

1 (2.00 pm)

2 MR KEITH: My Lady, may I take Mr Reynolds back to a point
3 from before the short adjournment which concerned the
4 overall pictures of Alexandra Grove, because there's
5 been an enquiry from the press as to whether or not one
6 of the pictures in particular may be published and that
7 gives rise to some debate as to what it is they're
8 publishing? There are no issues surrounding its
9 publication but it's best to clear up what it is that
10 they're referring to.

11 Mr Reynolds, [INQ9556-4] was, I hope, the overall
12 picture of Alexandra Grove. At the top right-hand
13 corner, picture 7, room 5, bedroom 1, we can see there
14 some plastic containers --

15 A. Yes.

16 Q. -- inside which were located other small, plastic
17 containers, which themselves contained a degree of
18 yellow-brown sludge. We know, or I expect we'll
19 discover, from the evidence of Mr Todd later this
20 afternoon, that there were two forms of sludge found in
21 Alexandra Grove, one darker than the other. Burn tests
22 indicated that one of those two types had explosive
23 qualities and the other did not.

24 Is it your understanding that this picture shows the
25 sludge that had, indeed, explosive qualities?

1 A. I believe that is the case.

2 Q. Thank you very much. My Lady, as I say, there's no
3 restriction on the publication of that picture, subject
4 to any intervention from the Metropolitan Police
5 Service.

6 LADY JUSTICE HALLETT: So the press are free to publish
7 anything that they see on their screen at the moment?

8 MR KEITH: Yes, my Lady.

9 LADY JUSTICE HALLETT: Thank you.

10 MR KEITH: Turning back to the discussion before the short
11 adjournment as to the links between Alexandra Grove and
12 the four bombers, in relation to Khan, his DNA profile
13 was linked to around 61 exhibits. Is that right?

14 A. That's correct, yes.

15 Q. His fingerprints were found on 10 exhibits?

16 LADY JUSTICE HALLETT: Can we take this slowly, linked to
17 69...?

18 MR KEITH: 61 exhibits. For my Lady's assistance, this is
19 set out at page INQ9520-3 of the statement dated 8 July.

20 LADY JUSTICE HALLETT: Thank you.

21 MR KEITH: INQ9520-3. His fingerprints, as I say, on ten
22 exhibits, and three fingerprints were found on actual
23 surfaces?

24 A. That's correct, yes.

25 Q. His handwriting was found on a number of exhibits.

1 We'll look at these generically, in a moment, in the
2 course of your 3-D presentation, but the most
3 significant one of the exhibits is an exhibit CW254,
4 which is, I think, at [INQ10097-3], which was headed "Plan
5 for the day", as --

6 A. Yes.

7 Q. -- we can see there from the screen. Over on the
8 following page, a list of things to do which included,
9 as we will recall from evidence last year, the purchase
10 of batteries and associated paraphernalia.

11 So his handwriting was found on that. It was also
12 found on a bulb packet that contained some writing which
13 referred to percentages, obviously relevant to the
14 construction of the bomb, fragments of a piece of paper,
15 some London Underground maps and some other documents.
16 In relation to Tanweer, his DNA profile was found on
17 31 exhibits.

18 A. That's correct.

19 Q. 51 of his fingerprints were found on 28 moveable
20 exhibits?

21 A. That's correct.

22 Q. And four of his fingerprints were found on surfaces?

23 A. Yes.

24 Q. His handwriting was found on a number of documents,
25 I think five in total, of which the most significant was

1 CW/74, the piece of paper with the chemical formula on
2 it.

3 My Lady, in contradistinction to the other
4 photograph, this photograph, whilst it may be screened
5 in court, has led to the Metropolitan Police inviting
6 my Lady not to put it on to the public website; the
7 formula was the subject of an equivalent order in the
8 course of the Theseus trials themselves.

9 LADY JUSTICE HALLETT: I'm sure the media will understand if
10 I order that that should not be published.

11 MR KEITH: Thank you very much, INQ10094 [not for publication], we don't
12 need to

13 enlarge it any more than that, but it was a piece of
14 paper with a formula and figures contained on it?

15 A. Yes, relating to percentages, densities and the words
16 "black and blue", and there's quite a number of
17 containers within the premises with the words "black and
18 blue" on.

19 Q. His handwriting was also found on other sheets, an A4
20 sheet, which contained references to batteries and
21 icepacks. And also the "walk tall" piece of paper that
22 we looked at earlier. Lindsay, his DNA profile was
23 linked to three exhibits. Is that right?

24 A. That's correct, yes.

25 Q. Page 4 of the statement. The -- I'm sorry I misled
my Lady. In fact, it's page 8 of the statement and

1 following. No, page 9.

2 His profile was on three exhibits, 26 of his
3 fingerprints were found on six moveable exhibits, and
4 one fingerprint was found on a surface, and his
5 handwriting was found on a piece of paper as well.

6 A. That's correct.

7 Q. Hussain, page 9 of INQ9520, the statement prepared by
8 you, his DNA profile was linked to 69 exhibits.

9 A. That's correct, yes.

10 Q. A very large number of his fingerprints were found on
11 moveable items, 234 in all?

12 A. That's correct.

13 Q. And 13 fingerprints on surfaces?

14 A. Yes.

15 Q. His fingerprints were also found on the piece of paper
16 with the chemical formula. Is that right?

17 A. That's correct, yes.

18 Q. And also on the piece of paper headed "Plan for the
19 day", on which both Khan and Tanweer's fingerprints had
20 also been found?

21 A. That's correct.

22 Q. So that, in summary, is the evidence linking the four
23 men to the bomb factory.

24 Could we now turn to your presentation and your
25 bringing up on the screen for us some of the most

1 significant finds, in forensic terms, of the search at
2 Alexandra Grove? I'll leave it to you to take us
3 through that, if I may.

4 A. Ma'am, if I can just explain here, what we have is
5 a tour basically, a virtual tour, of each room within
6 the premises, and it allows you to go to any area within
7 that room and where the actual exhibits are shown on the
8 screen is roughly the location where the actual item was
9 in situ at the time.

10 These are colour-coded with the hard copies, ie that
11 purple denotes the DNA, light blue is fingerprints and
12 the yellow relates to the handwriting analysis.

13 Q. We'll see in due course some red plots as well.

14 A. Yes.

15 Q. What do they refer to?

16 A. The red relates to items where HMTD or the bulk
17 explosive was found within that room per se. So if I
18 may just give you an example of that now --

19 Q. Which room is this?

20 A. This is the lounge, which is room 1, and as we tour
21 round it, you'll see HMTD there.

22 Now, this is all the items where HMTD was found
23 within that room, HMTD being a peroxide-based, home-made
24 primary explosive.

25 On screen here, you'll see we have CW/350, which is

1 effectively an initiator, which has been made out of
2 twin core speaker wire and an adapted halogen lightbulb.

3 Inside the masking tape will be --

4 LADY JUSTICE HALLETT: Sorry, you're giving us a lot of
5 detail. I assume that, unless anything's said,
6 everybody is content that all this detail is --

7 MR KEITH: Thank you, my Lady, yes, this is all in the
8 public domain already.

9 LADY JUSTICE HALLETT: Thank you.

10 A. Contained within the masking tape will be some silver
11 foil and, housed within that silver foil, will actually
12 be the HMTD.

13 MR KEITH: Thank you, Officer. Can I just say, my Lady,
14 that it's not possible to put the 3-D presentation on to
15 the public website so Mr Smith has asked for 2-D hard
16 copies to be made available so that they can be given to
17 the press in the usual way.

18 LADY JUSTICE HALLETT: Thank you.

19 MR KEITH: Sorry, please continue, Mr Reynolds.

20 A. So as we tour around the room, the living room, or the
21 lounge, we have CW/395.

22 Q. That's also subject, I should say, to a restriction on
23 publication on the website, if my Lady would so order.

24 LADY JUSTICE HALLETT: Certainly.

25 A. Again, a significant item, as much in that the

1 handwriting has been linked to Khan, and the actual
2 workings out actually refer to the actual bomb-making
3 process.

4 LADY JUSTICE HALLETT: Sorry, just again, if the press are
5 sitting in the annex, what exactly is subject to the
6 restriction, so they know exactly where they stand?

7 MR KEITH: The right-hand part which contains the
8 handwriting on the halogen lightbulb packet.

9 LADY JUSTICE HALLETT: Thank you.

10 MR KEITH: It may be shown in the annex, my Lady, subject to
11 your ruling, of course, but, please, not published.

12 LADY JUSTICE HALLETT: Thank you.

13 A. CW/363, there is a series of respirators found within
14 the premises. The actual process that was used to make
15 the actual devices will have generated fairly noxious
16 fumes, so there's a series of respirators and heavy-duty
17 gloves and latex gloves were found within the actual
18 premises.

19 The hostile environment that would have created
20 actually has killed back some of the foliage by the
21 windows, the open windows, within the actual premises.
22 So the actual environment that they are working in would
23 have been quite hostile.

24 I'll take to you the bedroom and, again, if I just
25 click on here, it's showing the mixtures of the bulk

1 explosive within this particular room. The bulk
2 explosive was effectively made up from concentrated
3 hydrogen peroxide and a pepper/piperine mix.

4 MR KEITH: Just by contrast to the HMTD that you described
5 earlier, the HMTD was, therefore, the initiating
6 explosive which was used to detonate the larger
7 explosive?

8 A. That's correct, yes, and from the earlier images that
9 were shown, room 5 and photograph 8, which we saw
10 earlier on, you'll see a series of hotplates, that was
11 linked up to fans, and the actual hydrogen peroxide
12 product itself, which naturally contains 17.5 per cent
13 hydrogen peroxide, to make the actual device viable, you
14 need to increase that percentage.

15 Q. You won't go any further than that, will you, Officer?

16 A. No, no, and that was done via the hotplates effectively.
17 On screen now are all the images in that room where
18 HMTD was found. Again, you can see here 365 was
19 forensically linked to Khan. We have a series of latex
20 gloves.

21 Also in the same bedroom was a series of cut-up
22 containers and these actually related to the hydrogen
23 peroxide product.

24 If I just pull up on screen fully, they can see here
25 any DNA links relating to Khan.

1 Q. It's a summary of all the exhibits, which when --

2 A. Yes, forensically linked via DNA to Khan. In
3 particular, you're looking at CW/322, halogen bulbs,
4 a series of halogen bulbs from there, and halogen bulbs
5 were used in the actual construction of the initiator or
6 the actual device itself.

7 Q. So we can see he was linked to the detonators, the
8 wiring, the respirators, the associated paraphernalia,
9 such as kitchen foil, the milk pan used to boil the
10 substance --

11 A. That's correct.

12 Q. -- as well as the other things we can see there?

13 A. And a series -- in the bottom left-hand corner you have
14 a series of empty packets of pepper which was used in
15 the construction of the devices, and again, bottom
16 right-hand corner, a series of twin speaker wire cable
17 in different stages of being made into initiators.

18 Q. That cable wire was the subject of examination by
19 Mr Todd, was it not, we'll hear from him later?

20 A. That's correct.

21 Q. But it can be linked by way of pieces of wire found at
22 two of the scenes?

23 A. That's correct. Again, fingerprint wires.

24 Q. Are those ice blocks on the top right-hand side?

25 A. They are, yes.

1 Q. Is the top left the piece of paper, CW/254 to which we
2 looked?

3 A. That's right. As you can see from the silver foil,
4 a lot of these items have an innocent, everyday use, but
5 in the context of this particular enquiry are
6 significant. You can see here with the silver foil that
7 sections of it are missing, and were actually used as
8 part of the initiator.

9 Again, fingerprints were found on the actual tape
10 that was used to attach the net curtains to the inside
11 of the walls there to stop any prying eyes.

12 Again, from handwriting --

13 Q. This page is subject to my Lady's order concerning
14 non-publication and your order that the top right-hand
15 diagram not be placed on the public website. That's
16 a blowup of the earlier document we looked at, isn't it,
17 earlier, a piece of cardboard?

18 A. That's right. SAS/294. That's burnt fragments of
19 paper, but that actually contained details of
20 on-the-ground stations in London after examination.

21 Q. So those pieces of burnt paper were able to be subject
22 to forensic analysis and microscopically examined so as
23 to reveal what it was that whoever burnt them had tried
24 to conceal?

25 A. That's right. So the handwriting is linked to Khan.

1 That, in essence, is the main items of note for
2 Khan.

3 Q. Perhaps you can give us the same process in relation to
4 one more of the bombers, so we can see the extent of the
5 links, and then I think that will probably do us.

6 So this is Hussain?

7 A. If we go to Hasib Hussain, yes, we go into bedroom 2.

8 Q. Hussain's fingerprints appear to have been found on many
9 more exhibits than his co-conspirators.

10 A. Yes.

11 Q. Did that appear to suggest that he was more closely
12 linked to the processes that were going on in the bomb
13 factory or not?

14 A. Well, I understand Hussain was the youngest of the
15 bombers. I understand Khan was the ringleader, there
16 may have been an indication of instructions to carry
17 things around, but that's purely my own personal
18 interpretation of it.

19 Likewise, with Hussain, I said 234 finger marks were
20 identified of his within -- on the exhibits within the
21 actual premises. Exhibit 281 is a classic example where
22 you have the liquid oxygen labels that have been torn
23 off the actual containers and disposed of within the
24 carrier bags.

25 Likewise, within the premises, there were some

1 broken up CDs in there, and those CDs related to
2 bomb-making paraphernalia.

3 LADY JUSTICE HALLETT: He was linked by -- what are we on?
4 Was it prints?

5 A. That was on fingerprints, ma'am.

6 LADY JUSTICE HALLETT: Thank you.

7 A. If we go into fingerprints of note, we'll see here on
8 the top left-hand corner there's a silver -- there's
9 a series of plastic trays. A number of those trays
10 contain traces of HMTD. Some of those trays also
11 contained filter papers which are part of the
12 bomb-making process.

13 We've got Hussain's fingerprints on one of the
14 containers which contained explosive, as we have with
15 the electronic scales.

16 Hotplates. I mentioned before, earlier on, there
17 was a setting up of the hotplates and the fans and they
18 were linked by extension leads, and three out of the
19 four extension leads in there had Hussain's prints on
20 it.

21 Again, we've got marks on silver foil relating to
22 the manufacture of the actual initiator, and a manual
23 scales which contained piperine.

24 Q. We can see at the bottom of the page the piece of flex
25 to which you referred us before, but above it, that's

1 the tin foil?

2 A. That's the silver foil.

3 Q. And above that?

4 A. That is a measuring tube which, again, had percentages
5 written on to it, either referring to percentages or
6 densities. As I touched upon previously, as well the
7 glass jar next to it on the right-hand side, you've got
8 masking tape with the word "blue" on it, again referring
9 to the CW/74 manufacturing process.

10 Just looking at the DNA, I touched on previously
11 before, the respirators. There were five respirators
12 within the premises, and Hussain's DNA was found on all
13 of them and, again, likewise, with latex gloves, it
14 would have been sensible, in that environment, to wear
15 some form of protection.

16 Again, the cooking process with the pans and, again,
17 forensically linked to the empty pepper packets that was
18 used in the construction of the devices.

19 Q. What are the circular tubes, if that is what they are,
20 in the middle of the page?

21 A. Again, that's the masking tape. Again, masking tape was
22 obviously used within CW/350 which is one of the intact
23 initiators within the premises.

24 MR HILL: May I just be forgiven for adding that CW/350 is
25 the other image about which we express some sensitivity

1 about wider publication?

2 MR KEITH: That's the one that's under the cursor at the
3 moment, is it?

4 MR HILL: Yes, the top row, the initiator.

5 LADY JUSTICE HALLETT: The top row, third from the right,
6 that should not be published?

7 MR HILL: That shouldn't, no, please, my Lady. We'll
8 discuss with Mr Smith the arrangements that he makes for
9 the press to see hard copies as proposed.

10 LADY JUSTICE HALLETT: Thank you.

11 A. Finally, if we go to the handwriting.

12 MR KEITH: There is the sheet which is subject to a similar
13 restriction on the left. The to-do list in the middle.

14 A. Yes, and that, in essence, is a snapshot of the type of
15 forensic links we're talking about, my Lady, for all
16 four bombers.

17 LADY JUSTICE HALLETT: You've referred to one piece of paper
18 with reference to "Underground". Any other signs of any
19 kind of attempt to conceal anything? It doesn't look it
20 from the photographs?

21 A. Nothing was found in any voids, nothing was secreted.
22 The only items that were within plastic bags were the
23 cut-up sections of the containers which contained the
24 hydroponic product in the first place. But within the
25 actual premises itself, nothing was actually secreted or

1 hidden.

2 LADY JUSTICE HALLETT: Just going back to what you found at
3 the bombsites, I appreciate that people may carry all
4 sorts of amounts of documentation with them these days,
5 plainly no attempt made to ensure that they couldn't be
6 identified. On the contrary, it looks almost as if they
7 had made attempts to ensure they could be?

8 A. Yes, considering Khan's personal property was found at
9 more than one scene, yes, yes, my Lady.

10 LADY JUSTICE HALLETT: Is that something one has seen in
11 incidents of this kind before?

12 A. I'm personally not aware of that, no.

13 LADY JUSTICE HALLETT: Thank you.

14 MR KEITH: There was one other curious aspect of the
15 forensic evidence found at the scene -- is this right --
16 that, at the King's Cross/Russell Square bombsite, there
17 were two exhibits, I think JB/2 and JB/122, which were
18 two pieces of plastic bottle which appeared to have been
19 cut in a similar way, the bottom part of the bottle had
20 been cut off, two of those were found there.

21 Were there also, at Alexandra Grove, pieces of
22 plastic bottle found?

23 A. Yes, there were some cut bottles within drinking
24 vessels, within Alexandra Grove. It's possibly used as
25 a funnel or prototype or something, but the items you're

1 referring to from that -- from the actual bomb scene,
2 again slightly unusual, in as much that, if that did
3 belong to the bomber -- if that was in close proximity
4 to the bomber, you would expect to see some damage on
5 it, where, in fact, there's very little damage. So it
6 is a bit of a conundrum.

7 Q. We'll ask Mr Todd about that as well, if we may. Thank
8 you very much, Officer, that I think concludes your
9 observations in relation to the scene of
10 18 Alexandra Grove.

11 May we then dispense with your 3-D system and return
12 to Lextranet and INQ9953? Chapeltown Road was the
13 previous address linked to the bombers, was it not?

14 A. Yes.

15 Q. I think I must have the wrong reference. If you bear
16 with me one second, INQ9553, thank you very much. There
17 we are.

18 The general layout, please, page 2 [INQ9553-4] and page 3 [INQ9553-5].
19 There we are, there's Chapeltown Road.

20 There were, if we go forward one more page [INQ9553-5], pictures
21 of some of the items found at that address. A full
22 forensic search was carried out and there were links,
23 were there not, to Khan, in that a link was established
24 between him and, I think, a metal pole --

25 A. Yes, that's correct.

1 Q. -- which we might be able to see in one of those
2 photographs?
3 A. If you go on to the next page [INQ9553-6].
4 Q. There we are, AAP/6. Was that a DNA or a fingerprint
5 link?
6 A. That's DNA.
7 Q. Hussain was linked by DNA to an exhibit found at
8 Chapeltown Road. Is that right?
9 A. Yes.
10 Q. JFG/58 and Hussain had 15 of his fingerprints found on
11 four of the exhibits taken from that address as well as
12 on some of the surfaces.
13 A. That's correct, yes.
14 Q. Were there any particularly significant finds at
15 Chapeltown Road in relation to the bomb-making which had
16 plainly been conducted?
17 A. Yes. If you just go back one page [INQ9553-5], please, although
18 these items weren't actually forensically linked to the
19 bombers, they're relevant to the enquiry. Bottom
20 left-hand RMR/61A, that's part of the instructions you
21 would get with the hydroponics product.
22 RMR/64, in there you'll see there's a series of
23 plastic ties of very similar appearance to the ones that
24 were found within Alexandra Grove, and that's basically
25 your link between your saucepan and your saucepan

1 labels. Obviously the saucepans were used in the actual
2 bomb-making process.

3 RMR/68 is a barcode relating to a saucepan and part
4 of AAP/3 is part of a halogen bulb. All particularly
5 relevant to this particular enquiry.

6 Q. Then perhaps we could turn to the Nissan Micra, DE05 RJX
7 which is at INQ9557, page 4 [INQ9557-4].

8 There is a model construction of the Nissan at the
9 top of the page and underneath we can see some of the
10 items that were taken from that car.

11 A. Yes.

12 Q. Again, if you could just outline the significance of
13 those items, please.

14 A. Yes, the first four images effectively relate -- the
15 majority of it relates to a home-made antipersonnel-type
16 device similar to a -- it would be used to be thrown,
17 effectively, if compromised.

18 Q. Were they made safe at the scene when they were
19 discovered by an explosives officer?

20 A. They were made safe, oh yes. In addition to that, the
21 plastic bag on the top line at the right-hand side at
22 the top, we've got hexamine blocks there. Hexamine,
23 again, is used in the actual manufacturing process.

24 Obviously the batteries, we've got the nails and
25 shrapnel and tools relating to -- you would normally

1 associate with wiring.

2 In addition to that, although not forensically
3 linked, we've got a water in a Jerry can there, which
4 actually contained, on the whole, water, but with the
5 name "Hasib Hussain" written on it.

6 Q. That was the car, was it not, Officer, that travelled
7 with Khan, Tanweer and Hussain from Leeds to Luton --

8 A. That's correct, yes.

9 Q. -- the morning of the attacks?

10 A. Yes. In addition to that, you've got the icepacks and
11 the cooler boxes as well for transportation.

12 Q. Were there links between the items found in the car and
13 the bombers?

14 A. Yes.

15 Q. The details of those links are set out for my Lady at
16 page 15 of INQ9520, that's to say your written statement
17 of last year. In summary, were they all linked through
18 a substantial number of ways, including DNA and
19 fingerprints as before?

20 A. Yes, that's correct, and as an example -- maybe, for
21 example, with the tools in question, there's three
22 pliers from B&Q and the receipt for three -- including
23 three pliers was found at Khan's home address.

24 Q. In the footwell of that car, was there found traces of
25 HMTD?

1 A. Yes, that's correct.

2 Q. That was the explosive substance that you described
3 earlier used to detonate the main explosive substance?

4 A. That's correct, yes.

5 Q. There was a rucksack, I think, found also in that car.
6 Is that right?

7 A. Yes, that contained the devices.

8 Q. If you could just go on one page to page 5 [INQ9557-5] of that
9 exhibit, we can see there some more of the items that
10 were taken, seized from the address -- from the vehicle,
11 I apologise, and we can see from the top part of the
12 page where they were located.

13 Similarly, if you go on to the next page [INQ9557-6], we can see
14 there a table setting out the forensic links in the same
15 way that you told us earlier, on your computer-generated
16 diagram, the colour coding indicates the different ways
17 in which links have been made?

18 A. That's correct.

19 Q. So DNA or fingerprints on this page, the colour coding
20 is on the bottom part of the screen.

21 One more page [INQ9557-7], then, and there we are, we continue.
22 All those exhibits are linked, one way or the other,
23 through DNA?

24 A. That's correct, yes.

25 Q. Then, please, the Fiat Brava. We don't have a colour

1 schedule in the same way as has been prepared in
2 relation to the other scenes, including the vehicles,
3 there was no improvised device found in the Fiat Brava,
4 is that right?

5 A. That's correct.

6 Q. But there were gloves and icepacks, a surveillance
7 detector found?

8 A. Yes, that's correct.

9 Q. Also, as we heard last year, was it the Fiat Brava in
10 which a handgun, a magazine, a telescopic sight and
11 a box containing ammunition were found?

12 A. Yes, six rounds of ammunition, yes.

13 Q. In relation to HMTD, were there slightly higher trace
14 levels of that explosive found in the Fiat Brava?

15 A. I understand that's the case, yes, my Lady.

16 Q. That was in the rear seats, the front passenger seat and
17 the driver seat?

18 A. That's correct, yes.

19 Q. The red Mercedes that had belonged to Tanweer is
20 addressed on page 17 of your witness statement, INQ9520.
21 It also contained traces of HMTD in the footwell and on
22 three of the floor mats?

23 A. That's correct, yes.

24 Q. That red Mercedes was not used that morning, and so it
25 would seem that there must have been extensive

1 contamination on the premise that there was no
2 bomb-making carried out inside the red Mercedes for
3 there to have been a cross-contamination to that car
4 from Alexandra Grove?

5 A. And, I also understand, as we've seen from the high
6 traces of HMTD at Chapeltown, from CCTV footage. These
7 three vehicles are seen at the rear of Chapeltown, so
8 there's an actual link of HMTD there from Chapeltown to
9 these three vehicles.

10 Q. Thank you very much. Then turning to addresses, the
11 home address of Mohammed Khan was 69 Lees Holm in Leeds.
12 That's a matter of public record.

13 In that address, was there found -- we can see in
14 the bottom of your page 17 -- books with titles such as
15 "Death" and "The Final Bequest" and "Paradise: The Bliss
16 and the Path To It"?

17 A. That's correct.

18 Q. Latex gloves?

19 A. Yes.

20 Q. Icepacks?

21 A. That's correct.

22 Q. A Milletts receipt relating to the purchase of icepacks
23 and two Wilderness Trail rucksacks and a Sherpa
24 rucksack?

25 A. Yes.

1 Q. Rucksacks of that type have, of course, been linked to
2 the explosive devices in the Underground and on the bus?

3 A. That's correct.

4 Q. Also, a receipt relating to the purchase of halogen
5 bulbs and pliers?

6 A. Yes.

7 Q. There was also discovered, was there not, a piece of
8 washing machine pipe. What was the significance of
9 that?

10 A. Again, traces of HMTD were found within that item. That
11 wasn't actually attached to the washing machine, it was
12 on a shelf within the kitchen area. But the chances are
13 that those traces were found there due to the actual
14 contaminated clothing being washed.

15 Q. Colwyn Road, I won't read out the address, the precise
16 address, because there are still links to Tanweer's
17 family, but that was the home address of
18 Shehzad Tanweer.

19 Were there items of note found there, including
20 a receipt for the purchase of five icepacks?

21 A. That's correct.

22 Q. An Al Jihad poster bearing some writing but containing
23 an image of an AK47 automatic weapon?

24 A. Yes, that referred to the International Islamic Jihad
25 Movement.

1 Q. And a calendar which also related to a call or retained
2 a reference to a call to join Jihad?

3 A. That's correct, yes.

4 Q. 10 Northern Road -- again, the address is a matter of
5 public record -- was the home address of
6 Jermaine Lindsay. There was found a pair of surgical
7 gloves which was of note to you, and also a CD
8 collection, which contained, I think, images and
9 contents of like kind to the earlier Jihadist material
10 that we saw?

11 A. Yes, of a similar ilk, yes.

12 Q. Finally, the address of Hasib Hussain, I won't read out
13 the specific number, but it was in Colenso Mount in
14 Leeds. There police found a handwritten note showing
15 times of travel to King's Cross --

16 A. Yes.

17 Q. -- and a handwritten, lined sheet of paper bearing the
18 address of 18 Alexandra Grove?

19 A. That's correct, yes.

20 Q. Finally in your statement, there you address the
21 question of the carrier bag that was given to Witness B
22 by Hasina Patel and of which we'll hear from Acting
23 Detective Inspector Sparks in a couple of weeks' time,
24 but that bag contained a handwritten note as well as the
25 last will and testament of Khan, and that was subject to

1 forensic analysis and his fingerprints as well as those
2 of Tanweer were found?

3 A. Yes, 22 finger marks of Khan and 28 marks for Tanweer
4 were present.

5 Q. So a joint product. Also in that bag was found a very
6 large number of books and audio tapes containing similar
7 types of extremist material?

8 A. Yes, referring to martyrdom and Jihad, et cetera.

9 Q. Officer, thank you very much indeed. Do you finally
10 also produce a hydroponic schedule?

11 A. Yes.

12 Q. I won't ask you any questions about it, but we have
13 at -- if we could put it on the screen, please --

14 INQ11005 [INQ11005-1], a schedule of hydroponic stores that were
15 linked to Khan, Tanweer, Hussain and Lindsay prepared by
16 Counsel to the Inquest, but you've had a chance to look
17 at it.

18 Does it summarise all the hydroponic evidence to
19 which reference was made in the forensic evidence report
20 prepared for my Lady during the course of last year?

21 A. It does, yes.

22 Q. I think for present purposes I can confine myself simply
23 to inviting you to confirm that the first reference to
24 the purchase of hydroponic material is on 22 February of
25 2005?

1 A. That's correct, yes.

2 Q. And the process continues up to June?

3 A. That's right.

4 MR KEITH: Thank you very much. Those are all the questions
5 that I have for you.

6 LADY JUSTICE HALLETT: Mr Patterson?

7 Questions by MR PATTERSON

8 MR PATTERSON: Mr Reynolds, if in answering any question you
9 would, in fact, have to refer to something that you
10 would prefer not to refer to, then please obviously do
11 say. The last thing any of the families I represent
12 want to do is to put into the public domain something
13 that might be misused.

14 You have covered in your evidence the items that
15 were found at what was clearly a bomb-making factory at
16 18 Alexandra Grove. May I touch on just one or two of
17 those items? I'm working from a booklet that was
18 prepared, in which, I suspect, everything that was on
19 your computer model also appears.

20 One of the items was exhibit CW/282. We saw it
21 briefly on the screen. An Asda bag which contained
22 broken CDs and disks.

23 It's right, isn't it -- I don't want to put into the
24 public domain the origin of this -- but it was something
25 that was downloaded from the internet and it contains

1 information that is freely available to anyone who wants
2 to search on the internet in relation to the manufacture
3 of improvised explosive devices?

4 A. Unfortunately, yes.

5 Q. The theme that emerges from your work on this case,
6 sadly, is that there's a huge amount of material that is
7 freely available on the internet for anyone who wants to
8 do research into bomb-making techniques and the like?

9 A. Certainly, yes.

10 Q. There were a number of documents linked to hydroponic
11 purchases that were found at Alexandra Grove, and your
12 research -- your booklet highlights the links in terms
13 of handwriting, DNA or fingerprints linking the four
14 bombers to those documents.

15 It's set out, is it not, in the schedule that we've
16 just seen a moment or two ago? We've seen that in the
17 back of the Nissan Micra there were four improvised
18 explosive devices which had nails attached to the
19 outside?

20 A. Yes.

21 Q. They had been taped, had they not, to the outside of
22 these small jars? You've suggested that they would be
23 usable by means of throwing, and I think nails of
24 a similar type were found back at Alexandra Grove. Is
25 that right?

1 A. I believe that's the case, yes.

2 Q. I'm looking at CW/330. There were packets of what were
3 described as clout nails --

4 A. Yes.

5 Q. -- which are half-inch nails which have the rather
6 larger heads on them of the type that are used for
7 felting or for plaster boarding or that sort of work?

8 A. Yes.

9 Q. Clearly intended as a shrapnel?

10 A. Correct.

11 Q. There were various 9-volt batteries that were found at
12 the bomb factory, often with masking tape around them?

13 A. Yes.

14 Q. That would be the technique that was used in creating
15 the explosive devices that would appear to have been
16 used on 7 July?

17 A. A power source will have been used, but not necessarily
18 some of those batteries we have seen there. It may have
19 been a smaller one, like a 9-volt battery, for example.

20 Q. Yes. There was evidence, I think, that found at the
21 scene of Tavistock Square was a PP3 9-volt battery
22 believed to have been the one purchased on the morning
23 at King's Cross railway station by Hasib Hussain.

24 A. Yes.

25 Q. And suspected as having been the battery used to

1 detonate the explosion?

2 A. That's correct, yes.

3 Q. We've seen on the screen fragments of burnt paper,
4 exhibit SAS/294, and I think that this included
5 references, did it not, to various Underground stations
6 on the Central Line in particular, Lancaster Gate,
7 Queensway, Holland Park and as far west as White City?

8 A. Yes, that's correct, sir.

9 Q. Also found was CW/371, a Thameslink timetable so the
10 rail line that was used on the day, Bedford down to
11 Brighton, with writing on the timetable?

12 A. That's correct, yes.

13 Q. And the handwriting was attributable to Shehzad Tanweer?

14 A. Correct.

15 LADY JUSTICE HALLETT: Sorry, where was that one found?

16 MR PATTERSON: The lounge, room 1, at 18 Alexandra Grove
17 according to your booklet. Is that correct?

18 A. That's correct.

19 Q. A quantity of Nandrolone, an anabolic steroid, found
20 with a DNA profile matching Tanweer?

21 A. Yes.

22 Q. And in relation to Jermaine Lindsay, although of the
23 four bombers there were the fewest links to him,
24 nevertheless there were clear links, were there not, at
25 the bomb factory?

1 A. Yes.

2 Q. In particular, CW/283, a green bag containing torn
3 labels, liquid oxygen leaflets, and the like, and also
4 CW/310, a quantity of documents about hydroponics, marks
5 linked to Lindsay were found on those?

6 A. That's correct, my Lady.

7 Q. You've touched, Mr Reynolds, on the shrubs outside the
8 flat. Is it right that it's believed that the fumes
9 from the manufacture of the explosives had killed some
10 of the shrubs outside? I think there was also
11 blistering of paintwork inside the flat. Is that right?

12 A. That's correct, yes.

13 Q. Some of the witnesses who searched at the flat describe
14 the smell and odour that was there, a bleach-like odour,
15 is that right?

16 A. Yes.

17 Q. And a pepper smell from -- clearly from the many bags of
18 pepper that were used?

19 A. Yes, it would have been a hostile environment to work
20 in.

21 Q. You describe the efforts that had been taken to try and
22 keep prying eyes away from what was going on. Were all
23 the windows covered in the way you've described, with
24 the curtains having been taped to the sides of the
25 windows?

1 A. I'm certainly aware of at least four of the windows
2 having tape attached to it.

3 Q. So from your familiarity over all those weeks of
4 searching, would there have been any signs that could
5 have been detected by a neighbour?

6 You've said that there was some smell. You've said
7 that fans would have been used. Anything that you think
8 might have been detectable to somebody outside the flat?

9 A. Potentially, there's smell, an unusual smell, generating
10 from the open windows.

11 Q. Obviously you've experienced it, we haven't. The smell
12 of bleach might be something that might be thought to be
13 cleaning materials. Was it an out of the ordinary
14 smell?

15 A. It would be -- I would be inquisitive if I smelt that
16 and I would go and have a look at it, but that's me.

17 Q. The smell of pepper, again, was it something out of the
18 ordinary?

19 A. Again, I can only account for myself, but if I smelt
20 something like that emanating from a premises, I would
21 want to have a look.

22 Q. Can I move on, please? The Fiat Brava, you've mentioned
23 there was a handgun, it was a converted handgun, there
24 were six live rounds, it was tested and it did fire. Is
25 that right?

1 A. I believe some of the rounds were not compatible with
2 the actual firearm.

3 Q. I see, the ammunition wasn't compatible, but the gun
4 itself did operate?

5 A. That's right, and the actual sights weren't compatible
6 for that handgun either.

7 Q. The Keno HF detector, is that an item that can be used
8 to detect radio equipment and surveillance signals?

9 A. Yes, it was examined and shown to be working.

10 Q. Again, items like that, perhaps surprisingly, can be
11 found on the internet?

12 A. Very much so, yes.

13 Q. You've mentioned the various extremist materials that
14 were found in the different home addresses. One of them
15 that was found at the home address used by
16 Mohammed Sidique Khan was an audio tape with a recording
17 of Sheikh Faisal. Is that right?

18 A. Yes, quite a large number of those tapes actually relate
19 to Sheikh Faisal.

20 Q. So the extremist preacher who was ultimately convicted
21 and sentenced for soliciting to murder and stirring up
22 racial hatred?

23 A. That's correct, yes.

24 Q. Can I ask you something, please, Mr Reynolds, about the
25 hydrogen peroxide purchases?

1 There were distinct periods of activity, were there
2 not, when the four bombers were engaged in this
3 purchasing of liquid oxygen? The evidence shows that
4 all four of them were clearly involved in these
5 purchases -- telephone contacts from phones used by
6 them, cell site analysis putting them in the general
7 area of the outlets, the use by Hussain of a computer to
8 search for these retail outlets?

9 A. Yes.

10 Q. Some identification evidence whereby, when police
11 investigators went to the relevant outlets, photographs
12 of the four bombers were identified by the vendors.
13 It's clear, isn't it, that in making these
14 purchases, the four men didn't act to any great degree
15 in a covert way; they simply found these places, often
16 using the internet, drove there, purchased the liquid
17 oxygen and left?

18 A. That would appear to be the case, yes.

19 Q. Again, it might be surprising, but there are many of
20 these outlets across the country where a person can walk
21 in and without committing, it would appear, a criminal
22 offence, purchase large quantities of liquid oxygen?

23 A. Yes.

24 Q. Which obviously, in this instance, was used to make the
25 explosives. It was also used, was it not, in relation

1 to the unsuccessful bombings on 21 July?

2 A. That's correct, yes.

3 Q. Is it right that, in that case, it's believed that the
4 purchases were made, not from hydroponics outlets, but
5 from hairdressing suppliers and places like that?

6 A. The 21/7 enquiry, yes, that was from the hairdressing
7 business.

8 Q. It's clear, isn't it, that the vendors you spoke to,
9 mainly in the north of England, who were selling these
10 quantities of liquid oxygen, they often confirmed that
11 these were unusually large quantities that were being
12 purchased?

13 MR HILL: Can I just say, forgive me for interrupting, we
14 don't object to any of these questions, I just want to
15 sound a note of caution that they may not be accurately
16 directed at this officer.

17 DI Sparks will give evidence, as instructed and
18 requested, on background matters, and a senior
19 investigating officer will give evidence, I think on the
20 last day, my Lady, when you're taking evidence on any
21 general matters to do with the Operation Theseus
22 enquiry.

23 So I don't object, but there are matters that are
24 perhaps going beyond the remit of this officer's
25 enquiries. I don't think -- I'll be corrected if I'm

1 wrong -- that he personally would have been involved in
2 enquiries at hydroponics outlets, for example. But the
3 opportunity will come for the putting of these
4 questions.

5 LADY JUSTICE HALLETT: I suspect it was prompted by Mr Keith
6 showing me the table, Mr Patterson, is that right, which
7 has on it the identification and --

8 MR PATTERSON: Yes, we emailed last week asking which
9 officer to deal with hydroponics. We were told
10 Mr Reynolds, but I'm happy to deal with it through
11 a different officer, if it's more appropriate.
12 I've only a few more questions, it may be we can
13 deal with it with this --

14 LADY JUSTICE HALLETT: If you find it's beyond your area,
15 just say, please.

16 MR PATTERSON: Mr Reynolds, it seems, does it not, that
17 there were no traces that the police found of any of
18 these vendors notifying the police that they had made
19 these sales?

20 A. I believe that's the case, yes.

21 Q. Many of them say that they would often sell it in
22 quantities of 250 millilitres or maybe as much as one
23 litre, but they would very rarely sell it in the
24 quantities of 5 litres which is often what happened in
25 this case?

1 A. Yes, I understand that to be the case.

2 Q. Can you assist with that?

3 A. Yes.

4 Q. The only circumstances in which the police would ever
5 learn of this sort of vending of this material again
6 would be if it came within the Terrorist Act and the new
7 offence of failing to disclose a suspicion that
8 a terrorist offence was being committed? So it would
9 only be if a vendor believed or suspected that what they
10 were selling would be used for terrorist purposes, only
11 then would the police potentially be notified of it?

12 A. I believe that is the case. I may be wrong, but I was
13 under the impression that, pre-2005, you could purchase
14 certain products, with a hydrogen peroxide concentration
15 of up to 30 per cent. You can't do that now.

16 Q. So it continues to be the case, does it not, that often,
17 if somebody wanted to go and make large purchases of
18 hydrogen peroxide, they could do so without much risk of
19 detection?

20 A. That would appear to be the case, yes, sir.

21 LADY JUSTICE HALLETT: So you get cross-examined in the
22 chemist if you want to buy too many aspirin, but you can
23 buy as much hydrogen peroxide on the market ...?

24 A. Yes.

25 MR PATTERSON: That's all I ask, thank you very much.

1 LADY JUSTICE HALLETT: Thank you, Mr Patterson. Mr Hill, do
2 you have any questions? Does anybody else have any
3 questions?

4 Thank you very much indeed, Mr Reynolds. Thank you
5 for the way in which the evidence was presented. Very
6 helpful.

7 MR KEITH: My Lady, may I invite you to call Clifford Todd,
8 please?

9 MR CLIFFORD CHRISTOFFEL TODD (sworn)

10 Questions by MR KEITH

11 MR KEITH: Good afternoon. Could you give the court your
12 full name, please?

13 A. Clifford Christoffel Todd.

14 Q. Mr Todd, are you a principal forensic investigator at
15 the Forensic Explosives Laboratory, which is part of the
16 Defence Science and Technology Laboratory in Sevenoaks?

17 A. That's correct.

18 Q. You are highly experienced in the field of analytical
19 chemistry and particularly in the area of the forensic
20 analysis of explosives?

21 A. That's correct, yes.

22 Q. You looked at many of the items to which Mr Reynolds
23 has, just a moment or two ago, given evidence. You
24 examined the scenes, although only firsthand in
25 relation, I think, to one of the scenes, the other three

1 scenes you looked at great length at the forensic
2 product, the searches that were carried out, and you
3 looked at the remains of the carriages when they were
4 taken to the depot in Acton, and you were invited by the
5 Metropolitan Police to provide an overview of some of
6 the issues that have arisen forensically in the course
7 of the criminal investigation.

8 A. Yes, that's correct. If I can just, my Lady, explain
9 a little bit about that. Each case had its own specific
10 case officer within the lab who did the detailed
11 examination with others assisting them.

12 It's true that I was at Russell Square -- the
13 Russell Square scene, but I didn't attend the other
14 ones. I've had an overview of what was done in each
15 case in some detail, but I should make it clear that, in
16 terms of the actual examinations that were done on the
17 individual items from each, those were done by
18 individual case officers within the laboratory.

19 Q. You were the commanding officer, in forensic terms, as
20 opposed to the foot soldier.

21 Your statement, which my Lady I hope has, dated
22 19 September 2007, explains on page 2 that you were
23 asked to give an opinion as to the overall conclusions
24 that could be drawn.

25 A. That's correct, yes.

1 Q. Drawn, as you say, from all the individual --

2 A. Yes.

3 Q. -- analyses that were carried out. You've given
4 evidence, have you not, in relation to the forensic
5 aspects of 7/7 before?

6 A. I have, yes.

7 Q. Turning firstly to Alexandra Grove on the bottom of the
8 second page of your statement, you went there on
9 19 July --

10 A. That's correct, yes.

11 Q. -- together with colleagues and police officers, and you
12 saw, as we saw from one of those photographs, open-top
13 plastic containers with a yellow-brown sludge in?

14 A. That's correct, yes.

15 Q. Were there different types of sludge at the address?

16 A. Yes, there were two types. One was much darker than the
17 other. One was a fairly light, sandy, yellow-brown
18 colour. The other type was a much darker brown colour.

19 Q. Was there a difference between them, their effects?

20 A. Yes. The darker brown material, after various tests
21 done at the laboratory, was found not to be energetic,
22 so would not work as an explosive. The lighter,
23 sandy-coloured material, that was shown, in at least one
24 specific case, to be a high explosive.

25 Q. In addition to the containers, did you find a great deal

1 many items, part of the paraphernalia of the
2 construction of explosive devices such as plastic trays,
3 funnels, spoons, filter papers, all heavily contaminated
4 with a white powder?

5 A. Correct, yes.

6 Q. Did you undertake investigation of what that white
7 powder was?

8 A. We did, and that was HMTD, which is a particular --
9 a very sensitive high explosive, it can be manufactured
10 relatively easily from readily available materials.

11 Q. I'll only attempt this once, but it is the acronym for
12 hexamethylene triperoxide diamine?

13 A. That's correct.

14 Q. What are the differences in terms of the quantity of
15 HMTD required to make a viable explosive device from the
16 primary explosive substance which was used in these four
17 bombs, namely triacetone triperoxide -- I'm sorry,
18 hydrogen peroxide/piperine mix?

19 A. Right, the amount of HMTD that you would need is a few
20 grammes or so, maybe up to 10 grammes perhaps, for each
21 individual device.

22 The basic principle of explosives is that, when you
23 have a large amount of explosive, in order to do a large
24 amount of damage, or work, you want that material to be
25 safe in the sense that it will only detonate -- and you

1 can be sure of this -- that it will only detonate when
2 you want it to and not otherwise.

3 So the principle is that you have a form of
4 explosive which you can carry and handle in large
5 amounts which is relatively safe, and will not just
6 detonate for -- from a minor stimulus.

7 But what you need, also, is then another form of
8 explosive that will cause that large amount to explode,
9 but which is itself very easy to detonate, so this is
10 sometimes referred to as an "explosive train".

11 Now, the sensitive material in this case that has
12 been used is HMTD, and the principle is, of course, that
13 you only use that in small amounts, so if it should
14 detonate unexpectedly, which is entirely possible
15 because it's very sensitive, it won't do too much damage
16 until the point at which it's put into the large amount
17 of explosive. So that's the basic principle in which
18 this works.

19 Q. At Alexandra Grove, did you see calculations as well as
20 pieces of equipment such as trays and containers which
21 referred to this process of constructing a device based
22 in part with an initiating explosive substance and also
23 with the major piperine/hydrogen peroxide mix?

24 A. Not that specific. The calculations that we did see on
25 a particular piece of paper appeared to relate to the

1 density of hydrogen peroxide, although that wasn't
2 specifically stated on that piece of paper. The
3 reasoning behind that would be along the lines that the
4 hydrogen peroxide initially purchased is of a relatively
5 low concentration.

6 Now, that's sufficient to be able to make HMTD, but
7 it's not sufficient to be able to make the suitable
8 pepper/hydrogen peroxide mix for your main charge, and
9 so what you need to do is concentrate that hydrogen
10 peroxide and you need a method to know when it's
11 concentrated enough, and that's what I believe those
12 calculations referred to, how they were going to
13 determine when they'd concentrated it sufficiently.

14 Q. Hence the sensitivity of a revelation of that particular
15 detail into the public domain?

16 A. Correct, yes.

17 Q. Also found at Alexandra Grove in terms of the
18 significance to the bomb-making process, were there the
19 containers, as I say, containing sludge, packets of --
20 empty packets of piperine, bottles, labels, all relating
21 to the purchase of hydrogen peroxide, all part of this
22 process?

23 A. Yes, yes. Could I just make a distinction, or make it
24 clear here, when this -- these incidents first occurred,
25 we didn't know what the material was that had been used.

1 Our first analysis on some materials from
2 Alexandra Grove showed us the presence of a material
3 called piperine. It later transpires that that is
4 simply something that is contained within black pepper.
5 But there was initially some confusion or some thought
6 that piperine was some kind of material that had been
7 added to the devices, and that's not the case. It's
8 simply that that was the first identifiable compound
9 that we found, which it later became clear was simply
10 a component of black pepper.

11 Q. The process of discovering what the manufacture of the
12 bombs had consisted of, and what type of bombs they
13 were, was a process that took some considerable time, no
14 doubt?

15 A. Considerable time, yes.

16 Q. At the conclusion of your enquiries, as your statement
17 reveals, you prepared in your witness statement two
18 particular tables?

19 A. Yes.

20 Q. One in which you provide an overview of the explosion
21 scenes themselves and another, a second table, in which
22 you relate your findings in relation to the other scenes
23 that were investigated, such as the cars and
24 Alexandra Grove and Chapelton Road.

25 Can we look at those, please? Page 5 of my Lady's

1 statement.

2 Russell Square firstly. Having examined, as you've
3 told us, the Tube carriage --

4 LADY JUSTICE HALLETT: I'm sorry, just before we get to the
5 scenes, is it possible to say in public, you mentioned
6 that you would put the two different kinds of
7 explosive -- the less sensitive and the more
8 sensitive -- together to cause the explosion.

9 A. That's correct, my Lady.

10 LADY JUSTICE HALLETT: Can you say publicly what exactly you
11 need to do? I mean, is it just, as it were, pouring one
12 into the other, or aren't you allowed to say?

13 A. It's physically -- we've seen a picture of the
14 initiator, or an initiator, from Alexandra Grove. It's
15 essentially inserting that item into your main charge.
16 So physically inserting that into the material, your
17 pepper/hydrogen peroxide mixture.

18 LADY JUSTICE HALLETT: Thank you.

19 MR KEITH: The photographs show -- and, again, I don't
20 reveal anything that is sensitive -- the initiator as
21 a combination -- I won't go into the exact details -- of
22 bulb and the initiating substance and the tape and the
23 tin foil that we can see?

24 A. Yes.

25 Q. Then, when a battery source or electrical supply is

1 provided to it, that acts as the initiator for the main
2 device?

3 A. That's correct, yes.

4 Q. Namely, the hydrogen peroxide/piperine mix?

5 A. Yes.

6 LADY JUSTICE HALLETT: So at the last minute, the bomber
7 doesn't need to do much?

8 A. Yes, that's correct, my Lady. In principle, you
9 wouldn't want to bring the two components together until
10 you're ready to fire it, because, at that point, it
11 becomes very dangerous, but nevertheless, there's no
12 reason why that -- they can't have been put together
13 some considerable time before. You just wouldn't
14 necessarily choose to do that.

15 LADY JUSTICE HALLETT: I follow, thank you.

16 MR KEITH: On that premise, all that would have been done in
17 London is to connect up the wires leading from the
18 initiating explosive device -- the HMTD -- to the
19 battery?

20 A. Correct, yes.

21 Q. And with a snap connector, or just attaching the leads
22 to the battery, the circuit is made complete?

23 A. That's correct, yes.

24 Q. Russell Square. Did you reach some conclusions in
25 relation to the likely amount of high explosive that was

1 detonated by reference to the damage that had been
2 caused?

3 A. Yes, we've quoted that as a few kilograms. This is
4 absolutely not an exact science, and particularly with
5 improvised materials.

6 So we are very wary of putting figures to the actual
7 size of device. Nevertheless, if you were to say of the
8 order of 10 kilograms, that might be something like the
9 amount we're talking about.

10 Q. From the clinical findings as to the injuries caused to
11 the deceased and the survivors, did you conclude that
12 the likely location of the bomb would have been at or
13 near floor level --

14 A. Yes.

15 Q. -- because of the sweeping effect of the bomb and the
16 amputations that were caused?

17 A. That's correct, and thereafter, also, the physical
18 damage to the train and the -- in particular, the damage
19 to the floor of the train, which indicates that that is
20 pretty much where the device was placed, on the floor or
21 very close to.

22 Q. Based on the original witness statement of a single
23 witness that there was, some years back, considerable
24 debate on the internet as to whether or not one of the
25 scenes demonstrated that the explosion had occurred, not

1 from the location of a bomb inside the carriage on the
2 floor, but from underneath the carriage floor, was there
3 anything to suggest that any of the three
4 London Underground-located bombs had been detonated from
5 below the carriage floor in each case?

6 A. No, nothing at all, and all of the evidence that we
7 looked at shows quite clearly that it was inside the
8 train carriage, as I've said, on the floor or very close
9 to it.

10 Q. You turn then to Tavistock Square and the bus on the
11 same page.

12 A. Yes.

13 Q. The explosion plainly occurred on the upper deck of the
14 bus. Were you able to reach a similar view as to the
15 likely size of the high explosive device?

16 A. Again, similar to the Russell Square and, indeed, the
17 other devices.

18 Q. The location of the bomb was likely to have been at or
19 near floor level again?

20 A. Yes.

21 Q. That particular aspect -- the location of the bomb --
22 was further examined by a forensic anthropologist,
23 Ms Roberts, from whom we will be hearing shortly, with
24 reference to the explosive effects on Hussain?

25 A. Right.

1 Q. Aldgate, the explosion was in the second carriage,
2 again. Was it of the same order of size?

3 A. It was, yes.

4 Q. Was it also likely to have been located at or near floor
5 level?

6 A. Yes.

7 Q. Edgware Road, over the page, page 6, the same order of
8 size again?

9 A. Yes, that's correct.

10 Q. And at or very close to the floor level of the seating
11 area near to the second set of doors?

12 A. Yes.

13 Q. Turning then to the chemistry, that is to say the
14 physical aspects of the explosive devices with which
15 we're concerned, tests were carried out at all the
16 sites, were they not, to see whether or not there were
17 traces of HMTD, the initiating device of which you've
18 spoken, or of TATP, another form of primary high
19 explosive, triacetone triperoxide?

20 A. Yes, that's correct.

21 Q. At Russell Square, what were the findings?

22 A. At Russell Square, none was found, no traces of HMTD or
23 TATP or, indeed, any other explosive was found.

24 Q. Was that significant or inconclusive in relation to the
25 overall conclusion that the device at Russell Square was

1 plainly an HMTD hydrogen peroxide/piperine bomb?

2 A. Well, from just those results, clearly we wouldn't have
3 been able to say that, but the conclusion that it's
4 likely that it was HMTD and hydrogen peroxide and pepper
5 comes from the accumulation of all the other evidence
6 from Alexandra Grove and the various components that
7 were physical items that were actually found from
8 Russell Square and, indeed, the other scenes.

9 Q. The fault is mine, I put the question badly. On the
10 premise that the explosive device at Russell Square was
11 a combination of an HMTD initiator and
12 a piperine/hydrogen peroxide mix, could the explosion
13 itself have destroyed signs that HMTD was the initiator?

14 A. Absolutely, yes.

15 Q. As we'll see in a moment, traces of HMTD were found at
16 the other scenes.

17 A. Yes.

18 Q. Can an explosive trace remain, because even though the
19 device itself explodes entirely, there may be traces of
20 the explosive material on the clothes or the possessions
21 of the bomber?

22 A. Yes, that's correct. You can get post-explosion
23 residues. When a high explosive detonates, not
24 100 per cent of it will be consumed in that detonation,
25 and very small traces are generally left. They are

1 vanishingly small amounts.

2 In this particular case, the other possibility,
3 which is perhaps more likely, with the HMTD, the HMTD is
4 only a very small part of the whole device. Now, it is
5 actually very unlikely that any of that HMTD from the
6 initiator would survive these blasts. It's more likely
7 that the HMTD that was found there was already on the
8 material that -- where it was found.

9 Q. A wallet or a piece of clothing --

10 A. Contamination by the --

11 Q. -- or a rucksack or whatever?

12 A. Indeed, contamination of the perpetrators with the HMTD
13 through either the manufacturing process or the
14 transporting of the materials.

15 Q. Absolutely. Tavistock Square, therefore, was one of the
16 scenes, we can turn to it next, in which there were
17 traces of HMTD found on fragments of a rucksack.

18 A. Correct, yes.

19 Q. Your statement refers to a process and yet another
20 acronym -- we've been plagued with acronyms, I'm afraid,
21 Mr Todd in these proceedings -- LCMS. Is that liquid
22 chromatography and mass spectrometry?

23 A. It is.

24 Q. In any event, it is the process which assists you in
25 determining whether or not traces of explosive substance

1 still exist?

2 A. That's correct, yes.

3 Q. In relation to Aldgate station, there were swab devices
4 for the process of ascertaining whether or not there
5 were explosive substances there submitted to you, or
6 rather to your colleagues, for examination, as well as
7 a seat cushion, and a wallet which was established to be
8 connected to Tanweer. Were trace elements of HMTD
9 detected on the wallet?

10 A. Yes, they were.

11 Q. And on the piece of clothing?

12 A. Yes.

13 Q. Again, the fact that not more HMTD was found may well
14 have been because the initiating device was completely
15 destroyed in the explosion?

16 A. Yes.

17 Q. There were analyses carried out as to whether or not the
18 piperine substance could be found at the scene, but were
19 your conclusions inconclusive in that regard?

20 A. That's right, we tried to see if we could find that and,
21 in the end, we weren't successful, so we couldn't draw
22 any conclusion from that.

23 Q. At Edgware Road, the standard test for organic
24 explosives proved to be negative but HMTD traces were
25 detected on fragments of clothing and also a piece of

1 blue denim and, in addition, on a green hooded top. Is
2 that right?

3 A. Yes, that's right.

4 Q. But no piperine was detected on the items that were
5 submitted?

6 A. No, indeed. Perhaps I should make clear that we did, as
7 you've just alluded to, actually test a number of
8 samples for conventional -- what we'll call conventional
9 high explosives, because, of course, initially we didn't
10 know what had been used, and in no case did we find any
11 trace of conventional high explosives.

12 Q. Your colleagues, Sarah Lancaster, Hazel Hutson,
13 Sharon Broome and Kim Simpson who were the examiners of
14 the individual scenes, carried out a remarkable exercise
15 in piecing together all the fragments from the debris
16 found at each of the scenes.

17 A. Absolutely.

18 Q. They were able to substantially reconstruct the items
19 such as to demonstrate plainly the explosives in each --
20 the explosive at each scene had been contained in
21 a rucksack --

22 A. Yes.

23 Q. -- and that there were links between the rucksacks by
24 way of the design and so on.

25 A. Yes.

1 Q. And so, on that page, page 7 of your statement, do you
2 briefly examine the material which they had assembled
3 and reach some views in relation to the apparent
4 similarity or connection between the rucksacks that were
5 used?

6 A. Yes.

7 Q. Were your conclusions as to the type of rucksack used
8 consistent with the CCTV images which had shown the
9 bombers carrying the rucksacks in the minutes before the
10 explosions?

11 A. They were, yes.

12 Q. Icepacks, at the bottom of the page. There were found
13 at all the scenes, were there not, fragments of plastic
14 consistent with commercially available icepacks?

15 A. Yes.

16 Q. What was the reason, did you think, for the presence of
17 icepacks?

18 A. Well, the reason became clear over time. The hydrogen
19 peroxide and pepper mixture is a very reactive mixture
20 and it will tend to heat itself to the point, if left
21 unchecked, where it will actually either just boil away
22 or perhaps react more violently than that.

23 So the icepacks would be there in order to make sure
24 that the material stayed cool, to stop it reaching
25 a point at which you could then no longer stop it

1 heating itself.

2 Q. There were found at the scenes fragments of very thin
3 plastic material such as plastic bags?

4 A. Yes.

5 Q. We'll see in a moment that I think you identified some
6 of the plastic as being bags from a well-known
7 manufacturer of ice-cream, I think Mackies?

8 A. Mackies, indeed.

9 Q. How were the explosive devices actually carried? Were
10 they within such plastic bags?

11 A. There has been some debate about that. We cannot be
12 100 per cent certain, but the -- our -- the most likely
13 scenario is that the mixture, the main charge, was put
14 into thin plastic bags like that rather than into rigid
15 plastic containers, and the reasoning being that, if
16 they had been in rigid containers, we would have
17 expected to find some fragments of those rigid
18 containers in the same way that we found fragments of
19 the icepacks, which, again, are rigid plastic material.
20 But there weren't any found, so -- and it is a bit
21 of an assumption from that, that it was put into thin,
22 flexible plastic bags, which there were fragments found
23 of in each case, a few, which is all that you'd expect.
24 Q. Would the icepacks have been contained within the
25 plastic bag, wedged around --

1 A. Yes.

2 Q. -- the wet-paste-like substance or outside?

3 A. Yes, and it would make sense for that to be the case,
4 because, if you had a rigid container and then icepacks
5 certainly outside that, they won't cool that anywhere
6 near as efficiently as they will if they're pressed
7 against a flexible material.

8 Q. You then turn to the issue of the initiators, that's to
9 say the device constructed from a lightbulb and tape and
10 the HMTD, and whether or not there were signs of the use
11 of such an initiator at the scenes.

12 At Russell Square, no parts of an initiator were
13 found and, as you said earlier, neither were any traces
14 of HMTD. At Tavistock Square, no parts of the actual
15 device, initiating device, were found, but as you've
16 described, HMTD in trace form was found. Likewise,
17 Aldgate and, likewise, Edgware Road.

18 A. That's correct, yes.

19 Q. There were some significant findings, however, were
20 there not, in relation to wires found at two of the
21 scenes, and you will have seen earlier Mr Reynolds
22 pointing out the speaker wire cable that was found at
23 Alexandra Grove?

24 A. Yes, that's correct.

25 Q. Can you tell us about that, please?

1 A. Certainly.

2 LADY JUSTICE HALLETT: Just before you do, I've got to go
3 and search for another notebook. Looking at the time,
4 shall we take a break?

5 MR KEITH: Thank you, my Lady, yes.

6 LADY JUSTICE HALLETT: Thank you.

7 (3.23 pm)

8 (A short break)

9 (3.37 pm)

10 LADY JUSTICE HALLETT: Mr Keith?

11 MR KEITH: Thank you, my Lady. Mr Todd, you were about to
12 tell us of the significance of the wires, the wire
13 fragments I should say, that were found in the
14 Tavistock Square bus and at Aldgate.

15 A. Yes. There were some fragments of some white plastic,
16 insulated twin flex wire which is commonly used, for
17 instance, for speakers -- in domestic arrangements of
18 speakers and so forth, and some of this wire was also
19 found at Alexandra Grove, not least as part of the
20 initiator that was found there.

21 So -- and this was of the same type of wire. Now,
22 it has to be said that this is relatively common.
23 Nevertheless, these fragments were -- had clearly been
24 very close to the explosive when it detonated, and that
25 would certainly suggest that they were actually part of

1 the device, from their damage.

2 Q. You then turn to consideration of the main charge, the
3 hydrogen peroxide/piperine mix, but you've covered that
4 area to a great extent already.

5 You concluded, in essence, in relation to all four
6 scenes, that despite the absence of traces of piperine
7 at the scenes, the absence of any other recognised high
8 explosive, together with the material found at
9 Alexandra Grove, led you to conclude that the main
10 charge was an improvised mixture, a home-made mixture of
11 pepper and hydrogen peroxide?

12 A. That's correct, yes.

13 Q. You've dealt with the container issue already. Turning
14 to batteries, on page 11, there were no damaged
15 batteries found at Russell Square, but at
16 Tavistock Square a 9-volt Duracell battery showing
17 possible explosive damage was recovered from the scene?

18 A. That's correct, yes.

19 Q. That was certainly capable of providing sufficient
20 electrical power to detonate the device?

21 A. Yes.

22 Q. No batteries were found at Aldgate or at Edgware Road.
23 No shrapnel was used at any of those bombsites, but you
24 will recall that a certain amount of shrapnel, in the
25 form of nails, was found in one of the cars. Is that

1 right?

2 A. Yes, that's correct.

3 Q. Russell Square, at the bottom of page 11, you made
4 reference to the two exhibits JB/2 and JB/122, the
5 halves of the white plastic bottles. There appears to
6 be some similarity to the plastic bottles found in
7 Alexandra Grove.

8 A. Yes, there did. But really, that's all I can tell you.
9 I can't offer any suitable explanation as to why they
10 would be found at the scene. The notable thing was that
11 they weren't particularly explosively damaged, so they
12 may well have been fairly near to the device, but
13 certainly not in the rucksack or on the person of the
14 person setting it off.

15 Q. If that's right, then there would have been no necessary
16 connection to Alexandra Grove?

17 A. Indeed.

18 Q. You then turn to the issue of the documents and the
19 identity cards that were found at the various scenes.
20 Some of them appeared not to be as damaged as you
21 would have expected, if they had been actually on the
22 person carrying the rucksack, that is to say the bomber.
23 There is, however, no evidence from any of the witnesses
24 who were present at the four bomb scenes to the effect
25 that the bombers placed these documents down on the

1 floor before detonating their devices.

2 In those circumstances, is there any sensible
3 explanation as to why some of the documents appeared not
4 to have been as damaged as you might have expected?

5 A. Well, no, I would still say that it suggests to me that
6 they'd been placed -- that they were neither in the
7 rucksack nor on the person of the perpetrator simply
8 because, in a lot of cases, they weren't as damaged as
9 they should have been, had they been that close.

10 Now, it's always possible that there could be some
11 circumstances where they might survive in a fairly
12 undamaged state, maybe at one scene, but the fact that
13 these were found at all four scenes, at least to some
14 extent, in this state, does quite strongly suggest to me
15 that somehow or other they weren't actually on the
16 person or in the rucksack.

17 Now, it would only take, you know, a separate
18 carrier bag, for instance, with those materials in, just
19 to be put next -- put down next to the rucksack or maybe
20 slightly away from it to one side. That's just
21 a suggestion. The fact of the matter is that it seems
22 unlikely to me that in all four cases you'd have these
23 particular items in such an undamaged state.

24 LADY JUSTICE HALLETT: So if you were asked to speculate,
25 you'd say that might suggest a concerted effort to

1 ensure identification?

2 A. That's correct, my Lady, yes, that's -- and I can't be
3 certain about that, but that would be, in my view, the
4 most likely suggestion that I could give for that being
5 the case.

6 MR KEITH: I don't want to set any hares running or give
7 rise to any speculation, however, that there was
8 somebody else present at the scenes who was carrying
9 this documentation.

10 If the documentation was not contained on the
11 bombers or not, rather, in their rucksacks or in the
12 near vicinity of the bombs, can you exclude, in fact,
13 the possibility that they may have been carrying the
14 documents in each case in some other way that would have
15 allowed them to be blown away by the force of the
16 explosion at such speed so as to reduce the explosive
17 damage to the documents themselves? Is that possible?

18 A. I'm not entirely clear what you're suggesting there.

19 LADY JUSTICE HALLETT: Forgive me interrupting, from what
20 you were saying, all they had to do was carry their
21 identifying documents in a separate bag in the pocket of
22 the jacket or in the rucksack, removed at the last
23 minute and stick slightly to one side?

24 A. Correct.

25 LADY JUSTICE HALLETT: And it would have the effect that

1 you've seen?

2 A. Correct, my Lady.

3 MR KEITH: Thank you, my Lady. Much better put, if I may
4 say so.

5 So there's no suggestion of there being anybody --
6 or this being consistent with somebody else being there
7 and leaving the documents?

8 A. I'm not entirely sure how that would work, because that
9 person would have to be quite -- significantly close to
10 the device itself, and if the purpose is they don't die,
11 then that doesn't make a lot of sense.

12 Q. The more doubt you can throw on to that hypothesis, the
13 better. I'm addressing the fact that there have been
14 all number of possible conspiracies suggested in the
15 internet and the wider public, and I just want to make
16 sure that there's no support for any notion of that
17 sort.

18 A. No, I can't ...

19 Q. You then turn to the premises and the vehicles found by
20 the police and, at the bottom of page 12,
21 Alexandra Grove, which you've dealt with.
22 Chapeltown Road, there were no improvised explosive
23 devices found there.

24 A. Correct.

25 Q. But there were at least four improvised explosive

1 devices found in the Nissan Micra?

2 A. Yes.

3 Q. What were they, in essence?

4 A. They were a variety. The photo was shown or some photos
5 were shown earlier. Those devices, they were all
6 subject to render safe action, so we never saw the
7 complete devices. However, we did get some examples --
8 we got a sample from one before render safe action,
9 which was HMTD, and on the remains, after the rest had
10 been rendered safe, we also found traces of HMTD.

11 So those devices certainly -- certainly some of
12 them, and most probably all of them, contained HMTD as
13 their main explosive charge.

14 So those devices are different in nature to the
15 rucksack devices, in that they're all relatively small
16 and you wouldn't choose to design something like that if
17 your purpose is to cause mass casualties.

18 More likely, they may have been intended for either
19 leaving, if you're being pursued, leaving in the trail
20 of somebody pursuing you, lighting fuses -- a couple had
21 fuses, pyrotechnic fuses -- or throwing, and simply --
22 the HMTD is that sensitive that simply the act of
23 throwing and hitting some object could well be
24 sufficient to cause them to detonate. So that would be
25 a more likely explanation for at least some of them.

1 Q. That's the Nissan Micra. The Fiat Brava had no
2 improvised explosive devices found in it, but it did
3 have, as we can see from the bottom of the page, traces
4 of HMTD on the seats.

5 A. Correct, yes.

6 Q. You've addressed Alexandra Grove. Chapeltown Road, we
7 can see in the middle of page 13. HMTD was detected in
8 a vacuum cleaner bag which would indicate that some
9 manufacture involving HMTD had taken place there.

10 A. Either manufacture or at least storage, yes. Or some
11 handling and placing of the devices there.

12 Q. The HMTD was also found in the Honda Accord, page 15 of
13 your statement.

14 A. I believe so, yes, that's correct.

15 Q. Also, at Lees Holm, which was the home address of Khan
16 on the waste pipe?

17 A. On the waste pipe, yes.

18 Q. And in the red Mercedes?

19 A. Yes.

20 Q. You are able to express a view as to the high trace
21 levels of HMTD found in Chapeltown Road, the Fiat Brava
22 and the Honda Accord?

23 A. Yes, those are particularly high traces. In trace
24 terms, they're high. I believe they might almost be
25 visible in the case of the Chapeltown Road levels, yes.

1 Barely, barely visible. So when we talk about trace
2 levels within the laboratory, traces of explosives,
3 generally speaking, we're talking about completely
4 invisible amounts of explosive.

5 Q. From secondary contamination?

6 A. Yes. In this particular case, that's a very high level,
7 3,000 nanogrammes. That does suggest more than simply
8 somebody's carried maybe a bag in that's got those
9 things, put it down, picked it up and walked off again.
10 It suggests more activity than that.

11 Q. Then finally, your summary and conclusions on page 16.
12 Many of these we've covered in the course of your
13 evidence, but additional points are at 4 and 5.

14 The overall conclusion that you reached, based on
15 the type of damage caused, the presence of the icepacks,
16 the lack of traces of other explosive substance, was
17 that the main charge was, as you've said, the improvised
18 mixture of pepper and hydrogen peroxide --

19 A. That's correct.

20 Q. -- at 18 Alexandra Grove.

21 At 5, was there anything to suggest the presence of
22 a timer or remote triggering device?

23 A. No, nothing.

24 Q. Therefore, they were all detonated by the bombers
25 themselves?

1 A. Yes.

2 Q. The issue about the documents is set out at paragraph 6
3 on that page, and then, on the following page, you reach
4 a view in relation to Alexandra Grove. What was that?

5 A. That was a bomb factory, and almost certainly the bomb
6 factory, the major bomb factory, at least, for these
7 devices.

8 Q. Because of the significant extent of material found
9 there, the paraphernalia, the wires, the mixes --

10 A. Correct, yes.

11 Q. -- and the improvised or partly constructed IEDs that
12 were there as well?

13 A. Yes, correct.

14 Q. You then discuss the significance of the icepacks, the
15 unused IEDs in the Nissan Micra, to which you've
16 referred us --

17 A. Yes.

18 Q. -- and the presence of HMTD being the common thread
19 through all four bombs, as well as the improvised
20 explosive devices found in the car?

21 A. Correct.

22 Q. The technical expertise required to construct either the
23 initiating device or the main explosive device, was that
24 of a particularly high order, or could those four men --
25 none of whom it seems had any particular skills in

1 chemistry -- have carried that out under a certain
2 degree of guidance or instruction themselves?
3 A. Yes, they would have needed some -- certainly initial
4 guidance or instruction, I believe. I don't think
5 that -- my comment about them dealing with this and
6 doing this in isolation is intended to make
7 a distinction between four people with no experience of
8 bomb-making, suddenly between themselves, and only
9 between themselves, deciding to come up with a bomb plot
10 such as this, make the devices, and go and set them off,
11 certainly without extensive practice themselves. That's
12 not really feasible. They would need some detailed
13 instruction and some practice, almost certainly, at
14 doing this.

15 So that's what I was trying to get at in my comment
16 about having some outside help. There must have been
17 something more, some -- they must, at some point, have
18 had some advice.

19 Q. Once the instructions or the guidance had been provided,
20 and perhaps alongside a certain degree of training,
21 perhaps abroad, would they have required there to have
22 been a specialist bomb-maker or a chemist present in
23 Alexandra Grove for bringing their plot to fruition?

24 A. No.

25 I should also perhaps say that these were -- these

1 devices were entirely unique. Certainly the hydrogen
2 peroxide mixed with a fuel such as pepper were entirely
3 unique within the UK for sure and, as far as I know,
4 worldwide as well.

5 At the time, there would have been plenty of
6 information on the internet about how to make bombs of
7 various descriptions, and certainly now, if you were to
8 look, probably you will find information about devices
9 of this particular type. But at that time, if it was
10 the case that four people just decided to do this with
11 no prior experience, they probably could have got enough
12 information off the internet, but it would be extremely
13 unlikely they would have come up with this particular
14 design. They would have most likely come up with
15 a design already known and spoken about on the internet,
16 which, to the best of my knowledge, that wasn't there at
17 that time.

18 Q. So this supports your overall view that the construction
19 of these devices could only have been undertaken with
20 guidance and instruction from elsewhere --

21 A. Yes, correct.

22 Q. -- and obviously persons unknown.

23 The process is not, regrettably, hugely complex, but
24 it is quite a sensitive process, is it not, in terms of
25 getting the ratios and the mixtures right?

1 A. Yes.

2 Q. Is it your view that the paraphernalia in
3 Alexandra Grove indicate that a great deal,
4 unfortunately, of time and effort appears to have been
5 dedicated to getting the ratios right and to making
6 these devices work?

7 A. Yes, both the time and effort has been taken and the
8 understanding there of what they need to do to get it
9 right.

10 MR KEITH: Mr Todd, thank you very much indeed. There may
11 be some further questions for you from Mr Patterson.

12 LADY JUSTICE HALLETT: Could I just ask, you say in your
13 statement that, in your opinion, the devices were
14 designed and constructed to a common plan and
15 subsequently triggered by each of the bombers working in
16 concert. Do you stand by that conclusion?

17 A. Yes, I do, my Lady, yes.

18 LADY JUSTICE HALLETT: Thank you.

19 Questions by MR PATTERSON

20 MR PATTERSON: Mr Todd, I ask questions on behalf of some of
21 the families of the bereaved on the day and, as I said
22 with Mr Reynolds, if, in answering any questions, you
23 would rather not indicate certain information, please do
24 say so.

25 A. Yes.

1 Q. Touching upon that last point first, if I may, what was
2 available on the internet, would you agree that both
3 then and now there is a wealth of material available on
4 the internet to anyone who wants to find out how to set
5 about constructing some kind of explosive device?

6 A. Yes, there is.

7 Q. For example, the HMTD which was used in this case to
8 make the initiating device, the precise ingredients that
9 need to be mixed in order to create HMTD, that's
10 available be on the internet today?

11 A. It is, yes.

12 Q. The use of HMTD, is it right that that has been used in
13 the past by many suicide bombers?

14 A. I don't know, I can't answer for many suicide bombers.
15 It has been used in the past, to our knowledge, in some
16 devices, but I can't say specifically in suicide
17 devices. There haven't been that many in the UK for me
18 to --

19 Q. I was thinking about overseas and other Al-Qaeda-type
20 suicide bombings, in particular the Middle East.

21 A. It's entirely possible, but it's not within my direct
22 knowledge to give that answer.

23 Q. No. The 2006 Transatlantic Airline plot, did that
24 feature of use of hydrogen peroxide and, in particular,
25 bottles of hydrogen peroxide, not unlike those that

1 featured in this case?

2 A. Yes, a variation on a theme, yes.

3 Q. Mr Reynolds has confirmed already today that the
4 unsuccessful attempts in London on 21 July, they, too,
5 included the use of hydrogen peroxide?

6 A. Yes.

7 Q. I think you featured in that investigation --

8 A. Yes.

9 Q. -- and examined the material in that prosecution.

10 A. I did.

11 Q. So those questions that you've just been answering from
12 Mr Keith about what evidence is there that they must
13 have received additional instruction or guidance, the
14 reason that you, I think, suggest that there must have
15 been that guidance is that hydrogen peroxide and black
16 pepper was an unknown explosive mix at that time, and so
17 they would have had to have learnt that that was an
18 explosive mix?

19 A. That's correct. The principle of mixing hydrogen
20 peroxide with organic fuels, which is what pepper is,
21 had been understood for over a century, but we had never
22 seen anything like that made as an improvised explosive.

23 Q. So it was a novel mixture, not, for instance, available
24 to anyone looking on the internet?

25 A. At that time.

1 Q. At that time. Also, the ratios of the mix was something
2 that they wouldn't have known?

3 A. Yes, they would have had to know what ratio to use, yes.

4 Q. The sequence in which the ingredients were added in the
5 case of making the HMTD, that is significant, is that
6 right?

7 A. Yes, you need to do that in the right way, yes.

8 Q. If it's done in the wrong way, the explosive device
9 won't work?

10 A. Be less likely to work.

11 Q. Less likely to work. Also, it can be dangerous if you
12 are not mixing in the appropriate way?

13 A. Making HMTD is dangerous, period, at all stages, yes.

14 Q. So all of these features tend to suggest guidance or
15 instruction in what they were doing, and, obviously,
16 then, the transportation of this highly sensitive HMTD,
17 which, as you've suggested, if thrown or knocked against
18 something, could explode?

19 A. Yes.

20 Q. The keeping cool of the mix of hydrogen peroxide and
21 pepper, again, that needs to be something done as well?

22 A. Yes, that needs to be done and understood that you need
23 to do that, yes.

24 Q. So all of these aspects of the technique would suggest
25 guidance or instruction?

1 A. Yes.

2 Q. In relation to the initiation of these four explosive
3 devices, you have referred to the speaker wire and
4 you've also referred in your report to other plastic
5 insulated wire that was found at, I think, two of the
6 bomb scenes. Thin, red plastic insulation.

7 A. Yes, there was thin, red at Aldgate and then some other
8 similar kind of wire at Edgware, I believe, but that
9 was --

10 Q. I think similar to battery snap connectors, you said in
11 your report?

12 A. Yes, certainly the wire from Aldgate I believe so, yes.

13 Q. The presence of batteries, both at Alexandra Grove and
14 at Tavistock Square, might tie in with that in terms of
15 providing the explanation for the detonation of the
16 devices?

17 A. Yes.

18 Q. Evidence was given by one of the survivors,
19 a Mr Daniel Biddle, who gave evidence on 8 November in
20 relation to the Edgware explosion.

21 He describes seeing the bomber just before the
22 explosion -- and I wanted to ask you about whether his
23 account would be consistent with your opinion, because
24 his description was that he saw the bomber with his hand
25 going to the rucksack and an arm movement near the

1 rucksack, the rucksack was on his lap. He put his head
2 down, he said, and then he said that he thought that
3 there was a white cord at the rucksack and it looked as
4 though he may have pulled at that cord.

5 Now, that wouldn't be consistent, presumably, with
6 your suggestion of simply the use of a battery or the
7 touching of wires to cause the initiation?

8 A. It could be. First of all, the rucksack on his lap,
9 I think the rucksack might have been next to his lap,
10 but I think it would have been -- it would have been on
11 the floor, maybe right next to him. Pulling a white
12 cord could indeed be just unravelling a length of the
13 white flex.

14 If it already has two bared wires, all you have to
15 do is touch those to a battery or, if it had
16 a connector, just touch the connector to a battery.
17 I mean, this is now verging into speculation. There are
18 lots of ways you could do that simply -- you can simply
19 attach a battery snap connector to a battery with just
20 one of the snaps, just so as it's twisted. Then all you
21 have to do is get hold of it and twist it until the
22 other press stud touches the battery terminal, and now
23 you have a circuit.

24 Q. So in fact, it could be consistent with your --

25 A. So I wouldn't say that's entirely inconsistent.

1 Q. There were bottles of aftershave that were found in the
2 boot of the Nissan Micra, and the list of various items
3 that was found at Alexandra Grove, CW/254, that referred
4 to icepacks, batteries, cooling packs and the like, it
5 also referred to aftershave.

6 Is there any evidential significance in those small
7 bottles of aftershave that were found in the
8 Nissan Micra?

9 A. I'm not sure, but one possible explanation -- and that's
10 all it is -- is that the material did smell to some
11 extent, I understand. I don't have a sense of smell, so
12 I can't speak to that directly myself. But I understand
13 the material did have a smell, which is not surprising,
14 being based on pepper, so it may well be that aftershave
15 was considered by them to maybe sprinkle on the bag or
16 around themselves to, in essence, mask whatever smell
17 the material itself might have been giving off.

18 Q. Perhaps before they left the vehicle and set off with
19 the rucksacks?

20 A. Certainly possible, yes.

21 Q. Finally, Mr Todd, this: you mentioned Chapeltown Road
22 and the vacuum samples of HMTD, and you describe these
23 as being fairly high trace levels.

24 A. Yes.

25 Q. You think, do you, that it's more likely that, rather

1 than being a secondary transfer from feet or clothing,
2 it suggests a closer connection to the HMTD than that?
3 A. It suggests that, yes. I can't be positive about that,
4 I can't be certain, but it does suggest more than, as
5 you call it, simple secondary transfer.

6 Q. Although there was no other evidence, was there, of
7 bomb-making or anything else, or any of the other items
8 of the type we saw at Alexandra Grove?

9 A. I don't believe so.

10 MR PATTERSON: Thank you very much.

11 LADY JUSTICE HALLETT: Any other questions for Mr Todd?
12 Mr Todd, did you bring any of the so-called foot
13 soldiers with you?

14 A. There are three at the back, my Lady.

15 LADY JUSTICE HALLETT: If so, may I apologise, on Mr Keith's
16 behalf, that highly skilled and trained scientists
17 should be described as "foot soldiers". Thank you very
18 much indeed for your assistance.

19 A. Thank you, my Lady.

20 MR KEITH: If I might be allowed to present mitigation,
21 I hope I also described their extraordinary expertise
22 and endeavours in assembling the material, but I stand
23 duly convicted. Thank you very much, Mr Todd.

24 My Lady, may I now call another commanding officer
25 in her field, Julie Roberts, who is a forensic

1 anthropologist.

2 MS JULIE ANN ROBERTS (sworn)

3 Questions by MR KEITH

4 MR KEITH: Good afternoon, Ms Roberts, I'm sorry to have
5 kept you waiting all day such are the vagaries of the
6 scheduling exercise.

7 Could I invite to you give your full name, please?

8 A. Julie Ann Roberts.

9 Q. Ms Roberts, you describe yourself very modestly as
10 a forensic scientist in your witness statement, but
11 you're very much more than that.

12 Do you set out, in your statement of 29 June 2006,
13 a number of qualifications and areas in which you have
14 particular expertise, but in essence, it is that of
15 forensic anthropology?

16 A. That's correct.

17 Q. Your report, which my Lady has, or rather your
18 statement, sets out on the second page the task that you
19 were set.

20 A. Mm-hmm.

21 Q. Following the explosions that occurred at the four
22 separate locations, were you made aware that the police
23 had carried out a very rigorous and detailed forensic
24 examination of the scenes?

25 A. I was.

1 Q. As part of that forensic recovery, were you informed
2 that an exercise was commenced by which all identifiable
3 body parts recovered from the scenes would, through DNA
4 profiling, be matched with the respective bodies --

5 A. Yes.

6 Q. -- provided the fragments were over a certain size?

7 A. Yes.

8 Q. So did that result in the reconstruction, in particular,
9 of -- or rather, the making available, in particular, of
10 all the body parts that appeared to relate to the four
11 suspected bombers?

12 A. It did, yes.

13 Q. In light of that, could you just describe for us the
14 purpose of your expert examination of all of those body
15 parts, both the flesh and the bones relating to the
16 bombers, which you set out on page 2 of your statement?

17 A. The purpose of the examination was to reconcile the
18 fragmented remains, which had been identified as
19 belonging to the four suspects at the time, with the
20 main body parts so that we could look at the entire
21 remains of each individual bomber for the specific
22 purpose of assessing the injury patterns to look at any
23 bones that were missing and, by doing so, to try to make
24 inferences about the relative position of the bomber to
25 the device, to the explosive device.

1 Q. At the time that you were tasked with this difficult
2 exercise, had this been done before, as far as you are
3 aware, in any major murder investigation?

4 A. Not as far as I was aware, certainly not in this type of
5 incident where suicide bombers were involved, not in the
6 UK.

7 Q. At that stage, of course, it was not yet known what the
8 full circumstances behind the bomb plot and its
9 execution were?

10 A. No.

11 Q. So was this part of an overall attempt to try to collate
12 as much information about the manner of the bombs and
13 the way in which they had been detonated?

14 A. That was my understanding, that it wasn't clear at that
15 point how the devices had been detonated. Therefore,
16 this was a chance to perhaps try and provide some
17 physical evidence to support various interpretations.

18 Q. How long did it take you to complete in each case the
19 reassembly of all the fragments and the bones and the
20 parts so as to reach a view as to which parts of the
21 bombers were missing and, therefore, where, with respect
22 to each of the bombers, the bomb was likely to have
23 detonated?

24 A. It took three days in total to reassemble the four
25 bombers.

1 Q. I don't propose to ask you about the detail, because it
2 is obviously highly sensitive, of your examination and
3 your task, but you summarise in respect of each of the
4 bombers those parts of their respective bodies that were
5 entirely missing, do you not?

6 A. Yes, I do.

7 Q. As well as those parts that were almost completely
8 missing but in respect of which some few fragments
9 remained?

10 A. That's correct.

11 Q. So in relation to Tanweer, firstly, if we look at page 8
12 of your report, some significant parts of his body were
13 entirely missing: the cranial vault and facial bones,
14 both wrists and hands, the breast bone and the bottom
15 half of the pelvis on both sides?

16 A. That's correct.

17 Q. Were you also able to reach a view as to which parts
18 were almost entirely missing, but in respect of which
19 some parts had remained?

20 A. Yes.

21 Q. Were they the front and sides of the rib cage, the
22 mandible -- is that the jaw?

23 A. The lower jaw.

24 Q. -- the lower jaw, the right radius and the shafts of the
25 right and left lower limbs?

1 A. Yes, that's correct.

2 Q. In relation to Hussain, are your findings set out at
3 page 12? What were they in relation to the completely
4 absent body parts?

5 A. Completely absent was the right hand and the toes from
6 the right and left foot, and then almost entirely absent
7 were the facial bones, the right forearm and the right
8 lower leg.

9 Q. In respect of Jermaine Lindsay, page 16?

10 A. Jermaine Lindsay, entirely absent were the left wrist
11 and hand, the left knee, the lower part of the right and
12 left pelvis and the right wrist, and almost entirely
13 missing were the right hand, the bones of the lower legs
14 on both sides and the bones of the upper part of the
15 face.

16 Q. And finally, in relation to Khan, on page 20?

17 A. The body parts that were completely missing from Khan
18 were all the upper and lower dentition, the left
19 forearm, wrist and hand, the lower half of the pelvis on
20 the right and the left sides, and those parts that were
21 almost entirely missing were the right and left upper
22 jaw, the right hand, with the exception of one hand
23 bone, the left knee, the lower half of the right and
24 left lower leg, and the left foot, with the exception of
25 one toe.

1 Q. Having reconstructed, as best you were able, the
2 constituent parts of their bodies, what conclusions did
3 you reach in relation to the likely location of the
4 bombs in each case?

5 A. Should I go through them individually?

6 Q. Yes, please. If you start with Tanweer on page 21.

7 A. Okay, with Tanweer, the body was extensively disrupted.
8 There was extreme fragmentation to the front part of the
9 body, to the lower part of the pelvis, to the lower
10 limbs, and to the four arms.

11 They were very symmetrical fracture patterns, which
12 suggested to me that the device was probably centrally
13 placed and probably at the feet, on the floor. The
14 force of the blast looked as though it had come upwards.

15 Q. Were you able to distinguish between degrees of
16 explosive damage to parts of the body or not?

17 A. I'm not qualified in that area of expertise. Really,
18 I was just looking purely at the physical effects on the
19 skeleton.

20 Q. Based on what had been entirely blown away by the blast
21 and not capable of recovery?

22 A. Yes, based on the assumption that those body parts that
23 were in closest proximity to the device were going to be
24 the areas that were the most damaged.

25 Q. Thank you.

1 A. So with respect to that, the most damaged areas were the
2 face, the forearms and the lower legs.

3 Q. You conclude that the device was central in relation to
4 the body and at the feet. Were you able to reach any
5 views as to which parts of Tanweer's body may have been
6 closest to the bomb in terms of him leaning over,
7 perhaps, at the moment of the detonation?

8 A. Yes, the forearms and the face were certainly most
9 damaged, so it's likely that they were in close
10 proximity to the device, and also the actual front of
11 the body as well.

12 Q. Would that be consistent with him leaning over something
13 with his arms?

14 A. I would interpret it as that, yes.

15 Q. In relation to Jermaine Lindsay, what did you conclude?

16 A. Jermaine Lindsay was less severely disrupted than
17 Shehzad Tanweer, but there were similar areas of
18 destruction in the lower limbs, the lower part of the
19 pelvis and the forearms and also the upper part of the
20 face. There was slightly more damage to the left side
21 of the body than the right, in particular the left
22 forearm and hand, which made me suspect that perhaps it
23 was the left hand that had been used to detonate the
24 device and that, again, the suspect was probably bending
25 over the device at the time it was detonated.

1 Q. Thank you. Mohammed Sidique Khan?

2 LADY JUSTICE HALLETT: Sorry, anything about whether or not
3 it's down at ground level again, or can't you say?

4 A. Again, the force of the blast looked as though it was
5 directed upwards. Therefore, that would suggest to me
6 that it was down at floor level, my Lady.

7 MR KEITH: The position in relation to
8 Mohammed Sidique Khan, were there similarities between
9 your findings in relation to him and those in respect of
10 Jermaine Lindsay, the lower part of the body?

11 A. There were, yes. Certainly they were probably the most
12 similar in terms of injury patterns. The -- again, the
13 lower part of the pelvis, the lower legs, the left side
14 of the body, in particular the left forearm and the face
15 were extensively damaged, suggesting a similar position,
16 that the blast came from ground level and the suspect
17 was bending over the device at the time.

18 Q. Were you able to reach any views as to the asymmetrical
19 effect, so whether or not there was one particular side
20 of his body, left or right hand used?

21 A. I thought it was perhaps possible that the device was
22 situated further to the left than the right. But again,
23 that's -- that's speculation. Just looking at the
24 damage that was caused, there was slightly more damage
25 to the left side than the right.

1 Q. Thank you. Finally, Hasib Hussain, what did you
2 conclude in relation to him?

3 A. The fracture patterns were slightly different in
4 Hasib Hussain, in that the pelvis wasn't as badly
5 damaged, it wasn't as badly fragmented. In fact, the
6 lower part of the pelvis was relatively undamaged which
7 led me to suspect that he was perhaps sitting down at
8 the time that the device was detonated.

9 There was also an unusual fracture pattern to his
10 ribs, in that it looked as though the blast may have
11 come slightly directed from the right rather than the
12 left, because the ribs at the back on the right side
13 were extensively fractured, whereas on the left they
14 looked as though they'd been dislocated from the
15 sockets.

16 Also, the front of the ribs and the sternum, the
17 breast bone, appeared to have been blown outwards, sort
18 of so the blast was essentially coming from underneath
19 and had blown the chest upwards and outwards and it had
20 fallen back in again. Again, the face was extensively
21 disrupted and the forearms were badly damaged as well.
22 In particular, the right forearm, in this case.

23 Overall, that suggested to me that the device was at
24 floor level and that Hasib Hussain was bending over the
25 device with his face over the device and perhaps his

1 right forearm in the bag.

2 Q. But in distinction to the three Underground carriage
3 explosions, the bomb may have been, to a certain extent,
4 underneath the seat as opposed to next to the seat,
5 hence the differential effect in terms of the relative
6 lack of damage to the pelvis?

7 A. It certainly looked as though the pelvis had been
8 protected by something, because it wasn't as severely
9 damaged by the upward force of the blast. So it was
10 either protected by a seat or something.

11 I don't have any knowledge of, you know, the
12 positions of where they actually were, whether they were
13 standing or sitting. So this is based purely on my
14 observations of the skeleton.

15 MR KEITH: Thank you very much indeed. Those are all the
16 questions that I have for you in relation to your
17 scientific endeavours, but if you stay there, there may
18 be some more for you from my learned friend
19 Mr Patterson.

20 LADY JUSTICE HALLETT: Mr Patterson?

21 Questions by MR PATTERSON

22 MR PATTERSON: Two questions, please. One in relation to
23 Mohammed Sidique Khan. I think you suggested in your
24 report that it may be that he detonated the device using
25 his left hand such was the injury there. Is that right?

1 A. Yes.

2 Q. Secondly, the image that emerges from looking at the
3 totality of your evidence is that, given the
4 considerable injury to the facial areas and to the lower
5 leg areas, bearing in mind these were rucksacks that
6 were very large and that were about waist height, they
7 were bent down, perhaps with their faces at the top of
8 the rucksack, and obviously their feet standing on the
9 carriage floor. Would that be consistent with your
10 opinion?

11 A. Yes, that would be consistent with the findings.

12 MR PATTERSON: Thank you very much.

13 LADY JUSTICE HALLETT: Any other questions?

14 Thank you very much, Ms Roberts. Those are all the
15 questions we have for you. Yours wasn't just
16 a difficult, but it was a gruesome and by the sounds of
17 it ground-breaking task. I have been privileged to hear
18 and receive evidence from a number of highly skilled
19 experts and I'm very grateful to everybody who has
20 played a part in my investigation. Thank you.

21 MR KEITH: Thank you, my Lady. There are on today's list
22 a number of statements to be read, but with my Lady's
23 leave, perhaps we could put those over until tomorrow
24 and deal with them after my Lady calls and hears
25 Detective Sergeant Stuart, who will be recalled to deal

1 with telecommunications.

2 LADY JUSTICE HALLETT: Thank you very much.

3 (4.23 pm)

4 (The inquests adjourned until 10.00 am the following day)

5