80:9 96:9 96:11 106:13 126:24 127:8 135:12 137:25 138:1 pictures 71:17 95:21,22 106:17 138:7,11 piece 16:24 17:1,8 65:18 78:18,20 85:4 pillar 67:10,10 109:17 110:4,6,9 place 77:11 80:6 134:25</p>	<p>placed 8:7 9:1 plan 3:6 plane 117:3 plastic 129:9 play 31:24 played 88:2,3,4 please 1:11 4:23 20:8 21:15,16,21 22:9,24 23:15 24:2,8 25:14 26:17 49:16,23 52:20,21 53:10,10 53:22,24 54:14 58:2 59:5 60:6,11 60:22 70:8 74:3 77:19 82:11 83:6 85:14 87:10 88:3 93:12 96:23 97:17 108:13 126:10 128:12 133:10,17 133:19 134:6,23 135:21 pleural 29:13 plus 119:7 121:12 pm 18:5 105:24 106:1 141:3 pockets 61:4 point 1:7,17 2:9,23 3:5,11 6:11 7:25 8:5 9:12 15:3,20 22:10 24:15 27:14 28:25 35:9 36:13 38:4 40:19 44:7 45:4 47:3,21 48:17 51:7 56:9,9 56:11 57:5 59:6 59:11,15,25 60:1 60:1,3 61:24 63:8 76:5,23 85:19 87:24 110:24,25 111:7 112:17 113:20 121:20 125:6,16,18 127:21,22 131:2 135:17 136:25</p>	<p>pointed 7:25 pointing 26:6,8 35:19 80:1 113:9 136:20 points 109:14 poking 114:14 police 5:3 8:12 16:21 17:18 34:2 34:17 42:6 46:3 56:19 57:2 63:25 65:11,14,19 66:2 89:6 95:14 97:2,6 97:8 98:25 127:1 port 6:14 position 1:18 6:13 9:6 12:13,14,15 22:24 23:6,6 26:9 35:8,13 36:22 45:6 47:9,10 48:9 48:18 59:9,12 64:14,18,22,23 72:8,20 74:5,15 74:22,24 75:21,25 76:4,5 77:14,18 77:23 79:18 80:15 82:2,3 87:2,7 89:18 95:19 96:15 96:20 98:4 99:4 99:11,25 100:16 101:10 102:14,16 114:5,13,15,22 115:10,16,19 116:18 120:10 123:2,22 124:25 126:6 130:20 135:10,14 136:8 136:16,18 137:1,4 138:5,12,13 140:12,15,17 positioned 5:10 22:25 23:10 74:18 77:10 78:13,20 80:7,19 83:15 95:18 98:1 124:22 positioning 115:17</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

positions 55:9 59:18,20 63:25 76:18 77:13 79:10 120:1,12 123:17	precision 120:5 predictably 57:6 predicted 84:17 predominantly 50:21 129:12 prefer 96:18 140:22 preference 52:12 prepared 54:24 presence 38:6 present 15:20,22 24:20 31:16 42:3 42:7 50:9 138:1 presented 43:11 pressure 33:12 57:22 58:22 pressures 89:2 presumably 3:17 56:18 60:13 72:20 111:14 118:12 presume 111:20 presumed 62:21 presuming 118:15 presumption 119:4 prevent 68:10 prevented 61:22 prevents 132:10 previous 31:13,13 73:13 87:21 previously 70:15 primarily 140:16 primary 128:9 principally 34:5 principles 91:15 prior 41:17 pro 140:4 probabilities 102:5 probability 101:11 101:13,17 probably 10:4 16:10 17:20 33:10 44:10 105:14 118:2 129:10 136:4 140:24 problem 87:16	111:12 procedure 14:19,22 14:25 15:8 procedures 17:4 proceeded 6:18 7:1 124:3 process 18:9 39:14 40:5 produce 38:11 77:14 125:3 produced 26:11 90:3 produces 26:25 87:3 product 63:16,18 91:11 products 91:8 progression 138:18 project 136:23 137:3 projected 57:12 59:23 139:1 projectile 28:15 29:7 30:21 34:3 projecting 57:11,21 138:14,23 projection 138:19 projects 57:23 pronounced 67:9 115:20 116:3 propellant 24:23 25:7 60:25 73:7 propelled 128:25 129:5,17 131:10 131:12 133:11 proper 78:24 property 57:9 proposition 124:20 protected 67:24 protruding 81:15 prove 35:3 38:5,6 41:16 107:19 proved 67:19 provide 14:21,24 15:2 70:18 74:13	89:13 provided 62:14 72:7 73:19,24 123:9 131:20,21 provision 55:14 provisional 42:11 proviso 77:17,19 provoke 36:1 pull 8:22 13:11 58:20 pulling 58:8,18 pulmonary 21:18 22:15 29:21,21,22 30:6,7,8,13,22 32:24 33:5 34:4 42:20 50:18 51:3 52:9 73:20 pumped 30:5 pumping 29:25 33:17 pumps 30:1 punch 131:18 purely 52:12 63:3 100:10 103:8 129:4 purpose 57:9 purposes 79:3 80:16 push 57:24 put 2:22 9:3 11:9 16:22 33:19 40:23 44:10 46:2,6,13 46:17 52:25 65:18 107:13,17 109:14 114:6 116:20 putting 46:8,11 101:12 Pythagoras 125:4	120:9 121:3,15,25 122:2 123:22 124:21 127:14 Q9's 99:11 121:4 125:1,12 127:15 qualifications 21:22,24,25 49:24 50:1 53:22,23 qualified 54:18 quality 55:18 96:11 query 112:1 question 37:8,9 44:3 45:6 56:3 66:13 102:23 104:11,22 questioning 105:11 questions 1:6 18:23 21:2,4 42:24,25 43:2 45:1 49:4,15 52:15 53:6,8 90:7 90:8,9,12 97:17 99:16,21 106:4,6 106:7,12,15 118:1 118:2 127:13 128:13 133:15,18 139:9 142:6,8,9 142:10,12,14,15 142:16,17,18,19 quick 38:11 110:11 quickly 33:18,24 34:21 40:3 43:5 108:2 quietly 54:7 quilted 60:9 quite 5:6 24:11 26:9 28:5 30:8 54:7 58:15 64:16 64:19 124:8 131:16 132:18 quote 119:21 quoting 100:3
			Q	
			Q9 15:16 55:10 56:23 74:5,10,14 75:14 76:4 77:14 77:21 89:20 114:5 114:7,12 118:4	
			R	
			R 52:23 ragged 26:15,20,25	

<p>27:1 30:11,12,16 30:17,20 60:14 raise 80:10 98:8 raised 35:13 36:11 ran 4:19 5:6,15,25 range 24:16,24 25:2,12 38:19,22 40:25 58:14,25 60:20,23 71:3 73:11 101:19 128:3 rapid 35:7 rapidly 33:12,22 34:24 rata 140:4 Raven 1:8,13,18 reached 75:7,20 76:9 129:17 reaching 77:1 react 38:14 reacting 46:23 reaction 37:13,21 39:24 41:6,12 reactions 37:17 read 20:6 23:3 72:11 132:2 137:13 readily 124:15 reading 135:22 reads 2:2 realising 132:11 really 15:12 35:17 36:16 45:6 77:7 80:13 84:1 86:16 91:2 105:1,12 106:16 111:12 131:19 132:3,20 rear 4:16,19 5:9,16 6:19 7:6,7,8,19 8:4 9:5,21 10:2,9 11:7 66:9 68:1,10 74:17,21 75:14,22 77:23 79:23 81:1 91:20 110:7,9,21 110:23 111:1,15</p>	<p>rearwards 81:7 reason 101:1 111:10 113:18 133:14 140:3 reasonable 35:4 115:8 reasons 39:6 40:4 41:1 42:18 88:7 101:8 140:21 recall 1:20 2:14,18 3:22,24 7:18 10:6 10:21,22,24 11:4 14:23 17:19,24 received 55:3 recognise 78:8 97:9 recognised 119:24 recollection 65:21 65:24 reconfigure 19:10 reconstruct 77:8 98:24 104:21 reconstruction 54:22 64:9,11,15 73:4 77:5,6 79:3 80:6 92:17 95:17 97:5 98:2 120:20 120:25 134:3 135:2,9 reconstructions 81:20 record 54:12 121:20 126:13 recorded 70:15 83:8 121:16,19 recording 88:8 records 94:2 95:3 121:18 recounted 48:8,14 recovered 61:4 71:14 recreate 95:16 99:25 recreating 124:20 red 3:1 7:3,4,5,20 35:23 36:3,6</p>	<p>39:10 40:20 44:4 57:12,14 59:7,12 59:14,24 60:1 64:1 65:16 74:22 77:24 78:17 80:2 84:21,24,25 85:1 85:3,3 86:12 87:2 95:15,24 97:24 99:18 100:7,23 108:15 114:17,21 115:9 118:12 126:19 reddened 41:11 refer 8:10 16:11 93:7 reference 38:19,22 39:15 63:23 64:14 108:16 131:23 137:18 referred 57:5 referring 103:12 106:22 135:3 reflect 126:15 reflected 117:5 reflection 87:16,19 refractive 130:24 refusing 12:21 regard 64:7 regards 35:18 region 61:10 123:13,14 regular 91:7 relate 19:21 related 44:16,16 54:19 relating 18:2 134:1 137:14 relation 18:2 22:4 23:14,20 63:6,13 70:19 73:25 83:4 90:12 118:11 120:15 126:2 128:15 relative 55:9 64:19 70:17 74:20 76:18</p>	<p>120:1 123:7 relatively 4:5 66:20 68:16,24 82:19 100:13 release 58:10 releasing 37:20 relevance 69:10 relevant 131:25 reliable 61:22 reliant 100:22 103:2 115:12 relied 102:18 114:22 rely 43:16 relying 115:11 remain 19:7 remained 70:4 remaining 70:2 remember 2:15 3:11,15 16:16 27:22 28:24 29:8 33:4 132:12 remembers 132:8 remit 128:9 remove 91:17 removed 51:16 63:12 69:14 91:24 107:21 108:1 renal 31:13 reorientate 71:3 repeat 127:24 replicate 84:9 report 21:6 27:25 29:1 30:15 35:10 39:18 42:10 45:24 46:5 48:9 49:17 50:12 53:12,16 55:23 56:4 76:7 76:10 77:16 78:6 80:18 83:10 85:11 88:24 89:3,10 90:15 97:16,17,19 102:7 106:23 107:1,15 121:23 122:13 124:2,19</p>	<p>128:18,19 129:15 130:7 reported 74:13 77:16 84:9,18 89:9 90:24 100:10 120:5 123:22 126:7 reports 53:14,19 54:24 72:11 98:18 124:2 reposition 78:12 79:12 repositioned 65:5 repositioning 64:20 86:15 represent 43:21 45:2 106:5 representative 42:3 representing 90:11 reproduce 71:4 98:11,12,16 119:23 125:9,9 reproduced 79:10 79:19 88:10 repull 58:11 request 41:24 requested 123:8 require 55:19 required 75:1 residue 27:21 67:16 68:4 118:6 respect 59:7 106:14 respective 58:17 63:24 respectively 21:19 56:24 60:8 respirator 2:22 respond 35:1 response 41:14 responsible 50:24 rest 4:8 23:12 115:1 resting 35:22 74:17 80:20 restricted 80:7</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

restriction 121:24	85:10,12,19,21,24	138:10	69:4 89:13 122:21	5:19,25 8:11
result 37:1 41:1,4	86:14,23 87:22	rounder 51:9	scientist 54:15	25:17 41:23 42:12
60:3 69:8 83:16	89:24 90:14 93:11	route 111:21	scope 59:13 77:2,20	46:5 50:5 53:16
96:21 129:24	94:7,18 96:5,9	113:13	77:24 80:7,18	78:5 86:1 89:3
133:12	98:18,19,22 99:24	row 135:12	85:4 89:15 100:17	93:13 96:12 97:19
resulted 81:5 84:17	101:22 102:14	Royal 22:1,7 50:2,7	100:23,23 114:17	101:9 112:25
results 58:9 59:5	103:4,16 104:18	54:2	114:25 115:12,21	114:9 115:15
71:7 74:13 76:12	107:18 108:25	RS6 63:2	124:4,7,14,21,24	119:16 122:17
77:3,15 82:10	109:18 110:7,11	run 5:13 6:9 81:23	124:25 125:19	124:19 126:10
89:9 100:22	110:15 112:15	running 10:20,20	126:3 127:1	137:10
resume 105:23	114:12 116:25	10:22	138:20	secondary 39:14
resuscitation 39:14	119:10 124:9		scopes 103:2	40:4 129:20
40:5,7 44:11	125:6 126:9 127:1	S	screen 70:10 75:24	secondly 55:9
reticular 57:16	130:20 131:8	S 52:23	82:23 87:14 88:16	76:14 89:23
retracted 58:6	132:18,25 133:2,8	S-Max 6:1	109:7,14 129:8	136:10,19
return 13:16	134:18 135:8	safety 58:7,8,17	132:15	seconds 33:21
reveal 31:10	136:1 137:8,22	salt 129:13	screens 82:13,24	34:25 38:9 39:25
revealed 31:20	139:2 140:23	sample 38:25 39:1	128:6	41:14 46:24,25
revving 10:22	right-hand 4:2 96:4	39:3,7,11 67:12	scuff 96:1	section 70:6
Rheinberg 41:24	127:3,16,18	samples 39:2	Seaman 52:20 53:2	secured 11:15
50:6	137:25 138:1	sat 85:15 98:13,13	53:3,7 54:7 87:14	67:11
rib 137:10	rights 85:20	98:15 123:23	90:10 105:20	see 4:18 7:10,15 8:3
ribs 25:17,23	rim 24:7,11 66:12	126:22 132:22	106:5 118:3	8:15 10:17 11:1,3
ricochet 81:16	ring 53:9	satisfied 41:4	128:14 132:1,2	13:2 14:10 21:9
102:1	rise 19:9 20:12	saw 9:23 65:1 67:6	139:13 142:13	24:24 28:13,19,21
rider 107:13	road 1:9 64:17	71:19 109:19	search 13:18 69:7	38:13 39:23,23
right 1:25 2:3,20,23	robust 115:10	119:6	seat 67:10 73:1	49:17 53:11,15
4:9 5:21 6:3 8:20	rod 134:19,21	saying 5:18 27:6	74:11,17,23 77:23	57:13 59:14 62:19
9:4,4 10:9 12:10	136:17,21 138:7	76:1 87:7 100:22	79:23 83:5,15	65:22 66:4 78:5,9
12:18 13:7 17:16	138:12	101:11,16 129:22	85:11 86:4,12	78:18 79:5,14
22:5,17,19 28:7,9	Rodgers 20:8,18,23	says 132:10 133:7	92:25 93:2,3,9,10	80:9 83:13,16
28:12,14,20 29:11	20:24 21:3 43:3	133:25 137:7,13	97:25 98:5,6,14	86:25 87:18 88:9
29:12,17 30:1,5	49:9 50:1,9 51:7	scarred 31:15	98:15 104:9	88:24 90:20 91:2
31:3,4,19 32:1	51:24 52:2 73:13	scenario 36:7 46:6	111:14 113:3,6,12	91:6,7 92:22,22
33:1 34:6 35:15	142:7	46:8,14,17 83:12	113:21 118:11,12	93:1,3 95:2,21,22
35:22 36:1 38:20	rods 134:25	113:14 132:5	118:17,21 120:10	95:24 96:1,5 97:6
41:7,24,25 44:3,5	role 77:22 102:19	scene 14:7 54:21	123:2,21 126:22	97:9,14 99:4,12
45:12 48:14,21	roof 80:11 93:23,23	62:21 63:24 64:8	130:2,4,4,5 132:7	102:11,23 103:10
50:18,23 51:5	103:6 109:20,24	65:4 76:14,19	132:23 134:19	103:14,20,22,22
53:5 54:5,15	110:3	80:24 89:8 95:16	135:25	104:22 110:13,22
55:16,25 56:22	rough 23:18 34:14	95:21,22 133:22	seated 87:2 133:1	111:13 113:4,5
61:17 69:6,8 72:9	roughly 48:3	135:5	135:24	118:24 124:20
73:16 74:16 75:3	round 6:18 11:10	Schofield 19:20	seating 123:1	127:8 129:5
75:4,18 78:17	11:13 17:11 26:19	science 54:1,1	seats 65:5	132:20 133:25
79:11 81:7,9 82:7	31:4 58:6 136:19	scientific 63:15	second 4:22 5:16	134:13,18,24

135:20 137:3,5 seeing 132:8,10 seek 123:6,9 seeking 126:16 seen 16:22 35:6 42:10 45:11 51:10 51:14 65:11,14 71:18 90:23 92:17 92:21 95:2,4,6 105:3 118:8 self-loading 56:21 sentence 140:8 separate 139:7 separating 110:7 129:9 September 46:5 sequence 55:11 58:1 serum 38:15 service 71:22 Services 55:1 set 60:5 75:11 82:25 116:12 setting 128:23 137:12 shadows 140:19 shape 24:3 30:20 82:9,20 shaped 30:18 shapes 82:14 shards 132:12,19 133:2,7 Shaw 19:7 87:20,21 shock 21:17 42:19 shoe 101:25 Shoot 1:9 shooter 15:22 99:3 shooter's 99:10 shooting 54:22 short 19:14 20:13 20:16 40:25 130:2 132:3 shorter 104:3,15 122:10 shortly 33:23 46:11	46:24 shot 13:9 15:17 17:22 23:19 25:1 25:12 33:9 34:24 34:25 35:6 37:5 38:9 41:17 43:9 43:25 44:20 45:5 45:20 46:24 48:12 51:20 58:11,12 66:10,12 71:4,10 73:11 74:10 75:14 79:2 83:21 89:25 101:6,9,14 116:16 116:20 117:9,18 118:4 120:13 123:18 126:18 136:1 shotgun 9:22,23 11:7,10,13 66:18 79:1 shots 9:12 66:23 shoulder 86:12 87:15 98:5,8 116:3 123:3,7 127:3 shoulders 74:20 103:23 113:6 shout 8:9 9:3 13:14 shouted 4:11 8:12 8:13 13:9 show 82:5 87:6,10 88:7 95:23 showed 77:3 80:18 86:2 showing 29:3 59:10 127:9 shown 84:18 108:22 111:25 shows 80:14 shrubbery 64:18 shrunk 31:14 side 8:7 9:5 12:2 26:2 27:15 29:24 30:1,4 50:17 58:5 58:7 70:23 85:25	92:6 110:20 113:3 113:8 117:10 118:20 127:16,18 129:6,11 132:18 133:1,2,8 sidewall 66:17 sight 57:12,13,15 57:16,18 59:20 84:5 100:12 sighting 59:2 sights 59:17 100:8 sign 34:16 significance 95:9 significant 32:25 38:4,12 117:13 significantly 27:12 signs 10:19 silence 15:12,14 silly 16:23 silver 78:14 102:12 132:9 similar 5:3 26:22 49:25 62:10 70:25 71:2,9,11,14 82:14 83:8 96:14 105:2 122:18 137:21 similarly 90:22 134:24 Simon 20:4 simple 37:9 simply 40:8 48:14 108:6 124:14 128:2 single 58:12 66:18 69:15 117:3 sir 1:5 19:2,3,9,16 20:12,18 32:9 49:6,8,12 50:8 52:13,15,21 53:5 68:22 86:19 87:6 87:19 88:19 90:8 91:25 93:15 94:2 94:8,17,17 99:20 101:2 105:5,21	107:2 111:12 113:10 128:12 131:23 134:8 139:9,12,16,19,21 140:15 141:2 sit 15:12 20:24 26:2 53:3 102:14 140:7 site 61:7 sited 31:17 sits 41:21 sitting 37:3 62:20 72:20 73:2 83:4 93:6 97:22,25 98:6 103:18 123:21 132:6 134:18 situ 133:22 134:13 situation 105:2 six 15:25 16:3,24 121:13 size 121:12,13 sized 129:13 sizes 82:14 skimmed 32:21 skin 24:24 25:8,21 51:3 slight 68:4 71:20 77:17 125:15 slightly 32:22 38:15 38:22 40:22 47:22 48:21,23 59:11,12 68:7 70:11 73:5 75:2,3,17,18 81:7 84:11 86:4,13 89:24 109:17 117:1,16 126:8,9 127:3 130:14 135:25 136:1 137:9,22,22 138:5 slow 4:5 slowed 32:7 slug 71:19 slung 8:7 small 26:19 52:23 55:17 69:18 70:19	72:3 130:1,17 131:2 138:1 smaller 5:20 126:24 smashed 7:17 smear 69:24 smoke 10:24 soaked 61:6 Society 54:3 soft 32:2 41:9 somebody 6:7 13:9 93:5 134:18 someone's 121:21 soon 63:12 soot 24:23 60:23 73:7 sooting 25:3,6 sorry 2:14 43:21 54:8 62:16 65:13 85:1 94:4,10 102:23 104:13 106:24 107:1 108:25 112:24 115:6 125:8,11 129:3 139:1 sort 36:1 38:2 39:20 86:16,19 110:3 115:22 sorts 117:16 sound 16:23 source 61:14 sources 76:10 89:12 spatially 79:20 speak 15:4,14 54:8 138:15 speaking 75:6 specialised 54:19 57:11 specialism 54:17 specialist 128:7 specific 9:11 43:7 65:6 74:23 139:23 specifically 61:20 101:20
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

specify 121:23	136:16	82:21 117:6	55:4	tab 1:11 4:23 8:11
speckled 25:8	State 2:7,25	striking 117:8	supervision 16:8,9	20:10 21:7 39:16
speed 4:4 131:15	statement 1:21 7:9	string 80:3 84:2	support 12:16 13:9	49:17 107:3
spent 91:20	8:10 10:7 11:24	138:7	51:3 74:13 89:14	tactics 2:11
spoken 54:7	12:20 13:24 15:25	stroke 84:21	89:17 117:13	take 1:11 4:22 8:17
spot 61:17	16:18 17:25 18:5	struck 74:24 126:9	supportive 107:23	8:24 9:4 14:19
spray 37:11,13	18:8,12,14,17,18	129:1	sure 12:16,17 16:10	34:9,19 36:4,16
38:10	20:6 21:6 25:3	structures 26:4	43:23 82:15 92:23	41:19 49:16 77:24
spread 118:19	34:1 84:7 119:16	28:4 29:18	93:21 95:2 96:1	78:5,25 79:17
squab 74:17 123:2	122:16,18 126:2	struggle 11:19,21	109:25 110:2	87:13 95:1,10
square 48:6 98:13	126:10 131:19,21	12:12	117:22 132:15	97:16 105:12,18
98:14	131:23 133:20	struggling 12:8	surface 61:7,13	105:22 116:15
St 37:14 39:18 40:4	137:7	studied 128:5	67:17,18,18 69:23	124:19
41:1	statements 125:7	style 52:11	70:20 82:22	taken 5:3 18:5 20:6
staff 121:18	stature 77:21	subheading 119:11	111:23 117:6,8	34:16 39:1 42:7
stage 19:23 40:16	121:15	subject 1:24 4:1,21	130:17	60:16 64:16 65:4
56:2 61:13 62:2	staying 81:18	5:17,19 6:7,8,19	surmise 112:11	66:2 67:12 69:21
105:23	steeper 84:11	7:1,10 8:1,13,17	surrogate 64:20	70:14 75:24 80:24
stages 65:5 66:17	steeply 66:20 86:6	9:24 10:2,10 12:8	78:15,16 79:24	89:12 91:13 95:6
78:5	steering 44:19	64:2,19 65:3,10	120:8 121:2,9,10	99:23 101:10,14
staining 60:24 61:6	103:20	65:16 66:6 67:2,6	122:1,8 128:6	109:21
61:8,16,20 62:1,3	stellate 30:16,17,18	71:12 78:19 81:24	surrounding 24:6	talk 85:24 122:14
63:5,15 67:9,25	step 13:16 31:7	82:12 85:24	surroundings	talking 85:19 86:15
69:24 93:7 113:8	Stepped 4:18	114:23 126:21	88:15	86:16 124:13
118:16,19	sternum 25:18	128:16 132:7	surveillance 3:12	127:6 133:4,6
stains 119:7	Sticking 108:12	135:13	suspect 34:23 72:25	tall 103:23 104:1
stand 34:13	stippling 29:3,7	subjected 119:8	137:20	taller 103:24
standard 21:24	stolen 3:7	subjects 3:9,13,17	suspected 71:10	tangential 36:20
58:21 61:3	stone 123:13,14	subsequent 91:16	swelling 41:10	target 27:11 32:8
standing 23:4,6	stooge 80:14	136:14	swollen 41:9	51:4,8,13 115:14
47:9,10 48:5,6	stop 23:2	subsequently 41:20	sworn 20:18,23	136:10
53:5 72:15	Stopping 134:5	58:14	49:13 53:2 142:7	tattooing 25:4,7
star 30:18,19,20	storage 56:17	substance 38:14	142:11,13	60:24 73:7
start 21:15 22:9	stored 90:19	substantially	system 40:14 57:10	team 55:17 140:6
27:13,19 53:22	straight 27:14 47:9	121:14	57:11 85:2 100:7	tears 30:19
56:9,19 69:25	59:23,24 98:15	sufficient 97:14	100:12 114:18,21	tell 21:21 23:14
78:6 91:23 94:13	103:8	suggest 43:14 66:23	115:12,21 126:19	24:1 25:13 29:22
125:18 139:22	Straw 43:1,2,3	73:10 74:19 93:8	systems 59:2,7	32:11 34:14 37:7
140:1,2,14,17,25	44:25 142:9	95:3 96:13,16		37:9,16 39:9
started 94:4 107:13	street 91:8 101:24	108:7 111:24	T	43:10 44:22 45:18
112:13	strictly 75:6 125:10	115:7 116:10	T 52:23	46:21 49:23 53:23
starting 56:11 74:4	strike 2:11 70:16	suggestion 96:17	T-boned 96:16	57:1 58:1 60:11
123:21 124:25	83:21 100:11	suit 135:5	T-shirt 60:9 61:15	66:8 74:8
125:7 140:7	117:3 130:15	summarise 55:12	62:2 83:17 84:20	telling 28:1
starts 27:4 40:13	strikes 60:25 82:17	summary 22:9,22	T1 57:15	tells 43:8

tend 52:5 111:7	thing 26:22 32:9	thinner 138:6	tires 78:24	118:3 136:14
term 60:24 77:6	98:22 100:10	third 1:12 5:10,15	tissue 41:9	tracks 136:17
95:17 97:4 98:3	101:9	5:18,22,25 25:17	tissues 27:4,18 32:2	trajectories 120:23
terminated 50:18	things 24:23 27:3	109:5 137:10	TM5 56:24 71:1	trajectory 27:12
terms 43:4 45:4	38:3 40:20 56:12	thirdly 55:11 76:16	79:22	28:1 32:12,14
56:15 72:24 77:12	60:23 65:2 92:5	136:12	TM5A 56:24	49:2 55:7 72:21
83:11 89:18 102:5	136:5	Thomas 90:8,9,10	today 46:12 101:5	74:25 76:23 77:25
117:15 130:4	think 1:7 5:20 6:23	90:11 92:5 93:19	139:16	83:3,24 85:2 86:6
131:7,16,19	7:17 8:19 12:18	94:4,11,13 95:5,8	told 1:18 2:3,25	98:17 114:19
132:25	13:6 14:9,13 15:3	99:20 105:5 122:6	13:24 16:16 17:9	124:9,16,17
test 38:2,23 55:19	15:9 16:11 22:3	139:19,25 142:15	17:12 25:2 43:3	125:12 134:3,21
71:3,7,11,13	25:6 27:24 28:24	Thompson 1:24	46:12 48:8 128:20	134:25 135:23
74:13 80:18 82:9	31:20 32:25 33:4	thought 32:15	tomorrow 139:17	136:7,14,20 137:2
82:13,24 88:17	33:15 34:19 35:18	33:19 43:20 51:1	139:19 140:13	137:8,16
tested 58:13 59:3	37:14,23 38:19	70:15 132:13	top 23:13 52:3 70:2	transfer 61:21
61:5,24 67:12,18	39:6 40:9 41:20	139:22	70:6,20 93:23	96:19 129:20
71:6	42:2,6,7 44:18	three 1:21 9:2 10:4	96:9 109:17 110:4	transfixed 50:17
testing 67:4,5 81:5	45:15,16 46:1	100:5 102:9	130:17 131:1	transplant 31:13
81:12 101:19	51:7,8 52:1 54:9	114:14 133:25	132:8 134:18	31:14
117:13 119:4,8	54:14 55:3,14	135:22 136:5	135:12 137:5,25	transplanted 31:16
127:25	58:10 60:8 64:4,8	throughs 81:23	topic 90:13 94:8	transported 14:18
tests 58:14,20,22	65:18 68:18,19	thrown 9:17 39:1	96:23,25 127:12	trapped 101:25
63:20 64:21 65:2	72:5 75:10 76:7	tight 38:8	128:14	trauma 13:14
70:25 71:8 76:21	77:4 78:20 79:5	till 15:9	torch 57:10,25	travel 130:1 131:13
83:7 84:10,16	80:14 81:5,19	time 1:17 2:2 3:11	86:22 90:2 97:3,8	travelled 73:15
89:17	86:8,21 87:5,11	3:22 9:11 14:3,9	torchlight 87:1	Travers 8:19 9:19
thank 1:5 18:23,25	87:22 88:8,9	14:13,16,17 24:20	torn 26:25 27:1	10:3 11:8,15
19:1,3,4,5,12 20:2	89:17 90:24 91:25	29:8 33:21 35:13	torso 85:17 98:20	13:16,18,22 62:13
20:7,24 22:3 24:1	94:25 95:18 96:17	38:10,14 40:19	104:23	62:22,25 63:6,11
25:13 36:24 39:17	96:20 97:18 99:18	42:4 44:14 61:5	total 31:6	106:21 107:6,16
42:23 44:25 49:3	101:11 102:2	63:18 64:16 67:17	totally 45:18 77:8	107:22,25
49:4,6,8,9,9,14	103:10,24 105:11	68:12 69:12 80:5	Totton 10:11,13,17	Travers's 107:8
52:13,14,17,17,19	105:18 107:3	89:2 91:12,18,20	62:13,22 63:2,6	traversing 34:4
52:22 53:3,5,19	108:19,21 113:9	92:9 96:24 101:21	63:11 91:12,18	tread 101:25
56:8 63:21 65:8	115:5 122:14	108:4,4 119:6	106:22 107:6,18	treated 135:3
83:1 88:5 90:6	124:3 127:21	120:14 135:7	107:21,25 108:1	triangulate 23:24
94:17 96:22	128:19 132:12	137:6 139:19,20	118:5 131:20	trick 93:21
105:22 106:3	133:14,21 134:12	139:23,24,25	132:22	tried 64:21 71:3,6
108:11 114:2,3	134:24 137:18	140:13,17	Totton's 90:23	79:19 95:16
117:22 127:11	138:1 140:5,15,17	timeframe 69:18	107:9 118:24	tries 80:10
128:10 133:15	140:25	times 18:2,11	touched 101:9	trigger 58:9,11,18
139:6,11,12,13,14	thinking 41:12	timescale 38:8	touching 65:20	58:20,23
141:2	103:5 106:24	39:23	toxicologist 20:4	trivial 51:15
thesis 50:2	110:8	timescales 33:20	traces 96:19 109:19	trouble 54:9
thick 78:18	thinks 140:1	tire 120:2	track 73:14 98:19	true 21:12 49:20

53:20 116:24 trunk 21:18 29:21 29:23 30:7,8,11 30:14,22 32:24 33:5 34:5 42:21 50:18 51:3 52:9 73:20 123:6 try 32:14 45:8 88:21 111:21 120:24 128:6 trying 73:4 98:11 98:24 120:22 126:24 132:11 tryptase 37:15,21 38:15 40:3,6 41:16 tumble 27:13 tumbling 117:3,4 turn 19:16 60:5 69:25 74:3 85:11 87:17,20 91:1,25 93:12 94:9 98:8 102:8 133:19 turned 48:21 75:17 83:9 89:23 126:8 136:1 137:22 turning 58:7 127:3 twist 125:25 126:23 127:7,9 138:4 twisted 75:3 115:19 twisting 86:11 125:15,22 126:16 127:5 two 5:2 10:4 14:3 26:13 28:20 45:3 46:3 47:5 53:14 54:10 55:19 60:8 62:20 96:15 97:24 99:21 102:15,21 103:17 104:20 107:5 109:3 114:6 120:1 128:17 136:15 138:6,10 139:7,7 type 37:12 41:12	57:5 59:1 91:9 122:24 typical 70:15 130:15 Typically 81:7 tyre 9:21 11:7 66:13,18 tyres 66:9,16 78:21 78:22,25 135:15 135:16,17 <hr/> U U 52:23 U2 11:22 12:2,14 12:18 13:11,22,24 U2's 12:15 U9 7:23,25,25 ultimate 123:2 ultimately 46:7 unable 56:3 103:8 103:10 104:24 unburnt 25:7 uncertainties 119:18,25 123:19 unclear 74:16 unconnected 51:20 unconscious 33:23 34:21 uncontaminated 114:1 uncooperative 12:21 Underneath 83:2 underside 58:5 understand 3:6 20:1 25:6 50:24 73:22 94:20 97:5 98:3 99:24 134:15 136:5 139:6 understanding 38:8 99:10,15 135:11 understood 95:19 98:10 114:12 115:17 116:23	124:6 unfair 106:12 unfamiliarity 91:10 unfired 57:4 unknown 77:21 117:5 unknowns 77:9 120:21 unresponsive 13:7 upper 25:24 26:1 26:12,13 28:5,11 32:16 36:18 44:5 60:14 83:22 104:23 upright 117:16 123:23 upwards 69:22 81:6 use 2:22 17:1 47:17 71:5 80:6 99:18 122:7 135:14 useful 34:15 68:9 uses 136:25 usually 37:22 <hr/> V V53 17:21 value 66:2 vapour 111:21 113:24 variability 72:24 variable 117:6 variables 117:17 121:1 variances 121:24 variety 88:7 100:6 various 65:2 119:8 119:25 vary 104:8 vehicle 1:25 2:5,12 3:9,10,18,23 4:1,6 4:8,8,13,16 5:10 5:11,14,17,19 6:7 6:8,18,19,20 7:1	7:10,12,16 8:1,4 10:2,5,10,17,19 11:6,22 12:2,15 13:12 27:6 29:9 34:17 37:2 44:18 51:17 56:17 62:7 63:7,8,14 64:1,2 65:7,10,10,12,14 65:23 66:3,6 67:2 67:6 69:3,20 74:11,15 76:16,18 77:13 78:15,16,17 78:23 79:23,24 80:8 81:14,23,24 81:25 82:12 85:23 92:15 94:19,22 95:7,14 96:13 98:25 108:3 111:9 112:9,12,20 113:4 114:13,24 119:6 124:7,22 125:12 125:20 127:1,14 127:25 128:2,8,25 129:5,18,23 132:7 133:12 135:10,13 138:12,23 vehicles 18:2 63:22 64:14 78:12 79:12 95:18,19 96:15 112:8 120:2 133:22 134:13 venting 112:12 ventricle 30:5 45:12 verdigris 67:7 version 109:8 versus 121:25 133:3 vertical 47:14,17 47:20 vicinity 60:15 victim 27:15 74:24 75:1 126:8 135:24 136:13,18 victim's 126:6	video 87:5,10,11 88:2,4,6 92:17,21 view 5:6 34:10,13 44:8 48:9,15,17 59:12,24 87:24 102:16 103:14 132:4 140:10 viewpoint 46:9 views 132:21 137:12 visible 57:18 60:21 61:6 62:25 68:13 70:20 79:15 90:17 91:4,12 104:23 120:15 130:17 visibly 67:4 69:14 vision/view 97:13 visual 69:7 100:10 115:12 visually 77:10 vocal 41:10 voice 41:8 void 93:7 113:23,25 voluntary 13:4 <hr/> W waist 123:4,7 wait 42:23 90:7 waiting 17:10,12 walk 45:11 wall 22:19 25:16 29:13,14 30:9,10 want 16:18 108:20 109:3 120:17 140:11 wanted 45:25 46:1 46:2 47:3,13 139:25 wanting 139:23,24 Warrington 1:8 wasn't 2:12 15:14 15:20,22 17:9,9 44:19 62:3 66:13 95:2 98:16 114:21 115:3 118:19,21
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

119:3 121:10,18 124:5,5 128:9 132:15,15 138:21 watch 14:17 way 2:2 17:11 31:3 36:23 41:17 69:5 71:3 73:2 82:21 83:15 88:8 92:13 93:1 98:8 99:2 112:3,21 114:7 135:19 136:19,21 136:24 138:10 ways 96:19 101:24 135:9 weak 107:24 weakly 107:23 weapon 35:19 79:22 97:2,7 100:7,18 124:12 127:16,18 weapons 6:10 13:20 wearing 69:18 135:5 Weatherby 19:1 45:1,2 47:19 48:1 49:3,4 105:8 106:2,3,4,5 108:17 109:2,11 109:13 110:17,19 110:23 111:3 113:12 117:22 127:21 140:21 142:10,16 Weatherby's 127:12 Wednesday 1:1 week 89:1 weight 73:1 104:9 121:6,8,17,21 123:11 went 12:18 15:16 22:13 47:21 50:17 89:12 111:9 wet 61:14 91:19,21	wheel 44:20 103:20 wheels 66:5,11 Whereabouts 7:5 9:1 whilst 9:8 19:9 86:18 white 21:5 37:17 40:21 57:10,24 61:25 62:1,4,8,10 62:23,25 63:4,15 67:2,9 68:17,24 84:24 86:22 90:3 90:13,16 91:3,12 97:2 109:19 110:10 134:7,8 whitish 93:22 wide 24:7 WILLIAM 49:13 142:11 window 7:17 11:23 12:5 67:14 68:16 68:23 70:1,5,23 74:12,21 75:15 76:21 78:3 80:1 80:19,20,21 81:15 81:17 84:11 86:7 89:15 99:4 102:2 102:25 110:21,23 111:6,19 112:5,17 114:8 117:11 118:23 125:1 127:16 129:6,7,11 131:5 132:14 133:2,4,9 windows 69:25 windscreen 27:6 29:9 32:8 50:25 60:20 69:3 70:7,7 70:10,13,19 71:9 71:11,20 72:2 73:10 79:2 80:2 82:7,9,17,21 87:4 98:16 115:23 116:1 120:4 125:10 128:16	129:1,22,24 130:9 130:11,22,23 131:9 132:24 133:6,9,13 136:10 136:17,21,25 138:24 139:1,8 windscreens 71:1,2 windy 111:19 wished 78:21 witness 1:21 21:6 46:22 133:20 137:7 witnesses 19:21 wonder 21:9 87:10 wood 78:18,20 word 115:5 122:7 words 93:6 100:1,3 100:5 101:12 122:25 127:14 work 55:17,18 58:17 89:8 102:5 119:22 123:8 138:15 140:6 working 59:17 88:1 works 92:14 worn 61:12 62:25 63:2 worry 95:8 wouldn't 28:21 43:19,19 44:22 63:4 66:1 103:15 114:18 124:16 131:17 wound 21:17 22:24 23:4,8,11,25 24:2 24:3,9,11,16 25:9 25:20 26:19,20 27:9 35:14 36:13 42:20 43:13 50:15 52:4,8 60:16 69:15,22 70:6 72:8,13 73:5,14 84:10,17 134:3 136:12,14,18 137:1,8,16	wounds 33:7 51:2 98:17 wranglings 16:5 write 17:2,12,15,16 18:12 writing 18:17 wrong 99:14 wrote 49:18 53:12 53:16 121:23 <hr/> X <hr/> X 47:15,15 142:3 x-ray 28:18 X7 2:10,15 <hr/> Y <hr/> Y 47:14,15 yaw 27:13,15 years 40:14 56:12 56:13 65:1 68:15 79:16 106:14 <hr/> Z <hr/> Z15 9:21,23 11:6 zero 33:20 <hr/> 0 <hr/> 0.2 24:7 0.5 44:4 <hr/> 1 <hr/> 1 1:11 8:11 20:10 21:7,10 26:14,16 30:9 75:11,13 107:3 120:1 142:5 142:6 1,400 31:2,4 34:6 1,500 31:5 34:6 1.00 105:7 1.06 105:24 1.15 18:9 1.3 24:5 73:6 1.4 31:2 1.5 30:9 10 15:13 22:25 23:9 23:16,21,23 25:20	32:18 46:24 47:6 47:11,13,19,22,23 72:15,16 73:17 83:11,11,25 84:6 84:12 86:3 100:19 100:24 101:1 105:14 119:16 124:9,14 125:5,13 125:19,24 127:2 127:10 138:19 10- 84:15 10-degree 78:4 114:19,24 115:25 10.15 140:25 141:4 10.20 1:2 10.30 139:21,22 140:1,22 10.43 19:13 10.54 19:15 10.58 20:15 100 12:16 37:22 106 142:16 11 23:8 104:5 11.00 20:17 118 142:17 12 1:1 15:13 53:13 97:19 99:8,23 102:8 119:16 130:8 128 142:18 13 123:13 133 142:19 14 38:19,21 50:7 147 23:1,8 39:16 72:14 14th 41:21 15 18:12,16 46:24 64:4,6 125:25 162 94:13 95:23 163 94:9,11 96:6 17 46:5 175 104:2,16 18 53:17 88:25 180 23:7 104:5,16 188 131:24
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

19 49:18	3.6 58:24	63 53:11 55:21		
190 131:24 132:2,8	30 37:24 85:16	64 53:15		
1985 54:15	30.4 37:25 38:16	66 78:6 79:8		
1a 21:19 41:1 42:19	32 133:19 135:21	67 72:19 79:6,21		
1B 21:19 42:19	137:5	80:9		
52:7	382 93:14	68 80:14		
<hr/> 2 <hr/>	<hr/> 4 <hr/>	<hr/> 7 <hr/>		
2 1:12 24:5 30:11	4 22:4,25 23:9	7 50:11 63:3 99:8		
38:19,21 73:2,6	26:15 120:7 121:1	99:23 120:14		
75:11,16 87:12	134:15	7.08 2:5		
120:3 122:10	4.30 18:5	7.10 13:25		
128:24 129:16	4.5-metres 59:8	7.12 2:25		
2.10 105:23	42 53:10,11	7.35 14:6		
2.14 106:1	43 142:9	70 82:6 83:2 84:8		
20 32:18 47:6,11,14	45 32:19,23 47:5,12	99:8,23 122:18		
47:20,22,23 73:17	47:25 85:9,17	124:19,20		
84:1 85:16 86:3	126:1 142:10	71 83:13 85:7,20		
101:1 142:7	45-degree 73:16	126:12,15,17		
20-degree 84:15	75:4 98:19	72 97:20 102:8		
2003 54:20,21	47 72:9 128:18	126:10,15,24		
2012 21:10 46:5	48 72:10	138:2		
49:18	49 60:7 142:11,12	73 119:16		
2016 53:13,17		75 53:16		
2017 1:1	<hr/> 5 <hr/>	<hr/> 8 <hr/>		
21 142:8	5 23:8 33:16 39:16	8 17:17 58:24		
22 106:23 107:1,4	50:11 52:4 77:25	847 57:8		
128:19 130:8	83:11 84:3 100:25			
134:6 137:25	104:5,15 115:23	<hr/> 9 <hr/>		
23 134:23	120:10 122:10	9 15:25 17:25 22:10		
23.5 33:4	124:13,23 126:25	24:10 28:25 56:21		
253 108:13,17	127:9 138:19	60:18 70:16 97:19		
109:12	50 106:22,24	102:8 106:23		
26 137:7	51 68:19,20	107:1,4		
28 4:24	519 108:21 112:25	90 142:15		
297 94:2,5,6	53 130:8 142:13,14			
298 92:1 94:2,3,4	54 75:11 122:16			
<hr/> 3 <hr/>	55 56:19 75:5			
3 8:11 10:8 11:9	56 74:6 126:3,4			
18:12,16 31:5	569 4:24			
49:17 73:3 78:6	<hr/> 6 <hr/>			
78:13 103:24	6 120:12 123:17			
120:5	128:19			
3.05 141:3	6.00 15:10			
3.5 30:11	6.30 88:11			