

<p>1 Friday, 16 June 2017</p> <p>2 (10.00 am)</p> <p>3 THE CORONER: Yes.</p> <p>4 MR SKELTON: Sir, may I call Professor Ferner.</p> <p>5 THE CORONER: Thank you.</p> <p>6 MR SKELTON: Sorry, before that Mr Wastell has a small thing</p> <p>7 to announce.</p> <p>8 Housekeeping</p> <p>9 MR WASTELL: Sir, before the live evidence of</p> <p>10 Professor Ferner, we were due to read the evidence of</p> <p>11 Dr Black. In the interests of time my proposal is that</p> <p>12 you simply admit the evidence of Dr Black now and if we</p> <p>13 have time read it out later today, if not we will put</p> <p>14 that over till next week.</p> <p>15 The statements, sir, are in core bundle 1 of the</p> <p>16 expert bundles, behind tabs 39 and 40 and then one in</p> <p>17 core bundle 2 of the experts behind tab 76. They are</p> <p>18 statements from in the first instance Dr Black, who was</p> <p>19 at the time a senior lecturer in environmental</p> <p>20 radioactivity at the University of Reading.</p> <p>21 The first report is undated, but he deals with</p> <p>22 testing of elements in the urine, hair and the sorrel,</p> <p>23 as well as anions in the urine. The testing was in</p> <p>24 2013.</p> <p>25 Behind tab 40 he has produced a further report, by</p> <p style="text-align: center;">Page 1</p>	<p>1 Q. Your expertise is what?</p> <p>2 A. I am a consultant physician and clinical pharmacologist,</p> <p>3 that is to say a doctor who takes a particular interest</p> <p>4 in drugs and medicines.</p> <p>5 Q. Do you have a particular expertise in poisons?</p> <p>6 A. I do.</p> <p>7 Q. How have you come by that expertise?</p> <p>8 A. From the time when I was a senior registrar I gave</p> <p>9 advice in the management of poisoned patients.</p> <p>10 Q. Have you maintained as it were a sort of sub-speciality</p> <p>11 in that?</p> <p>12 A. I have, yes, and I have as a consequence been elected</p> <p>13 a fellow of the British Toxicology Society and</p> <p>14 a foundation fellow of the European Association of</p> <p>15 Poison Centres and Clinical Toxicologists.</p> <p>16 Q. Is there a limit to your knowledge of poisons? We know</p> <p>17 that we have Dr Rice who is giving evidence next week,</p> <p>18 and Dr Rice obviously works for the Government.</p> <p>19 A. He does.</p> <p>20 Q. Do you base your views entirely on as it were open</p> <p>21 source information and research?</p> <p>22 A. Absolutely, and even that is limited. For example, I am</p> <p>23 not an expert on plant poisons and I am not an expert on</p> <p>24 animal toxins.</p> <p>25 Q. Animal toxins such as what?</p> <p style="text-align: center;">Page 3</p>
<p>1 which time he was associate professor in isotope</p> <p>2 geochemistry at the University of Reading, the date is</p> <p>3 2 August 2016 and in that report he answers some</p> <p>4 clarificatory questions posed by interested persons.</p> <p>5 The final document, behind tab 76A in bundle 2, is</p> <p>6 some further answers to questions dated 24 May 2017. In</p> <p>7 that instance dealing with the identification of</p> <p>8 an urine sample marked "urine 10".</p> <p>9 Sir, the proposal is to admit it under 23.1(d) on</p> <p>10 the basis it is unlikely to be disputed. You are aware</p> <p>11 of the maker's name, the nature of the evidence, all</p> <p>12 interested persons have had copies of it and they know</p> <p>13 they are entitled to object.</p> <p>14 THE CORONER: Yes, I confirm all those things, thank you.</p> <p>15 MR SKELTON: Professor Ferner.</p> <p>16 PROFESSOR ROBIN FERNER (sworn)</p> <p>17 THE CORONER: Good morning.</p> <p>18 A. Good morning.</p> <p>19 Questions from MR SKELTON</p> <p>20 MR SKELTON: You may sit or stand as you wish,</p> <p>21 Professor Ferner, you may be more comfortable if you sit</p> <p>22 but it is entirely up to you.</p> <p>23 A. Thank you.</p> <p>24 Q. Could you state your full name to the court, please?</p> <p>25 A. I am Robin Esmond Ferner.</p> <p style="text-align: center;">Page 2</p>	<p>1 A. Scorpion venom, snake venoms and so on.</p> <p>2 Q. I see.</p> <p>3 Your original instruction I think was by one of the</p> <p>4 interested persons in this Inquest, namely Hermitage</p> <p>5 Capital Management. Is that correct?</p> <p>6 A. That's correct.</p> <p>7 Q. The senior coroner who was then in charge of the Inquest</p> <p>8 took the view that your expertise would be helpful to</p> <p>9 his investigation and so in effect adopted you as</p> <p>10 a coronial expert?</p> <p>11 A. That is as I understand it.</p> <p>12 Q. Can you confirm that your original instruction by one of</p> <p>13 the interested persons has not compromised your</p> <p>14 independence or the independence of the views you</p> <p>15 express in your evidence?</p> <p>16 A. I confirm absolutely that my evidence from the start was</p> <p>17 intended to help the court.</p> <p>18 THE CORONER: Thank you.</p> <p>19 MR SKELTON: Thank you. You have made or produced a report</p> <p>20 dated 1 August 2016, I hope, do you have a copy of that</p> <p>21 in front of you?</p> <p>22 A. I do.</p> <p>23 Q. For reference, it is in expert bundle 2, tab 58,</p> <p>24 page 449 and following. You also I think have met with</p> <p>25 Dr Perry and Dr Rice and produced a joint statement of</p> <p style="text-align: center;">Page 4</p>

<p>1 that meeting?</p> <p>2 A. That's correct.</p> <p>3 Q. That meeting took place on 22 May this year and can be</p> <p>4 found in bundle 3, tab 98, page 877 and following.</p> <p>5 A. Thank you very much.</p> <p>6 Before going further, is now the time to mention</p> <p>7 some errors in my report of 1 August 2016?</p> <p>8 Q. Yes.</p> <p>9 A. Would that be helpful?</p> <p>10 Q. Please do?</p> <p>11 A. There are three things that I -- it is always easier to</p> <p>12 spot errors in retrospect.</p> <p>13 At paragraph 19 --</p> <p>14 THE CORONER: Can you just give me the page again for that?</p> <p>15 MR SKELTON: Page 453 is that?</p> <p>16 A. Well I have two page numbers, one of which is 419 and</p> <p>17 one of which is 0005.</p> <p>18 THE CORONER: Which is as you say 453 or 0005, yes.</p> <p>19 A. Yes.</p> <p>20 MR SKELTON: This is where you say I have been provided with</p> <p>21 no clinical information?</p> <p>22 A. Correct, of course that should read "November" not</p> <p>23 "October".</p> <p>24 Q. Thank you.</p> <p>25 A. That was the first thing I spotted.</p> <p style="text-align: center;">Page 5</p>	<p>1 Aside from that, do you stand by the opinions</p> <p>2 expressed in this report and in the joint statement?</p> <p>3 A. I do.</p> <p>4 Q. Thank you.</p> <p>5 Can I ask you some general questions first of all</p> <p>6 about types of poison and timing of poisoning?</p> <p>7 A. Yes, of course.</p> <p>8 Q. Poisons may come in different forms. Very</p> <p>9 simplistically and obviously?</p> <p>10 A. Yes.</p> <p>11 Q. A solid matter of some kind, a powder, a substance that</p> <p>12 one can that one can pick up, weigh, see.</p> <p>13 A. Yes.</p> <p>14 Q. A liquid form?</p> <p>15 A. Indeed.</p> <p>16 Q. Or a gas?</p> <p>17 A. Absolutely.</p> <p>18 Q. Other forms.</p> <p>19 A. Well I think those are the three forms of matter, so --</p> <p>20 Q. Indeed. Timing of poisoning, you mentioned in your</p> <p>21 report and have discussed it cumulative types of</p> <p>22 poisons?</p> <p>23 A. Yes.</p> <p>24 Q. By which you mean a poison which is given in small</p> <p>25 amounts over a period of time and accumulates to the</p> <p style="text-align: center;">Page 7</p>
<p>1 At paragraph 34 --</p> <p>2 Q. Page 455?</p> <p>3 A. On the second line "is" should read "are", so it refers</p> <p>4 to changes, not to structure.</p> <p>5 THE CORONER: Hang on.</p> <p>6 MR SKELTON: I may be looking at the wrong page.</p> <p>7 Paragraph 34 did you say?</p> <p>8 A. I did.</p> <p>9 Q. The second line?</p> <p>10 A. It is the top of page 422 in the paginated version that</p> <p>11 I have.</p> <p>12 THE CORONER: Yes, so, "... in the structure of tissues that</p> <p>13 are visible".</p> <p>14 A. Yes, so it is changes, not structure.</p> <p>15 MR SKELTON: It is actually page 456 in the version I have,</p> <p>16 so "changes in the structure"?</p> <p>17 A. Yes. At paragraph 49, which could be on page 424.</p> <p>18 Q. 49, page 458?</p> <p>19 THE CORONER: Yes.</p> <p>20 A. "Strong acids and alkalis", "fluoride" should read</p> <p>21 "hydroxide", the first word in the third line down.</p> <p>22 MR SKELTON: Please read out the correct sentence.</p> <p>23 A. "Strong acids or alkalis, such as sulphuric acid or</p> <p>24 sodium hydroxide".</p> <p>25 MR SKELTON: Thank you.</p> <p style="text-align: center;">Page 6</p>	<p>1 point where it becomes toxic?</p> <p>2 A. Yes, either it accumulates or its effects accumulate.</p> <p>3 Q. Delayed poisons or delayed action poisons?</p> <p>4 A. Yes.</p> <p>5 Q. Can I ask just about the types of those. Can you have</p> <p>6 a poison which has an intrinsically delayed reaction,</p> <p>7 just inherent to the toxin?</p> <p>8 A. Yes, the classic example, the common example is</p> <p>9 paracetamol, where if you take a large overdose of</p> <p>10 paracetamol today you may not look ill for some time and</p> <p>11 then in two or three days time you die.</p> <p>12 Q. What about a state dependent delayed reaction?</p> <p>13 A. Yes, so there are some substances which are not</p> <p>14 intrinsically harmful unless something happens. The</p> <p>15 paradigm is monoamineoxidase inhibitors which are a form</p> <p>16 of antidepressant, which are relatively safe.</p> <p>17 Q. Could you say that again?</p> <p>18 A. Monoamineoxidase, M-O-N-O-A-M-I-N-E-O-X-I-D-A-S-E.</p> <p>19 THE CORONER: You are very kind, they will be grateful. So</p> <p>20 am I.</p> <p>21 Yes, just explain about that.</p> <p>22 A. These are now quite old fashioned antidepressants which</p> <p>23 are not intrinsically toxic in therapeutic doses, but</p> <p>24 which become extremely toxic in the presence of certain</p> <p>25 amino acids present -- the amino acids present in high</p> <p style="text-align: center;">Page 8</p>

<p>1 concentrations for example in chianti or blue cheese, 2 and so if you were taking those drugs, it is a moot 3 point as to when the monoamineoxidase inhibitor is the 4 poison or the chianti, but the two together have 5 a serious effect. 6 Q. This is a poison which of itself isn't going to be toxic 7 but requires an external agent to render it toxic? 8 A. Yes. Absolutely. 9 It might help the court if I give another example, 10 which is ecstasy, which is itself reasonable toxic but 11 which kills you, especially in the context of a rave 12 where the ambient temperature is high, where you are 13 exerting yourself substantially or where you may be 14 dehydrated. 15 Q. Can I ask you about whether or not there are poisons 16 which are delayed because they are mixed, the poison 17 itself has been mixed in the sense that it -- to produce 18 a delayed reaction, so isn't waiting for an external 19 agent, but the actual toxic chemical that is put in your 20 system is delayed? 21 A. The answer to that is yes, pharmaceutical manufacturers 22 make medicines to relieve symptoms at once, like aspirin 23 tablets or paracetamol tablets, but they also make 24 medicines which are intended to have a long duration of 25 action, they work throughout the day or which are</p> <p style="text-align: center;">Page 9</p>	<p>1 cumulative poison, as I understand it in your 2 discussions you have ruled that out on the balance of 3 probabilities in his case. Is that based on the absence 4 of evidence in your view of clinical signs and symptoms 5 associated with poisoning, together with toxicology and 6 pathology? 7 A. Yes, you have reached the crux actually which is that of 8 course there is very little clinical information, but 9 someone who was poisoned over a matter of weeks would 10 not be expected to be well, flying to and from Paris as 11 I understand it and returning and going for a jog, 12 apparently in good health if this were, let us say, 13 arsenic poisoning. 14 Q. Can you have poisons which are cumulative but their 15 effects only become apparent at the end of that 16 accumulation, as opposed to during it? 17 A. The answer to that is possibly. The example that came 18 to mind when we discussed this as experts is the cancer 19 curing drug doxorubicin which, as it builds up, 20 increases the risk of heart damage. That is 21 D-O-X-O-R-U-B-I-C-I-N. 22 THE CORONER: You were saying as it builds up it increases 23 the risk of heart damage? 24 A. Correct, so the dose is limited by those doctors who 25 treat cancer to try to prevent heart damage.</p> <p style="text-align: center;">Page 11</p>
<p>1 intended to work in a particular part of the body. 2 For example, slow-release tablets will gradually 3 release their components during the day. If you take 4 an overdose of slow-release tablets you may not seem 5 very unwell at first, but the cumulative release after 6 a single dose can be fatal. 7 With the drugs that work only after they have 8 dissolved, then you take them and they have no effect 9 until they reach, for example, the colon, the lower part 10 of the bowel and then they release their contents and 11 have their pharmacological action. 12 Q. Those sorts of poisons, the delayed poisons which can be 13 delayed for the reasons you have articulated, what is 14 the usual period of delay between administration and 15 effect? 16 A. I think that depends very much on the way that they are 17 formulated and the pharmaceutical formulation of such 18 preparations -- 19 Q. Sorry, perhaps it is easier to formulate it in this way. 20 Is there a limit to the delay, pharmacologically? 21 A. Well there could be a limit in the sense of hours 22 I suppose rather than weeks, but it is not a very 23 well-defined limit. 24 Q. If one is just taking the issue of timing and one tries 25 to apply it to Mr Perepilichny's case, the issue of</p> <p style="text-align: center;">Page 10</p>	<p>1 MR SKELTON: It is possible to have such poisons? 2 A. Yes. 3 Q. In Mr Perepilichny's case, you I believe take the view 4 that it is unlikely? 5 A. Correct. 6 Q. A delayed action poison, so in one of the forms that you 7 describe, so state dependent or designed to be delayed 8 or triggered by something. 9 You I think consider that is a possibility? 10 A. Yes. 11 Q. Why in his case do you think that is a possibility? 12 A. I think the -- I would put the thought process the other 13 way round. If someone dies apparently quite suddenly, 14 within an hour of being well, could they have been 15 poisoned by a slow-release poison or by a poison whose 16 effects were delayed? And the answer to that is yes. 17 Q. We will come on at the end to whether or not the 18 pathology and the toxicology supports that conclusion. 19 A. Yes, of course. 20 Q. In theory it is possible, sudden death? 21 A. In theory it is possible. 22 Q. Likewise presumably, it is probably again simplistic 23 that a fast-acting poison is going to cause a sudden 24 death? 25 A. It is going to act fast, yes.</p> <p style="text-align: center;">Page 12</p>

<p>1 Q. As far as administration goes, may I ask you these 2 questions. Victims may well be aware that they have 3 been assaulted and during the course of that assault 4 something has been administered to their body? 5 A. Yes. 6 Q. So a forcible injection of some kind, a spray in the 7 eyes or in the mouth, that kind of thing. 8 They may be aware of some form of physical contact 9 with an object which they were not expecting? 10 A. Yes, I suppose. These are not in a sense expert 11 questions. 12 Q. They are basic questions, yes. They may be also aware 13 that they have just drunk something that tastes 14 dreadful? 15 A. Yes, or different. 16 Q. Or different. Likewise with food? 17 Similarly, a victim may be unaware, obviously there 18 may be a poisoned drink or food, they could be exposed 19 to something like radiation without any immediate 20 awareness of that? 21 A. Yes. 22 Q. They could expose to something they think is innocuous, 23 or use something they think is innocuous, like suntan 24 lotion or something like that, without realising that 25 contains a poison?</p> <p style="text-align: center;">Page 13</p>	<p>1 aside food and drink, it is possible, is it, that he 2 could have been scratched by something? 3 A. Yes. 4 Q. Minute injection, how easy is it to do that without 5 somebody realising they have received an injection? 6 A. Well a scratch by a thorn for example would be enough to 7 cause poisoning with some poisons. 8 Q. Can you go past somebody and cause that kind of 9 administration without them realising, some sort of 10 a pinprick sensation or other recognition of it 11 happening? 12 A. Well it is not an experiment I have done, but I think 13 the answer is yes, that the amount of substance you need 14 to introduce into the body in order to cause fatal 15 effects can be very small. I base this at least in part 16 on the story of the veterinary surgeon who -- 17 THE CORONER: The story of who? 18 A. The vet, veterinary surgeon. 19 THE CORONER: Yes. 20 A. Who pricked himself with a needle that he had used to 21 inject a large animal with a drug called etorphine and 22 as far as can be told, the only substance that got into 23 him was the wetness on the needle and that was 24 sufficient to lead to him dying. 25 So there are substances --</p> <p style="text-align: center;">Page 15</p>
<p>1 A. Yes. 2 Q. In Mr Perepilichnyy's case, the pathological evidence 3 and insofar as we know the evidence from his family and 4 those who associated with him was that there wasn't any 5 evidence of a forcible administration of any particular 6 poison? 7 A. I understand. 8 Q. As far as this court has heard so far. It is 9 nevertheless possible in your view that he could have 10 ingested in his food or drink a delayed-action poison or 11 a fast-acting poison without realising it? 12 A. Correct. 13 Q. I think your view is that whatever that poison was, it 14 didn't seem to be actively affecting him in the period 15 that he decided to go for a run and indeed started 16 running. Is that fair? 17 A. Again, this is not in a sense an expert question. If he 18 felt well enough to go running then presumably he was 19 not feeling seriously unwell. I think that is what it 20 amounts to. 21 Q. Can you get a poison which causes an arrhythmia, 22 a cardiac death, without any preceding cardiac or 23 systemic symptoms? 24 A. I am sure you can. 25 Q. As far as non-forcible administration may go, leaving</p> <p style="text-align: center;">Page 14</p>	<p>1 MR SKELTON: Although he will have known he had got a -- 2 THE CORONER: That I suppose is an amount question. On the 3 face of it, it sounds as if, because you are able to 4 tell the story, that we know how it happened. 5 A. Correct. As has been proposed, presumably he knew he 6 had pricked himself, but if you are running, if you are 7 playing rugby and so on, relatively small traumas can go 8 unnoticed, so we don't know -- 9 MR SKELTON: So someone can run past you, potentially? 10 A. Yes. You asked for theoretical ways of administering 11 poison and this is one, as I say a thorn. 12 Q. In terms of sprays, there are ocular administration is 13 one way in which something can be administered, because 14 the tissues of the eyes more readily absorb toxins? 15 A. Yes, in my report I think I talk of mucous membranes, 16 which is to say the moist membranes of the eye, the 17 nose, the mouth, the gastrointestinal and respiratory 18 tracts. Those mucous membranes absorb material more 19 rapidly than the skin, for example. 20 Q. So a spray of liquid or gas into the eyes, nose, mouth, 21 could administer a poison? 22 A. Absolutely. 23 Q. Would one expect to be able to sense that kind of thing 24 happening? 25 A. I think it depends on the circumstances. Yes.</p> <p style="text-align: center;">Page 16</p>

1 THE CORONER: Certainly if you are positing somebody coming
 2 up to somebody else, as it were, when they were not
 3 otherwise immediately proximate, you obviously would
 4 notice it, would you?
 5 **A. Yes, absolutely. There the paradigm is the recent**
 6 **demise of Kim Jong-nam.**
 7 MR SKELTON: Yes, where he realised that something was being
 8 put in his face by a young woman?
 9 **A. Yes.**
 10 Q. What about a spray or other form of administration on
 11 the skin of the arms, hands, legs that you don't notice.
 12 As it were, is it conceivable that someone can run past
 13 another person, spray something on to the skin which has
 14 an effect within a short period of time?
 15 **A. Absolutely.**
 16 Q. How plausible is it that Mr Perepilichny was
 17 administered something while running and (a) didn't
 18 realise that had happened and (b) wasn't affected to the
 19 point where he could make a phone call?
 20 MR BEGGS: Sir, can I rise, not to object to the question
 21 because it is a spirit of inquiry we are all trying to
 22 buy into, but the Professor has very graciously already
 23 observed several times this is not really an expert
 24 question. I am bound to observe that the question that
 25 has just been asked I might be able to answer just by

Page 17

1 reading the Professor's report. I am just slightly
 2 concerned the whole thing is becoming circular, whether
 3 it is plausible or not is not really a matter for this
 4 very learned expert, it is a matter of human experience
 5 which, of which you are abundantly versed, given your
 6 judicial function.
 7 I say that because the whole report on one view is
 8 a very learned, very helpful report which is entirely
 9 circular. It is based on suspicion put in a letter of
 10 instruction. If you remove the suspicion, one doubts
 11 whether anyone would alight upon poisoning as a possible
 12 cause of death. I appreciate even that proposition is
 13 circular, all I am doing is putting a marker down
 14 without wishing to obstruct legitimate inquiry, I am not
 15 formally objecting to the form of question. I am just
 16 wondering whether it really adds anything to your
 17 learning.
 18 THE CORONER: You carry on for now but I have the point,
 19 yes.
 20 MR SKELTON: You are careful, Professor Ferner, to delineate
 21 between your expertise and really, as Mr Beggs rightly
 22 says on behalf of Mrs Perepilichnaya, one must be
 23 careful not to use an expert to draw obvious conclusions
 24 that a layman could reach. Based on your knowledge of
 25 the types of poison that can be used to kill a human

Page 18

1 being, that are fast acting, how likely is it that such
 2 a poison can be used which is not recognised or (b) is
 3 recognised but doesn't give the person who received it
 4 opportunity to make a communication?
 5 **A. Yes, well, again, there are difficulties in this case**
 6 **over the evidence that I have seen, that it is said that**
 7 **Mr Perepilichny had two telephones on him, that he**
 8 **looked ill 200 yards from the point at which he was**
 9 **found and yet that he didn't make a telephone call. Now**
 10 **whether he looked ill and felt ill, of course, we don't**
 11 **know but if he felt ill, whether it was because of the**
 12 **cardiac arrhythmia or because he had been poisoned, the**
 13 **layman might have expected him to stop and telephone but**
 14 **that didn't happen.**
 15 **Again I think I am moving outside my area of**
 16 **expertise but I observe that whatever the reason for him**
 17 **feeling ill, assuming he did feel ill when Mr Elias saw**
 18 **him, he didn't summon help.**
 19 Q. May I move on to the types of poison that were looked
 20 for in this particular case. I think you are aware
 21 obviously of Dr Perry's work, which is effectively
 22 a team effort, she sent off a number of projects to
 23 other organisations in order to research for things that
 24 she couldn't test in her own laboratory. She explained
 25 yesterday that one of the laboratories she used was

Page 19

1 capable of testing for a wide range of as it were
 2 evolving or new substances because they are chasing the
 3 sports science where there is a motivation to stay ahead
 4 of the testing. You are aware of those sorts of tests?
 5 **A. Yes. I am not aware exactly of what tests were**
 6 **performed by the sports scientists because I believe**
 7 **after, perhaps after the expert discussions, further**
 8 **tests were undertaken. But I do know that fentanyl**
 9 **derivatives, for example, are now an important**
 10 **toxicological problem and are carefully sought.**
 11 Q. Would you like me to take you to Dr Perry's examination
 12 record, would that help just so you are aware of it?
 13 We certainly have it in the bundle for you. It is
 14 in file 1.
 15 **A. Thank you. It may be that I am fully aware of what you**
 16 **are saying but I believe there were extra tests done**
 17 **subsequently.**
 18 Q. There are. If you look just on file 1, tab 36,
 19 page 181, you will see as at 24 May what the record is
 20 of the test that she sent out and the various
 21 laboratories that she went to.
 22 **A. Thank you.**
 23 Q. Or the various people she went to.
 24 **A. That is a document which I have seen.**
 25 Q. You have?

Page 20

<p>1 A. Thank you. Yes.</p> <p>2 Q. She said yesterday in effect she tested for a huge range</p> <p>3 of potentially toxic chemicals, including medications</p> <p>4 and other forms of poison.</p> <p>5 A. Yes, I understand that.</p> <p>6 Q. You are aware also that Kew undertook a considerable</p> <p>7 amount of research in order to look for plant-based</p> <p>8 toxins?</p> <p>9 A. Yes.</p> <p>10 Q. You were not here yesterday I don't think, you had been</p> <p>11 here previously but not yesterday?</p> <p>12 A. I was here when the cardiologist gave evidence, but</p> <p>13 unfortunately Dr Perry didn't.</p> <p>14 Q. Are you familiar with Professor Simmonds and Dr Kite's</p> <p>15 reports to the court?</p> <p>16 A. Yes, and with Professor Simmonds.</p> <p>17 Q. Dr Kite I think identified an unknown ion --</p> <p>18 A. Yes.</p> <p>19 Q. -- in his research, which he explained yesterday he</p> <p>20 viewed as not being associated with a gelsemicine</p> <p>21 alkaloid, as far as he was aware, but he was unable to</p> <p>22 identify it?</p> <p>23 A. Yes.</p> <p>24 Q. It was potentially a plant ion of some kind but he also</p> <p>25 postulated, which is beyond his expertise, that it could</p> <p style="text-align: center;">Page 21</p>	<p>1 ruled out fentanyl in her evidence and in the joint</p> <p>2 statement. She did recognise -- as I think you all did</p> <p>3 jointly -- that there are problems with the testing that</p> <p>4 took place in that firstly the samples were not perfect?</p> <p>5 A. Correct.</p> <p>6 Q. The amounts of some of the samples were not great,</p> <p>7 particularly the stomach contents, as has now been well</p> <p>8 traversed, were thrown away so there were minimal</p> <p>9 stomach contents left to test.</p> <p>10 Secondly, the preservation of some of the samples,</p> <p>11 the urine for example, was not perfect.</p> <p>12 Thirdly, some of the testing that took place, took</p> <p>13 place quite long after the expected window of finding</p> <p>14 something positive. That was particularly the case she</p> <p>15 said yesterday in respect of cyanide or cyanide-type</p> <p>16 compounds?</p> <p>17 A. Yes.</p> <p>18 Q. Where the testing she described needed to be really in</p> <p>19 a matter of days rather than months.</p> <p>20 In effect that leaves you as experts I think unable</p> <p>21 to exclude certain types of poison --</p> <p>22 A. Correct.</p> <p>23 Q. -- at least on the basis of the toxicology?</p> <p>24 A. Correct.</p> <p>25 Q. Just to clarify, those poisons include, do they, cyanide</p> <p style="text-align: center;">Page 23</p>
<p>1 be a human ion of some kind, compound, possibly</p> <p>2 a stomach based one?</p> <p>3 A. Right.</p> <p>4 Q. Do you recognise that as a possibility that when one</p> <p>5 tests for things such as stomach contents looking for</p> <p>6 compounds that you can find a number of unknown ones</p> <p>7 within that test?</p> <p>8 A. I am sure it is a possibility, yes.</p> <p>9 Q. Is that something that you couldn't express an expert</p> <p>10 view on, the likelihood of finding unknown compounds or</p> <p>11 ions?</p> <p>12 A. No, I think that is properly a question for an analyst</p> <p>13 to say how often unexpected substances are found, and</p> <p>14 indeed to say how often substances which might be</p> <p>15 relevant are not found. In her addendum to the expert</p> <p>16 report Dr Perry raises a question about the sensitivity</p> <p>17 of assays, which means how good they are at picking up</p> <p>18 something that is there. She refers to an assay</p> <p>19 undertaken in 1975 and implies that her assays are much</p> <p>20 more sensitive, but I don't know and she doesn't say in</p> <p>21 her report and we didn't discuss this at the expert</p> <p>22 conference, how confident she is that her assays would</p> <p>23 pick up a substance for example a fentanyl derivative</p> <p>24 which was present in toxic amounts.</p> <p>25 Q. She has I think on the balance of probabilities at least</p> <p style="text-align: center;">Page 22</p>	<p>1 in its various forms?</p> <p>2 A. Yes.</p> <p>3 Q. Azides, if I am pronouncing that correctly, what are</p> <p>4 they?</p> <p>5 A. Azides are anions, N3- which are used in hospital</p> <p>6 laboratories to make solutions sterile and which are</p> <p>7 highly toxic.</p> <p>8 Q. Sorry, how would an azide be administered?</p> <p>9 A. Probably as a solution.</p> <p>10 Q. Without someone recognising the nastiness of that</p> <p>11 solution?</p> <p>12 A. I can't comment on what sodium azide solution tastes</p> <p>13 like, it probably tastes unpleasant but I don't know</p> <p>14 whether you could for example mask the taste in orange</p> <p>15 juice.</p> <p>16 Q. When you say "solution", you mean drunk by someone or</p> <p>17 taken in food?</p> <p>18 A. Yes, yes, and this brings us to another material point</p> <p>19 which is there doesn't seem to be any clue as to what</p> <p>20 happened from when Mr Perepilichny left his house to</p> <p>21 the point at which he is seen by Mr and Mrs Elias, so</p> <p>22 one doesn't know whether he drank something.</p> <p>23 Q. No, I don't think anything was found that could have</p> <p>24 been tested at the scene but of course he could have --</p> <p>25 again, this is not an expert view but he could</p> <p style="text-align: center;">Page 24</p>

6 (Pages 21 to 24)

<p>1 conceivably have had a drink some time on the way 2 without you finding what he drunk from? 3 A. Yes, it impinges on the expert view only in the sense 4 that one cannot exclude it by the history of what 5 happened. 6 Q. In terms of testing for azides, when does one have to do 7 that and what does one have to test? 8 A. They are relatively labile, they break down and they 9 have to be tested for in a specific way. 10 Q. Conceivably had one wanted to look for an azide, you 11 could have looked but within what -- 12 A. A few days, I suppose. Again, that is a question for 13 Dr Perry. 14 Q. Phosphides, what form does phosphides take? 15 A. Well phosphides are generally powders. 16 Q. Soluble or insoluble? 17 A. Soluble. 18 Q. Does one need to take an obvious amount of it or in 19 a food substance or -- 20 A. Well a few tens of milligrams probably. 21 Q. That can be administered with relative ease covertly? 22 A. I think its covert administration would probably be 23 difficult but not impossible. 24 Q. The testing for that, when does that need to occur and 25 how does it occur?</p> <p style="text-align: center;">Page 25</p>	<p>1 A. Yes, correct. So I think is that unlikely. 2 Q. Whereas phosphide is a chemical substance which needs to 3 be administered through ingestion? 4 A. Yes, correct. 5 Q. You take the view there is no specific test for it that 6 has been conducted in this case? 7 A. That is my understanding. 8 Q. As I understood it, you were saying you don't know 9 whether or not that test could conceivably be conducted 10 at this remove? 11 A. Correct. 12 Q. Organophosphates can take the form of pesticides, this 13 is well known -- 14 A. Yes. 15 Q. -- or chemical weapons? 16 A. Yes. 17 Q. Presumably you are qualified to talk about the former 18 and not the latter? 19 A. I think it is fair to say that we all have -- sorry. 20 Toxicologists have some understanding, from the open 21 literature, of organophosphorous compounds used as 22 chemical weapons. 23 Q. First of all, organophosphates, certainly in pesticide 24 form, are readily available? 25 A. Yes.</p> <p style="text-align: center;">Page 27</p>
<p>1 A. I am not sure about that. But it was not one of the 2 anions which was looked for by Dr Black I think I am 3 right in saying. Dr Black had a relatively small number 4 of anions which he looked for with chromatography. 5 Q. I am of course skipping ahead, but in your report where 6 you rule out the possibility of phosphide, is that on 7 the basis that it simply hasn't been found as opposed to 8 it can't now be found? 9 A. Yes. 10 Q. Sorry, I may have missed a "not" there. I was trying to 11 make clear, I hope that the whole thrust of my questions 12 was clear that it had not been eliminated. I was trying 13 to understand -- 14 A. Yes, there are two separate questions about phosphides. 15 One is whether phosphene, which is -- 16 Q. A gas? 17 A. -- HP3 -- 18 Q. Yes. 19 A. -- sorry, H3P, might have caused this. Phosphene gas is 20 extremely toxic, but probably only in a confined space. 21 Q. So there is a gas phosphene, is it a similar chemical to 22 phosphide? 23 A. Yes, it is, if you like, hydrogen phosphide. 24 Q. That can be administered as a gas but that needs to be 25 over a short period of time in a confined space?</p> <p style="text-align: center;">Page 26</p>	<p>1 Q. How would they be administered and in what sort of 2 quantities would one need to take them? 3 A. You would probably have to drink them and they come in 4 organic solvents and they would be unpleasant to drink. 5 Q. Is there likely to be recognition by the recipient of 6 something untoward having been administered? 7 A. The standard organophosphorous compounds that are used 8 as pesticides which farmers can buy in agricultural 9 suppliers, yes. 10 Q. Based on your open source understanding of 11 organophosphates as weapons, deliberate instruments of 12 death, does that remain the case as well? That the way 13 that they are administered is recognised by the 14 recipient? 15 A. Not necessarily, and actually this is one of the 16 difficulties that, if there were a chemical incident 17 involving organophosphorous war agents then bystanders 18 might be affected and that is precisely what happened in 19 Tokyo when there was a release of sarin, which is one of 20 these agents, in the Tokyo underground. 21 Q. Going back to the way in which one may administer it, as 22 a chemical agent, that obviously was not drunk by -- 23 A. No, it was dispersed as a liquid or gas. 24 Q. Did the recipients or the victims of that recognise that 25 something untoward had happened to them before it became</p> <p style="text-align: center;">Page 28</p>

<p>1 fatal?</p> <p>2 A. Well some of them became ill very quickly and died.</p> <p>3 I am not able to say whether they knew that they were</p> <p>4 dying, but sufficient dose would cause rapid</p> <p>5 unconsciousness.</p> <p>6 Q. As far as the ability to eliminate them, the use of</p> <p>7 organophosphate compounds in this case, in terms of the</p> <p>8 testing, again, are they substances -- I think you used</p> <p>9 the word "labile" didn't you, are they substances that</p> <p>10 are going to break down post mortem?</p> <p>11 A. Certainly they break down in the body, but I would defer</p> <p>12 to Dr Rice on the analytical questions of how you tell</p> <p>13 if somebody has been poisoned with an organophosphorous</p> <p>14 war agent.</p> <p>15 Q. You would defer to Dr Rice on that issue?</p> <p>16 A. Just to say that in clinical practice, if you have</p> <p>17 a farmer who has fallen in the sheep dip, then the test</p> <p>18 that one undertakes is called a serum cholinesterase</p> <p>19 assay, but as far as I understand it that was not done</p> <p>20 at once and that becomes uninformative after some time.</p> <p>21 Q. The cholinesterase, is that connected to the cholinergic</p> <p>22 reaction that you get, the human being displays as a</p> <p>23 result?</p> <p>24 A. Yes, cholinesterase is an enzyme that breaks down</p> <p>25 acetylcholine, which is a nerve transmitter substance.</p> <p style="text-align: center;">Page 29</p>	<p>1 A. It depends which stage you see them, because if they</p> <p>2 have already gone into coma or convulsions or their</p> <p>3 heart has stopped, you may not see all these signs.</p> <p>4 Q. In fact the poisoning can be so swift that you don't</p> <p>5 demonstrate the symptoms?</p> <p>6 A. Correct.</p> <p>7 Q. Again though, going on likelihood, are you able to say</p> <p>8 how likely it is that an organophosphate poisoning would</p> <p>9 demonstrate some symptoms before death of the type you</p> <p>10 have described?</p> <p>11 A. I am not able to say. I observe that the South Korean</p> <p>12 who was apparently murdered did not manifest those signs</p> <p>13 immediately but died very shortly afterwards.</p> <p>14 Q. That was said to be via VX, but I don't know how</p> <p>15 reliable that finding is?</p> <p>16 A. No, well, I have only seen the open source materials and</p> <p>17 so I can't say whether that is a figment of somebody's</p> <p>18 imagination or whether there is good evidence for it.</p> <p>19 Q. Is VX an organophosphate agent?</p> <p>20 A. It is the most potent of the well known</p> <p>21 organophosphorous nerve agents.</p> <p>22 Q. And specifically designed to harm humans?</p> <p>23 A. Absolutely.</p> <p>24 Q. Is it right in that instance that it is said that the</p> <p>25 death occurred rapidly?</p> <p style="text-align: center;">Page 31</p>
<p>1 If you have too much acetylcholine you get a cholinergic</p> <p>2 reaction.</p> <p>3 Q. To be clear, with an organophosphate poison do you</p> <p>4 always get serum cholinesterase, is that the way --</p> <p>5 A. Serum cholinesterase is an enzyme which is in our blood.</p> <p>6 If it is working, it breaks down acetylcholine, which is</p> <p>7 a nerve transmitter substance. Organophosphorous</p> <p>8 compounds stop it working, so you don't break down</p> <p>9 acetylcholine so you get an excess of acetylcholine.</p> <p>10 Q. In every case of organophosphate poisoning?</p> <p>11 A. Yes, it is the mechanism by which the organophosphorous</p> <p>12 compound causes poisoning.</p> <p>13 Q. How does that excess of that enzyme, how does that</p> <p>14 manifest itself?</p> <p>15 A. The classic features are pinpoint pupils, secretions</p> <p>16 from the nose and the respiratory tract, loss of control</p> <p>17 of bladder and bowels, muscular weakness, cardiac</p> <p>18 interference, your heart beats slowly and then stops,</p> <p>19 coma and tremors, that is the full gamut of symptoms and</p> <p>20 signs from organophosphorous poisoning.</p> <p>21 Q. That is the cholinergic reaction?</p> <p>22 A. That is the cholinergic reaction all together.</p> <p>23 Q. Do you expect, in the sense that it is likely, to see</p> <p>24 a victim demonstrating that cholinergic reaction if they</p> <p>25 have been poisoned by organophosphate?</p> <p style="text-align: center;">Page 30</p>	<p>1 A. It is, yes.</p> <p>2 Q. From what you were saying, that is not inconsistent with</p> <p>3 such a compound?</p> <p>4 A. No.</p> <p>5 Q. Just to conclude on that issue, it doesn't follow with</p> <p>6 the fact that there isn't any clear evidence of</p> <p>7 a cholinergic reaction in Mr Perepilichny prior to his</p> <p>8 death. It doesn't follow that you conclude it is</p> <p>9 unlikely that he suffered an organophosphate poisoning?</p> <p>10 A. All of the possibilities are I think it is fair to say</p> <p>11 unlikely in the sense that these are not everyday</p> <p>12 occurrences. Unfortunately it is not for the toxicology</p> <p>13 experts to weigh up the different degrees of</p> <p>14 unlikelihood.</p> <p>15 Q. No. You can identify the rareness of the poison and who</p> <p>16 might have the capability, broadly speaking, but whether</p> <p>17 or not it was put into effect is clearly not a matter</p> <p>18 for you.</p> <p>19 A. Yes, this is the polonium story in another guise.</p> <p>20 Q. Just in terms of the other forms of agents that can be</p> <p>21 used to kill human beings, beyond nerve agents such as</p> <p>22 VX, organophosphate nerve agents, are there types or</p> <p>23 specific poisons?</p> <p>24 A. Do you mean that are used in war?</p> <p>25 Q. Any type of chemical that can be deliberately used to</p> <p style="text-align: center;">Page 32</p>

1 kill a human being beyond the ones that we have
 2 discussed and the ones that have been eliminated
 3 confidently by testing in this case?
 4 **A. So the answer is yes, there are many, I suppose. The**
 5 **background to my report was that I was shown a table in**
 6 **which a laboratory toxicologist, Mr Fysh, Dr Rice and**
 7 **another went through a list of poisons and Dr Gent**
 8 **I think provided a report on this, and said these are**
 9 **poisons that have been eliminated.**
 10 **On one level of course that is very helpful, but at**
 11 **another level, the question that occurred to me is: what**
 12 **poisons are there that are obvious and which haven't**
 13 **been eliminated? That in a sense is what my report**
 14 **dealt with, but there are many other poisons which more**
 15 **experienced or learned toxicologists might consider.**
 16 Q. Can you just give an example of those that haven't been
 17 explicitly considered?
 18 **A. I mentioned animal toxins I think. And there are**
 19 **extremely poisonous natural products, for example from**
 20 **the cone shell or from scorpions or indeed from snakes**
 21 **like the taipan, which could at least in theory be, if**
 22 **I can use the term, weaponised, turned into weapons.**
 23 **I mention venoms partly because in considering this**
 24 **question, I have found that there is a report from**
 25 **Moscow of the synthesis of the venom from a snake, but**

Page 33

1 **you will see that that particular finding may have been**
 2 **influenced by knowledge that Mr Perepilichny was**
 3 **Russian.**
 4 Q. Yes.
 5 I mean in circumstances where there are known very
 6 rare poisons which could have been used and which
 7 haven't been or cannot be eliminated and in
 8 circumstances where I think as you accept in the report
 9 there are known unknowns, in that there are poisons
 10 which you simply will not know about.
 11 **A. Correct. In my report I think I mention some of the**
 12 **difficulties with novel poisons in the past, so**
 13 **Professor Simmonds and I were involved in a case where**
 14 **the poison was a plant poison called pseudoaconitine,**
 15 **which had not previously been detected.**
 16 **The polonium story was only resolved I think by**
 17 **chance in the sense that the test that was done, which**
 18 **was gamma ray spectroscopy was not the test you would do**
 19 **if you were looking for polonium and only showed**
 20 **a positive peak, a very small peak, for polonium because**
 21 **the apparatus was left running overnight.**
 22 **So there are poisons which have been used in the**
 23 **past and which were considered in this report but which**
 24 **prior to their use people had not looked for.**
 25 Q. One can say confidently there are poisons that are rare

Page 34

1 in their administration, there are poisons that are
 2 unknown in their administration but that very rareness
 3 or lack of knownness doesn't assist on a particular case
 4 such as this?
 5 **A. Not unless there are specific findings which point one**
 6 **way or the other. That is the problem, I heard the**
 7 **cardiologists talk about phenotype, meaning the clinical**
 8 **picture and the clinical picture here is a man who by**
 9 **all accounts was well until he goes running and**
 10 **40 minutes later looks very ill and within 200 yards is**
 11 **lying unconscious and about to die.**
 12 **That clinical picture could be caused by heart**
 13 **trouble or by poisoning or possibly by other things that**
 14 **none of the experts have discovered. So the phenotype,**
 15 **if I can call it that, the clinical picture does not say**
 16 **this is poisoning. Or indeed this is a heart attack,**
 17 **"heart attack" in the broad sense of a cardiac event.**
 18 **The pathology, as I heard on Wednesday, could have**
 19 **been due entirely to the resuscitation efforts.**
 20 Q. So the pulmonary oedema, the vomiting --
 21 **A. If I understood the evidence -- as I say, it is not for**
 22 **me -- it was that pulmonary oedema can occur in patients**
 23 **who collapse for any reason and are then resuscitated by**
 24 **cardiopulmonary resuscitation, by chest compressions.**
 25 Q. And likewise vomiting?

Page 35

1 **A. Yes, or regurgitation as I think Dr Wilmshurst put it.**
 2 **I don't know if there was vomiting prior to that.**
 3 Q. Before trying to summarise where you end up, Professor,
 4 can I ask about allergic reactions.
 5 **A. Please.**
 6 Q. There is a suggestion that Mr Perepilichny may have had
 7 an allergy to an antibiotic, were you aware of that?
 8 **A. Yes, and I mentioned it in my report, at paragraph 16,**
 9 **that general practice notes which were not I think**
 10 **available in the joint experts' bundle say that he had**
 11 **an allergic reaction to penicillin,**
 12 **phenoxymethylpenicillin tablets.**
 13 Q. Trying to apply that note of an allergy to penicillin to
 14 a particular case, is it possible that you can go
 15 into -- is it a form of anaphylactic shock that one gets
 16 from an allergic reaction to a medication or is
 17 a different form of effect?
 18 **A. It can be and a penicillin allergy often is a form of**
 19 **anaphylaxis.**
 20 Q. For reference for those that would like to look, it is
 21 in the police bundle volume 2, page 354/71, where there
 22 is reference to an allergy.
 23 **A. I think categorised as "moderate" to tablets.**
 24 Q. What does "moderate" mean in this context?
 25 **A. I don't know of course, but it clearly wasn't life**

Page 36

1 **threatening.**
 2 **There is a caveat to extrapolating from that firstly**
 3 **because if this were a true so called type 1**
 4 **hypersensitivity reaction, what you would call**
 5 **anaphylaxis but in a milder form, that is almost always**
 6 **more serious on the second occasion that you are**
 7 **exposed. It is always more serious with, for example,**
 8 **injection rather than oral administration.**
 9 **I should say that there is also a reference in one**
 10 **of the insurance documents to allergy to procaine,**
 11 **the local anaesthetic novocaine.**
 12 Q. Which is a pain killer?
 13 **A. It is a local anaesthetic, so if you were having**
 14 **an operation to remove a bump, somebody would inject it**
 15 **round the bump.**
 16 Q. Just first of all taking penicillin, is it conceivable
 17 that Mr Perepilichny could have taken either a tablet
 18 or had some other form of ingestion of penicillin in
 19 liquid form for example or by injection and then be able
 20 to go running and then went into an arrhythmia --
 21 **A. Yes, or indeed was given a slow-release tablet of**
 22 **penicillin so the effect occurred whilst he was running.**
 23 Q. Would you expect to find that in the testing that has
 24 been undertaken?
 25 **A. No, I don't think so, because the specific test for**

Page 37

1 **type 1 hypersensitivity reactions is measurement of the**
 2 **serum mast cell tryptase, which is another enzyme which**
 3 **is released by the cells that are responsible for the**
 4 **dramatic allergic reaction. That test, as far as**
 5 **I understand it, was not performed.**
 6 **This is just another of this range of possibilities**
 7 **that would explain what little we know.**
 8 Q. Just to clarify, there is the drug penicillin before it
 9 is transformed in the body and then there is the
 10 response to penicillin, you are referring to the latter,
 11 aren't you, the test?
 12 **A. Yes, it is not relevant -- the concentration of**
 13 **penicillin may be very, very low and still cause the**
 14 **reaction. Again, the classic example is peanut allergy**
 15 **where I am told that if you travel first class on the**
 16 **aeroplane and one of your fellow passengers is allergic**
 17 **to peanuts you are not allowed to have peanuts with your**
 18 **champagne, but that is hearsay.**
 19 **The problem in hospitals is nurses who get allergic**
 20 **to penicillin and who then are not able to draw up the**
 21 **injections, because the mere business of handling**
 22 **penicillin injections may be enough to trigger serious**
 23 **allergic reaction.**
 24 Q. Could you explain novocaine, how that --
 25 THE CORONER: Sorry, at post mortem -- leave aside anything

Page 38

1 you might find as it were on analysis, but just at post
 2 mortem, would there be no signs of that?
 3 **A. My understanding is that there are no signs at post**
 4 **mortem.**
 5 THE CORONER: Right. And the same as it happens with
 6 novocaine that you are about to tell us about?
 7 **A. Correct, yes.**
 8 **Novocaine is usually injected, that is the**
 9 **difference here.**
 10 MR SKELTON: Usually injected but not always injected.
 11 **A. Well in theory you could drink it, but it is only active**
 12 **if you inject, but only active as a local anaesthetic if**
 13 **you inject it or locally.**
 14 THE CORONER: Yes.
 15 MR SKELTON: Obviously what we are trying to do, Professor,
 16 is see if there is any real possibility that this is
 17 an issue in this case.
 18 **A. I don't think novocaine probably is. Although at least**
 19 **in theory, if he had had an anaphylactic reaction to**
 20 **novocaine, it would be a route to dispatch a man.**
 21 Q. When you said you wouldn't find it, obviously as you are
 22 probably aware, Dr Perry tested for a number of drugs,
 23 is novocaine related to a family of drugs that she would
 24 have tested for?
 25 **A. She is, she tested for lidocaine, lignocaine I think**

Page 39

1 **I am right in saying. It would be common for her to do**
 2 **so. I can't immediately see it.**
 3 Q. She is certainly looking for analgesic, she is looking
 4 for opiate drugs, lignocaine I don't recall seeing but
 5 it may be --
 6 **A. It isn't explicitly mentioned but commonly in toxicology**
 7 **reports, for example if patients are on the intensive**
 8 **care unit and they have had lidocaine for procedures,**
 9 **one sees lidocaine on the toxicology report. So**
 10 **a therapeutic concentration -- sorry, a therapeutic dose**
 11 **would probably be picked up by the general screen. The**
 12 **point about hypersensitivity reactions is the peanut**
 13 **point, that you don't need a therapeutic dose to set the**
 14 **reaction off.**
 15 Q. Just on the issue of novocaine, you were saying probably
 16 ruled out in this particular case?
 17 **A. Well I don't know enough about his reaction to novocaine**
 18 **or what happened. What I think I said was that if**
 19 **a therapeutic dose of novocaine had been given, it would**
 20 **have been picked up by Dr Perry but I have also said**
 21 **that you wouldn't need very much to cause harm if**
 22 **someone truly had an allergic reaction.**
 23 Q. Can I try and summarise where you end up, Professor, in
 24 terms of what you --
 25 **A. Thank you.**

Page 40

1 Q. -- are able to confidently rule out. I have not taken
 2 you to all the things that you ruled out but for the
 3 avoidance of doubt, you do I think agree that opioids
 4 have been ruled out based on Dr Perry's testing, if her
 5 testing was comprehensive for opioids?
 6 **A. With the exception of etorphine, which according to her
 7 addendum, could not confidently be ruled out.**
 8 Q. Etorphine, in terms of your knowledge of how that could
 9 be administered and the timing of it, could you explain
 10 how that could occur?
 11 **A. Well, it can either be objected, sprayed or applied to
 12 the skin because there is evidence that it, like
 13 fentanyl, is transmitted through the skin. You could in
 14 theory take it by mouth.**
 15 Q. Is that the kind of thing that one would be conscious of
 16 having administered or is that again something which
 17 could fall into the category where you aren't aware?
 18 **A. Well the doses that are required are extremely small, so
 19 you might well not be aware.**
 20 Q. That you add to your list of potential poisons?
 21 **A. I think it was the considered view of the experts that
 22 that was on the list.**
 23 Q. Yes, but for your purpose I just need to clarify what
 24 your position is --
 25 **A. Yes, my view is that it is a potential poison.**

Page 41

1 Q. Yes. Cyanide you have discussed, azides, phosphides and
 2 organophosphates?
 3 **A. Yes, I think that is right but on top of that, I have
 4 mentioned the existence of poisons about which I am not
 5 an expert and which would also undoubtedly be extremely
 6 toxic in small quantities.**
 7 Q. Those we will divide, just two obvious categories, one
 8 you have mentioned, animal poisons. Another might be
 9 a state-created poison of some kind?
 10 **A. Yes, absolutely.**
 11 **This might be the opportunity, sir, to just say that
 12 some of the animal and vegetable poisons which are most
 13 relevant affect the ion channels that are also affected
 14 in what Dr Wilmshurst called the channelopathies. So
 15 for example many natural toxins affect the sodium
 16 channels. The example given by Homer Simpson is the
 17 puffer fish which secretes tetrodotoxin, has
 18 tetrodotoxin in its glands and that blocks sodium
 19 channels. I think it is a matter of common knowledge
 20 that if you get the dose right you just get a little bit
 21 of tingling, but if you have too much -- which is not
 22 difficult -- then you become paralysed and you stop
 23 breathing because your muscles all stop working and your
 24 heart muscle along with it.**
 25 Q. Thank you.

Page 42

1 Just to summarise, if I may, you are unable to rule
 2 out certain types of poison because the testing wasn't
 3 possible and is no longer possible, because the poisons
 4 are beyond your expertise for two categories you have
 5 identified or because there may be rare poisons which
 6 you simply do not know anything about that have not come
 7 into your purview as an expert in the field?
 8 **A. Correct.**
 9 Q. From your perspective, it may well be the case that
 10 those poisons are rare in their occurrence and rare in
 11 their administration but whether or not they were in
 12 fact administered in this case is not a conclusion you
 13 can express a view on?
 14 **A. No, there are no specific pointers to any one poison.**
 15 Q. That in effect leaves you in a position where, having
 16 balanced what you know about the timing of
 17 Mr Perepilichny's death, signs and symptoms he
 18 demonstrated pre-death, the pathology evidence, the
 19 toxicology evidence, you cannot form a view on the
 20 balance of probabilities that he was or was not
 21 poisoned?
 22 **A. Correct. I think that depends on an assessment of the
 23 external circumstances.**
 24 Q. But you are able to say it is unlikely it was
 25 a cumulative poison?

Page 43

1 **A. Correct.**
 2 Q. And you are able to rule out certain types of poisons
 3 that we have run through?
 4 **A. Yes.**
 5 Q. Is there anything else of significance that you would
 6 like to add to that summary?
 7 **A. Not at all. I think you have given me ample opportunity
 8 to make the point that the clinical features were
 9 non-specific. I now understand the pathology was
 10 non-specific and the cardiac findings were not
 11 diagnostic, so amongst the diagnostic possibilities are
 12 the cardiac causes and the toxicological causes that we
 13 have just discussed.**
 14 MR SKELTON: Thank you, Professor.
 15 Sir, I don't know whether that is appropriate to
 16 have just a few minutes.
 17 THE CORONER: Yes, certainly.
 18 (11.20 am)
 19 (A short adjournment)
 20 (12.02 pm)
 21 MR MOXON BROWNE: If it pleases you, sir.
 22 Questions from MR MOXON BROWNE
 23 MR MOXON BROWNE: Professor Ferner, I represent Legal &
 24 General, the insurance company.
 25 Can I ask you a couple of questions about penicillin

Page 44

1 and novocaine. Obviously penicillin can be administered
 2 orally or by injection, as I understand it. As far as
 3 novocaine is concerned, we perhaps associate that with
 4 injection, can that be ingested orally?
 5 **A. Yes, absolutely. Local anaesthetics for example are**
 6 **squirted into the back of the mouth before the test**
 7 **known as endoscopy, so they are active on the mucous**
 8 **membrane.**
 9 Q. Yes. Obviously those are both drugs that could have
 10 been ingested voluntarily by Mr Perepilichny, whether
 11 or not that is likely is not an expert question but one
 12 for the coroner.
 13 **A. Correct.**
 14 Q. As far as a malicious administration is concerned, would
 15 I be right in thinking that neither of these drugs are
 16 perceived as poisonous so that if one is postulating
 17 malicious administration, it would seem to be by
 18 somebody who knew of Mr Perepilichny's special
 19 sensitivity?
 20 **A. Yes, you would have to know he was susceptible to**
 21 **an anaphylactic reaction because these are rare**
 22 **reactions, but when they occur of course they are**
 23 **devastating.**
 24 Q. I appreciate that. If it is not a question you can
 25 answer, please do say but can you give some sort of time

Page 45

1 gap how quickly for example would a penicillin reaction,
 2 is it instantaneous or is it a matter of hours or days?
 3 **A. It depends on the method of administration, but even**
 4 **with oral administration, one or at most two hours would**
 5 **be the outside.**
 6 Q. Yes, so we have to postulate -- novocaine?
 7 **A. Same, it is the time course of the anaphylactic**
 8 **reaction, the type 1 hypersensitivity reaction.**
 9 Q. We have to postulate, probably, either a voluntary or
 10 a malicious administration within a sort of two-hour
 11 time period?
 12 **A. Correct. Or some subtle form of administration, like**
 13 **the slow-release preparations we were speaking about.**
 14 Q. Yes.
 15 I want to take you to a series of points in your
 16 report. Concentrating on new information, things that
 17 you for various reasons may not have had in front of you
 18 when the report was written.
 19 **A. Thank you.**
 20 Q. The first of those is a piece of information we received
 21 from a police officer, that on the day of
 22 Mr Perepilichny's death his wife told him, that is the
 23 police officer, that prior to going for his jog,
 24 Mr Perepilichny visited the local gym, which is called
 25 St George's Club. You were saying there is very little

Page 46

1 information about the history preceding the death but
 2 that is something that I think has only recently come
 3 into focus. No other information, what he was doing
 4 there, who he met, why he was there.
 5 Does that affect your view of the case, your
 6 conclusions in any way, the fact that before he went
 7 running he did something, and all we know is he went to
 8 the gym. It wasn't something that was pursued by the
 9 police.
 10 **A. The answer to that is, in terms of expert evidence, it**
 11 **simply increases the number of possible interactions**
 12 **I suppose.**
 13 THE CORONER: The same way one doesn't know what happened
 14 earlier on in his run. It is just an extension of that,
 15 isn't it?
 16 **A. Yes, there are some specific toxicological aspects of**
 17 **gymnasia, particularly, as you probably know, the**
 18 **administration of drugs designed to boost the body**
 19 **beautiful, if I can put it like that, anabolic steroids**
 20 **and so on.**
 21 MR MOXON BROWNE: The coroner suggests it is in the same
 22 class as the early part of the run. I would just very
 23 respectfully suggest that there is perhaps this, that
 24 there is the opportunity of meeting people and the
 25 opportunity of ingesting food and drink, so it is

Page 47

1 perhaps in a slightly different class from going for
 2 a jog.
 3 THE CORONER: Could he not have met someone on the first bit
 4 of his jog?
 5 MR MOXON BROWNE: Yes, he could but anyway it is not
 6 an expert matter, so there we are.
 7 THE CORONER: There we are.
 8 MR MOXON BROWNE: Can we go to paragraph 29 of your
 9 report -- sorry, I don't have page numbers. Could you
 10 go to paragraph 29.
 11 THE CORONER: Are we in the joint report?
 12 MR MOXON BROWNE: No, I am sorry. The first report,
 13 I apologise.
 14 Do you have that?
 15 THE CORONER: I do, but give me the page reference again.
 16 **A. I believe I have it in front of me with the page number**
 17 **421.**
 18 MR SKELTON: 455, sir.
 19 MR MOXON BROWNE: Paragraph 29, 455 is the page.
 20 THE CORONER: Thank you.
 21 MR MOXON BROWNE: Do you see what you have there?
 22 **A. "The clinical features of ..."**
 23 Q. That is the one. You mention:
 24 "The clinical features of pallor, followed shortly
 25 afterwards by collapse, unresponsiveness, vomiting,

Page 48

1 cessation of breathing are consistent with poisoning by
 2 an agent whose effect became active shortly before the
 3 first signs or an agent whose effect was brought on by
 4 exercise."
 5 Of course I think what you are saying is that those
 6 signs might be consistent with what you suggest, but
 7 that is not all they are consistent with by any means?
 8 **A. No, and of course one possibility is that they are**
 9 **consistent with the onset of a heart rhythm disturbance.**
 10 Q. Exactly, it is consistent but not exclusively
 11 consistent?
 12 **A. Correct.**
 13 Q. I just wanted to add to that that the evidence we had
 14 from the ambulance people of something that he
 15 apparently felt sufficiently marked to mention
 16 specifically of mucous and sweat, mucous and saliva in
 17 the mouth and also another witness separately and
 18 independently described drooling, he mentioned two
 19 tablespoon fulls of saliva or whatever.
 20 In general, I think both of those signs are
 21 consistent with, but not exclusively consistent with,
 22 a cholinergic crisis?
 23 **A. Correct.**
 24 Q. There is another bit of information which might tell
 25 against a cholinergic crisis, which I don't think you

Page 49

1 had, which is that the ambulancemen recorded on their
 2 form that the pupils were dilated, whereas I think
 3 miosis, what you described as pinpoint pupils, would be
 4 consistent with a cholinergic crisis?
 5 **A. That is absolutely right. In life the practical problem**
 6 **is that once you are dead your pupils dilate, so for**
 7 **example patients who die from injecting heroin have**
 8 **pinpoint pupils until they die and then the pupils**
 9 **dilate.**
 10 Q. That is exactly what I wanted --
 11 THE CORONER: Then you have the difficulty about knowing
 12 exactly at what point he has died.
 13 **A. Yes. Yes, and the evidence about breathing is**
 14 **uncertain. The first evidence that he has died I think**
 15 **is the recording of asystole, a flat trace on the**
 16 **electrocardiogram and I am sorry I have not seen the**
 17 **electrocardiogram and don't know what time that was, but**
 18 **it was after the arrival of the ambulancemen.**
 19 MR MOXON BROWNE: Yes. Just as you observe in your
 20 paragraph 31, of course dilated pupil is a recognised
 21 sign of poisoning by gelsemium, but you are saying that
 22 if the observation was made post mortem, they would be
 23 dilated in any event?
 24 **A. Yes.**
 25 Q. Can we put the state of the pupils to one side? Or can

Page 50

1 the coroner put the state or does it help?
 2 **A. Well, it might help the coroner if, sir, you came to the**
 3 **view that he was still alive when the observation was**
 4 **made. That is the difficulty.**
 5 THE CORONER: Yes.
 6 MR MOXON BROWNE: I think "difficulty" may be the operative
 7 word. Thank you.
 8 Then if we can go forward, please, to paragraph 35,
 9 where you say you have been instructed that the leading
 10 hypotheses are either heart rhythm disturbance or poison
 11 and you note that these are not mutually exclusive since
 12 the poisons and the metabolic disturbances caused by
 13 poison can provoke the heart rhythm disturbances, so we
 14 could have poison, we could have what has been described
 15 as a channelopathy or we could have an arrhythmia which
 16 is not due to a channelopathy but is due to poison?
 17 **A. Indeed, and as I said earlier this morning there are**
 18 **poisons that damage your channels that interfere with**
 19 **your channels and so induce if you like a channelopathy.**
 20 Q. Can we look at paragraph 44. You say:
 21 "The stomach content was discarded even though there
 22 was the possibility that Perepilichny was poisoned at
 23 lunch."
 24 The coroner may have formed the view that that
 25 wasn't done in the knowledge that there was a possible

Page 51

1 question of poison, but there we are.
 2 He was known to have eaten sorrel but only small
 3 fragments were recovered, none from what was described
 4 as the stomach content, unclear whether samples provided
 5 as 32, 33 and 34 -- 32 is stomach contents, 33 and 34
 6 are the upper portions of the digestive tract.
 7 I think it is clear from the evidence, it may help
 8 you, that while the stomach contents may have contained
 9 washings, evidence shows that the upper portion of the
 10 digestive tract didn't, so we have, as it were, as
 11 I understand it, undisturbed samples.
 12 **A. Well, it may not be for me to say but I thought**
 13 **I understood Dr Ratcliffe to say that he had opened the**
 14 **duodenum, which is the upper part of the small**
 15 **intestine, and particularly sought to inspect the**
 16 **ampulla of Vater, which is a small hole where the duct**
 17 **from the pancreas and the gallbladder arrive in the gut,**
 18 **and had therefore wiped or washed the duodenum but I may**
 19 **have misunderstood his evidence.**
 20 Q. I think it is much more likely that I misunderstood,
 21 Professor Ferner, I think you are absolutely right.
 22 If you go forward, please, to 114 --
 23 **A. Sorry, perhaps I could just take the opportunity, sir,**
 24 **to say I have no criticism at all of Dr Ratcliffe and**
 25 **none was intended, if that was implied.**

Page 52

<p>1 THE CORONER: No, no. 2 MR MOXON BROWNE: Thank you. 3 Page 467, paragraph, what did I say? 114. 4 I want to just look at that reference. You say: 5 "In one study of a series of gelsemium alkaloids 6 three components had very similar retention times or 7 elution times." 8 Sometimes these important references can be 9 overlooked in the grand scheme of things. Can we look 10 at tab 24, if you have a tabbed bundle. It is not 11 paginated -- I am in what I call the Ferner bundle, 12 bundle 6, tab 24. 13 You have all your material under one lever arched 14 file. Do you have that, sir? 15 THE CORONER: What is going to be there? 16 MR MOXON BROWNE: I think the bundle is called bundle 6. 17 There are four -- 18 A. Could it be behind me? 19 THE CORONER: Say the page again, thank you very much. 20 MR MOXON BROWNE: It is tab 24. Mine is not paginated, 21 I regret to say. 22 MR WASTELL: It is in the expert bundle, tab 82. 23 MR MOXON BROWNE: All right. 24 Sir, I am told it is in the core expert's bundle 25 under tab 82. 663, so that sounds like bundle 2 of the</p> <p style="text-align: center;">Page 53</p>	<p>1 consistent with the elution times for other similar 2 compounds? 3 A. Well, under the conditions that Lai and his colleague 4 used, the elution time depends on the substance and on 5 the solid medium, the column and on the fluid medium, 6 the elutant. 7 THE CORONER: We heard all about this yesterday. 8 A. I am sorry to reiterate. 9 THE CORONER: No, I am simply saying that we have an idea 10 about that. There is no apology required. 11 MR SKELTON: Sir, may I just clarify for one Dr Kite was not 12 taken to the paper but secondly just for your reference, 13 I don't think you were here yesterday, Dr Kite focus is 14 the fact that the MS/MS is different rules out the 15 possibility that the elution time being the same is of 16 significance. 17 MR MOXON BROWNE: I understood him to have been talking 18 about the Nardin paper, but I will be corrected. 19 MR SKELTON: As a matter of principle I think he said that 20 if the MS/MS is not the same then the elution time falls 21 away. 22 MR MOXON BROWNE: Falls away, yes, indeed. 23 We have three identification marks, we have the 24 accurate mass, we have the elution time and we have the 25 fragmentation pattern.</p> <p style="text-align: center;">Page 55</p>
<p>1 core experts. 2 THE CORONER: Are you there? 3 A. I am there. I am so sorry. 4 MR MOXON BROWNE: I am sorry to be so clumsy. 5 THE CORONER: You are not. 6 MR MOXON BROWNE: We have a lot of paper to try to control. 7 If we go to internal pagination of that report to 8 page 59, internal pagination. 9 THE CORONER: All right, which will be 862, bottom right, 10 I think. 11 A. Thank you very much. 12 MR MOXON BROWNE: You see Lai and Chan's table 2, the 13 screening parameters of the major gelsemium alkaloids 14 and the retention times are given, I think this is what 15 you are referring to. 16 A. Correct. 17 Q. Remembering that the unidentified ion retrieved from 18 Mr Perepilichny's stomach eluted at 6.9 minutes. 19 A. Yes. 20 Q. I am just reminding you of that. Then we look at the 21 times for gelsemine 6.8 minutes, cumin 7.1, 14 22 hydroxygelsenicine is exactly the same, 6.9 and then -- 23 these are all presumed, or presumed gelsemine 7.6, 24 presumed humantenine 8.3. What you are saying is that 25 the elution time for the unidentified ion is broadly</p> <p style="text-align: center;">Page 54</p>	<p>1 A. Absolutely. 2 Q. Without much success, I was simply suggesting that the 3 elution time looks typical but that is subject to all 4 kinds of caveats. 5 A. Yes. 6 Q. Yes. 7 THE CORONER: Which I think you were exploring with the 8 witness yesterday? 9 MR MOXON BROWNE: Yes. 10 THE CORONER: As you were saying, we have to be very careful 11 about it, I think was how you put it. 12 MR MOXON BROWNE: Yes, I obviously had quite a lot to pack 13 into a comparatively short period of time. 14 THE CORONER: You did. 15 MR MOXON BROWNE: 130, if you would. 16 Do you have paragraph 130? 17 A. I have, yes. 18 Q. "Professor Simmonds has argued that if the identified 19 peak at MZ 359.1965 were toxic it would have been found 20 in the blood. This is possible but not certain, in 21 particular haemolysed blood samples may degrade." 22 Of course, it is also possible isn't it that the 23 vegetable substance itself may metabolise so that it 24 becomes unrecognisable? We were told for example that 25 sorrel was not found in the blood or the urine yet it</p> <p style="text-align: center;">Page 56</p>

<p>1 formed apparently a significant part of 2 Mr Perepilichny's lunch. That the reason for that, 3 apparently, was that it could well have metabolised. Is 4 that right?</p> <p>5 A. Yes, I think the question that I was touching on here 6 is, if a substance is found in the urine, it has to have 7 got into the urine from the blood or be produced in the 8 urine or introduced into the urine afterwards. I think 9 that was the way Professor Simmonds saw it, but actually 10 it quite often happens that it is easier to detect 11 substances in urine, which is a relatively clean medium, 12 than it is in blood. That is one reason.</p> <p>13 The concentrations may be very different and it may 14 not be possible to have a high enough concentration in 15 blood while there is a high enough concentration in 16 urine, but another reason is that in poor samples, 17 substances get destroyed in blood. The archetype is 18 insulin.</p> <p>19 Q. Finally, almost finally, I want to take you to some 20 further tests that were carried out in relation to the 21 stomach contents after the date of your report --</p> <p>22 A. Thank you.</p> <p>23 Q. -- by Dr Kite, who gave evidence yesterday. 24 It is just a couple of pages, it is in the second of 25 the experts' core bundle at pages 367 and 368.</p> <p style="text-align: center;">Page 57</p>	<p>1 A. Yes, I think I am on figure 4. 2 Q. Yes, I am sorry, you are correctly on figure 4. 3 He found what looks very much like the same thing he 4 found in 2013. The accurate mass is about four parts 5 per million off, but that is to be expected with the 6 equipment.</p> <p>7 A. I think one allows five parts per million either way. 8 Q. Yes and the elution time, given the changes that may 9 have occurred, is certainly not inconsistent at 6.39 10 minutes. 11 But what he told us, and this is important, and 12 I think may be new to you, is that in doing that test, 13 at the same time an ion coeluted at exactly the same 14 time, 6.39, and the accurate mass was measured as 15 180.1016. You see that on the top line of the figures 16 at figure 4.</p> <p>17 A. Indeed. 18 Q. That is the discovery of an ion more or less exactly 19 half the size of the 359.1965 ion. I think it is the 20 opinion of Dr Kite that in fact the ion that he 21 discovered in 2013 may be a cluster?</p> <p>22 A. (Inaudible). 23 Q. A cluster of the two, and I think you follow that. I am 24 just wondering whether it seems to you to be 25 a coincidence or otherwise that the accurate mass of the</p> <p style="text-align: center;">Page 59</p>
<p>1 If I can just help you as to what happened. You 2 will recall that originally back in 2013, when the 3 stomach contents were examined, the ion that eluted in 4 6.9 minutes, 359.1965, when subjected to collision 5 energy produced a major fragment of mass/charge ratio at 6 180. My clients asked Dr Kite if he could provide the 7 exact molecular weight, the accurate mass of that 8 fragment which had not previously been recorded. He did 9 the test again. The first thing that happened was he 10 found the same compound, in other words it hadn't 11 disappeared in the meantime, it was still there in the 12 matrix.</p> <p>13 If you look at page 368 at the top he has recorded 14 that the accurate mass of that fragment was 180.1020?</p> <p>15 A. Yes. 16 Q. Can I just ask you to bear that figure in mind, 17 180.1020. 18 A. Yes. 19 Q. Then he has produced some data for the second 20 identification of the unidentified ion in the stomach 21 contents which we see on page 369. You will see at 22 figure 3 in the second line we have 359.1960, so five 23 parts per million less but still I would suggest very 24 obviously the same ion, this time eluting at 6.39 25 seconds. Do you see that?</p> <p style="text-align: center;">Page 58</p>	<p>1 single ion that emerged at the same time as the double 2 one had within four parts per million the same accurate 3 mass as the fragment that was produced in 2013, if you 4 are following.</p> <p>5 A. I am guided by the report of Professor Cowan, who was 6 the expert asked to look at the mass spectroscopic data 7 and his view as far as I understand it was that was one 8 of the possibilities. 9 Q. Yes, he calls it a possibility. I think Dr Kite thought 10 it was a probability. We need not go into that. I am 11 just wondering whether that strikes you as 12 a coincidence, that they should have that remarkable 13 resemblance to one another, I would suggest?</p> <p>14 A. Well it is either a coincidence or it is explained in 15 the way that Dr Kite explains it but I am guided by 16 Professor Cowan. 17 Q. Very well, thank you. 18 Have you looked at the Nardin paper or shall I ask 19 for it -- 20 A. Not in detail. Remind me? 21 Q. The Nardin paper relates to some work done by some 22 Italian scientists who found that a compound similar to 23 gelsemicine, although not the same, fragmented first to 24 produce a major fragment again within two or three 25 points per million of the two ions that we are talking</p> <p style="text-align: center;">Page 60</p>

<p>1 about. Were you aware of that?</p> <p>2 A. I wasn't aware of it in detail. I don't think it was</p> <p>3 discussed at the joint conference where this paper was</p> <p>4 taken.</p> <p>5 Q. I will ask Professor Cowan about that. Thank you.</p> <p>6 Then finally, I think that at your expert's meeting,</p> <p>7 I think probably at the request of Surrey Police, you</p> <p>8 were asked to look at a list of compounds which had been</p> <p>9 found on a database called the Human Metabolome</p> <p>10 Database, do you remember that?</p> <p>11 A. Yes.</p> <p>12 Q. I am sure it is in the papers but I am going to hand you</p> <p>13 if I may for simplicity a copy of it, if I give those to</p> <p>14 Jo. (Handed)</p> <p>15 I think this paper was provided to you as an example</p> <p>16 of compounds or substances which had a formula which</p> <p>17 matched that of the ions that Dr Kite was postulating</p> <p>18 might form one half of the double ion, if you are with</p> <p>19 me. Because I suggest it was that whether it is</p> <p>20 a double ion or a single ion they are both unidentified</p> <p>21 and I think that this material which has been put in</p> <p>22 front of you, you say unidentified but it could be</p> <p>23 anyone of these. That is the point I, at a fairly high</p> <p>24 level, want to examine with you.</p> <p>25 A. My understanding was that there is a very large number</p> <p style="text-align: center;">Page 61</p>	<p>1 is that because of what it is, and the use it is put to,</p> <p>2 the spectral fingerprint is either very well known or</p> <p>3 can be instantly located. Is that right?</p> <p>4 A. I imagine so, yes. As you say, it is well known.</p> <p>5 Q. Yes, and it crops up all the time.</p> <p>6 In principle, if you are putting forward a list of</p> <p>7 possibilities, you see straight away that that is not</p> <p>8 one which can sensibly be asserted, because we know that</p> <p>9 the spectral fingerprint is different?</p> <p>10 A. You are talking about the mass spectrum.</p> <p>11 Q. The accurate mass and the spectral fingerprint, ie the</p> <p>12 fragmentation pattern.</p> <p>13 A. Again, I would defer to an expert on mass spectrometry</p> <p>14 to say what the fragmentation pattern is but I accept</p> <p>15 that it will be well known and that LCMS/MS, tandem mass</p> <p>16 spectrometry, is widely used to assay these ions.</p> <p>17 Q. I think your attention was particularly drawn to</p> <p>18 salsolinol and maltoxazine, and although I think you are</p> <p>19 saying you are not familiar with those, I think you</p> <p>20 would accept if anybody was interested, it would be</p> <p>21 extremely easy to find out what the fingerprint was?</p> <p>22 A. I accept that there are large libraries of the</p> <p>23 fragmentation pattern of species whose accurate mass is</p> <p>24 of the order of 180.</p> <p>25 Q. Yes, and you could go on to a database and it is</p> <p style="text-align: center;">Page 63</p>
<p>1 of compounds with the same accurate mass and the same</p> <p>2 chemical molecular formula and that the mass</p> <p>3 spectrometry does not tell you the structure or does not</p> <p>4 directly tell you the structure, so whilst this</p> <p>5 selection is no doubt properly compiled as being</p> <p>6 compounds which have the accurate mass of 180. ... there</p> <p>7 are many other compounds as well.</p> <p>8 Q. There are, but I think by looking at them --</p> <p>9 A. Thousands.</p> <p>10 Q. By looking at them, it is possible I would suggest to</p> <p>11 you to ignore a fairly large number on the basis that</p> <p>12 there is no conceivable way or no ready way to explain</p> <p>13 their presence in someone's stomach.</p> <p>14 A. I can't comment.</p> <p>15 Q. You cannot comment.</p> <p>16 These were the ones that I think you were</p> <p>17 particularly invited to look at and I want to say before</p> <p>18 I go any further, as emphatically as I can, I am not</p> <p>19 suggesting that Mr Perepilichny ingested any of these</p> <p>20 things. I think if you look up three from the bottom</p> <p>21 you will see a chemical that you recognise straight</p> <p>22 away?</p> <p>23 A. 3,4 methylenedioxyamphetamine.</p> <p>24 Q. I say again, emphatically, I am not suggesting</p> <p>25 Mr Perepilichny ingested that substance, but the fact</p> <p style="text-align: center;">Page 62</p>	<p>1 a matter of minutes that you could go through this list?</p> <p>2 A. Yes.</p> <p>3 Q. Thank you.</p> <p>4 If you did that, and none of them matched, you would</p> <p>5 be left with a situation that whether it is two ions</p> <p>6 stuck together unidentified or a single ion, maybe</p> <p>7 a metabolite of the larger one, it is still</p> <p>8 unidentified, we don't know what it is?</p> <p>9 A. My understanding is that whatever it was, it wasn't</p> <p>10 identified.</p> <p>11 MR MOXON BROWNE: And still isn't?</p> <p>12 A. And is still not identified.</p> <p>13 Questions from MS HILL</p> <p>14 MS HILL: Professor Ferner, I would like to ask you a few</p> <p>15 questions please on behalf of Hermitage. I think I have</p> <p>16 five brief areas of questions I would like to go through</p> <p>17 with you please.</p> <p>18 First of all, without embarrassing you in any way,</p> <p>19 I would like to pick out details from your CV if I may</p> <p>20 to assist the learned coroner. It is at page 482 of the</p> <p>21 expert bundle. Just very briefly, if you could turn the</p> <p>22 CV that you have attached to your report up, please.</p> <p>23 Is this right, Professor, that as we see under your</p> <p>24 education section of the CV you were a chemist in fact</p> <p>25 before you were a doctor. Is that right?</p> <p style="text-align: center;">Page 64</p>

<p>1 A. That's correct.</p> <p>2 Q. We can see I think from your awards and honours section</p> <p>3 of your CV that you have been involved in clinical</p> <p>4 pharmacology as far as I can see since 1987; is that</p> <p>5 right?</p> <p>6 A. Actually rather earlier, 1984 I think.</p> <p>7 Q. That is over 30 years' experience in this field; is that</p> <p>8 right?</p> <p>9 A. Sadly, yes.</p> <p>10 Q. If you turn over the page, please, to 483, under the</p> <p>11 appointments heading we see that you are appointment, as</p> <p>12 I think was elicited before, is one of consultant</p> <p>13 physician but your particular interest is in clinical</p> <p>14 pharmacology?</p> <p>15 A. Correct.</p> <p>16 Q. You have been a honorary professor of that for some</p> <p>17 time?</p> <p>18 A. Over 10 years, yes.</p> <p>19 Q. We can see on page 484, just briefly for the learned</p> <p>20 coroner, that you are involved in a range of national</p> <p>21 committees around pharmacology issues and indeed as we</p> <p>22 go further down the page on 484, a range of</p> <p>23 international committees the World Health Organisation</p> <p>24 and the European Medicines Evaluation Agency, is that</p> <p>25 right?</p> <p style="text-align: center;">Page 65</p>	<p>1 A. That's correct.</p> <p>2 Q. Finally, you have given evidence in a forensic capacity</p> <p>3 on a large number of occasions in both the criminal</p> <p>4 court and in the coroners court?</p> <p>5 A. Yes, that is partly a measure of course of the fact that</p> <p>6 I have been doing it for 30 years.</p> <p>7 Q. Yes, but you are indeed somebody who has given evidence</p> <p>8 in a forensic context before?</p> <p>9 A. Absolutely.</p> <p>10 Q. We can see for example your involvement in some high</p> <p>11 profile criminal cases, inquiries, courts martial and</p> <p>12 regulatory investigations.</p> <p>13 Then just finally on this topic, although the</p> <p>14 learned coroner doesn't have these documents,</p> <p>15 Professor Ferner, is it right when you provided your</p> <p>16 original report you appended to it about 300 and</p> <p>17 something pages worth of research, articles and so on,</p> <p>18 that supported various propositions in your report?</p> <p>19 A. Yes. That is correct.</p> <p>20 Q. We counted the pages, so take the number from me.</p> <p>21 A. Correct.</p> <p>22 Q. You provided a lot of research that we haven't troubled</p> <p>23 the learned coroner with; is that right?</p> <p>24 A. Yes.</p> <p>25 MR MOXON BROWNE: You may have counted them but you didn't</p> <p style="text-align: center;">Page 67</p>
<p>1 A. Correct.</p> <p>2 Q. Just over the page, you have taught in the area of</p> <p>3 clinical pharmacology at both an undergraduate and</p> <p>4 a graduate level, I think post gradual level even?</p> <p>5 A. Indeed.</p> <p>6 Q. As we see update the "Research" heading on 486, one of</p> <p>7 your primary interests is in the forensic aspects of</p> <p>8 poisoning in humans?</p> <p>9 A. Yes.</p> <p>10 Q. Just for completeness at 487 and thereafter for the</p> <p>11 following three pages I think you have provided the</p> <p>12 learned coroner with a long list of lectures that you</p> <p>13 have given on a range of topics. We can see can we at</p> <p>14 12 you have given a lecture on the topic "Cure or kill:</p> <p>15 commonly prescribed poisons"?</p> <p>16 A. Yes.</p> <p>17 Q. At number 25, a lecture on the topic of "Murder with</p> <p>18 drugs"?</p> <p>19 A. Yes.</p> <p>20 Q. At 53, at the foot of page 488, "The medicinal aspects</p> <p>21 of murder"?</p> <p>22 A. Correct.</p> <p>23 Q. Then perhaps slightly more intriguingly on 69 over the</p> <p>24 page you gave a lecture to the Baker Street Irregulars</p> <p>25 on "Medicinal aspects of murder", is that right?</p> <p style="text-align: center;">Page 66</p>	<p>1 paginate them.</p> <p>2 MS HILL: I think we did, but let's not take that point</p> <p>3 right now.</p> <p>4 Secondly, please, can I ask you some questions to</p> <p>5 flesh out a little of the detail about the possible</p> <p>6 opportunities and timing for a poisoning in this case.</p> <p>7 Could I ask you, please, to turn up in the joint report,</p> <p>8 it is the answers to questions 13 and thereafter.</p> <p>9 A. Could you remind me --</p> <p>10 Q. I think the joint report is possibly loose on the table,</p> <p>11 isn't it, it is the sideways-on report that looks like</p> <p>12 that? (Indicates)</p> <p>13 A. I think it is in a bundle but unfortunately I --</p> <p>14 Q. I think it is 877 in the joint bundle, tab 98. In</p> <p>15 bundle 3 I think, Mr Suter is helping you find it.</p> <p>16 Can you turn up, please, the answers to question 13.</p> <p>17 A. Yes.</p> <p>18 Q. Is this right, that your joint opinion was that as far</p> <p>19 as the possible timings for a poisoning in this case are</p> <p>20 concerned, it is possible that Mr Perepilichny was</p> <p>21 poisoned with a fast-acting poison while out running?</p> <p>22 A. It is.</p> <p>23 Q. That it was possible that he had been poisoned in the</p> <p>24 four hours before his death?</p> <p>25 A. We agreed that.</p> <p style="text-align: center;">Page 68</p>

<p>1 Q. And it is also possible that he had been poisoned in his 2 food or drink at lunchtime? 3 A. We agreed. 4 Q. Then just going back, please, to the answer to question 5 11B, you have also indicated your joint view that the 6 possibility of him having been poisoned in Paris, and so 7 quite a bit earlier, could not be discounted? 8 A. Correct. 9 Q. Not least because of the possibility of a slow-release 10 poison of some sort? 11 A. Not a slow-release poison necessarily, but a delayed 12 immediate release poison -- 13 Q. Yes, sorry. 14 A. -- I think was the term we settled on. 15 Q. More specifically, please, just look at the answers to 16 question 16. I think you already explained to counsel 17 to the coroner that you remain of the agreed view that 18 it is possible that someone could have sprayed a liquid 19 on Mr Perepilichnyy, he could have suffered a minute 20 injection perhaps that he didn't notice but also someone 21 could have given him something over his mouth, covered 22 something over his mouth that was a cloth soaked in 23 a toxin? 24 A. Yes, I think it is fair to say that we agreed that all 25 are possible but that the latter two were less likely</p> <p style="text-align: center;">Page 69</p>	<p>1 poisoning? 2 A. It could. 3 THE CORONER: Yes, you said or cardiac disease. 4 A. Yes, or indeed cardiac arrest from any cause as was 5 explored. 6 THE CORONER: Right. 7 MS HILL: A third topic please, could I ask you some 8 questions about a little bit more detail, please, on the 9 poisons that you effectively cannot rule out, just to 10 flesh out a little of the detail, if I may. 11 Could I ask you to turn up in your own original 12 report, page 460 of the joint bundle. 13 A. I don't think I have the same pagination so it would be 14 helpful to know what the paragraph number is. 15 Q. It is top right, but it is paragraph 66 if that helps 16 you, paragraph 66 of your initial report? 17 THE CORONER: What is the first word in it? 18 MS HILL: Phosgene. 19 THE CORONER: Do you have your original -- 20 A. 26. 21 THE CORONER: I think your own numbers, it will be probably 22 a 12. 23 A. Correct. Thank you. 24 MS HILL: Paragraph 66 deals there with phosgene. I think 25 you were asked some questions about phosphide but is</p> <p style="text-align: center;">Page 71</p>
<p>1 than the former two. 2 Q. Just to be clear, the latter two you have said are the 3 injection possibility and this idea of a cloth over the 4 mouth. Is that right? 5 A. That's right. 6 Q. You said it is also possible he could have been sprayed, 7 as you said, or drunk from a bottle that contained 8 a toxin? 9 A. Correct. 10 Q. As you have also indicated, there is the possibility 11 something was in his lunch or some other food that he 12 had had in the UK or in Paris, or in a drink that he had 13 drunk in either the UK or Paris? 14 A. All these things are in principle possible. 15 Q. Were you aware insofar as his lunch is concerned, 16 thinking now about the potential for him having eaten 17 something that he didn't notice had something toxic in 18 it, were you aware that Mrs Perepilichnaya has told the 19 FLOs that the soup was a peppery soup? 20 A. No, but I understood that it was sorrel soup and sorrel 21 has a bitter peppery taste. 22 Q. Just finally on this topic, Professor, please, is this 23 right that your agreed view at section 19 of the joint 24 report, section 19B, is that the vomit that was noticed 25 in Mr Perepilichnyy could have been a consequence of</p> <p style="text-align: center;">Page 70</p>	<p>1 this right you have also said in here that phosgene 2 poisoning is a possible cause of his death? 3 A. Yes, I did. And Dr Rice and I discussed it at some 4 length at the joint experts' meeting. 5 Q. Part of the rationale for that, Professor, is that you 6 talk about phosgene having as you say at 67 poor warning 7 properties, there is a possibility of a delayed effect 8 that could be more manifest on exercise and you refer to 9 the clinical picture of respiratory failure with 10 pulmonary oedema. Is that right? 11 A. Correct. 12 Q. And the description of the lung histology? 13 A. Yes. 14 Q. You have rightly said, Professor, that you defer to 15 those who have expertise in the field of plant and 16 animal poisons for their views if they are obtained. 17 Just to be clear, in your report you have talked at 18 paragraph 72 and onwards about a range of possible plant 19 poisons such as cassava you talk about, and various 20 plants that have compounds in them that are broken down 21 to cyanide in the body, such as linamarin -- that is 22 possibly said wrong by me -- is that right? 23 A. I am not going to correct you. 24 Q. You deal with a range of fungal poisons at paragraph 76 25 and you deal at paragraph 79 and onwards with a range of</p> <p style="text-align: center;">Page 72</p>

<p>1 animal poisons such as toxins as I think you alluded to 2 from scorpions and from toads is that right? 3 A. Yes, and. 4 Q. And over the page -- 5 A. Perhaps it is worth just explaining that the main 6 headings come from the report that I alluded to 7 previously where poisons were said to have been 8 excluded. 9 Q. You have talked there about different kinds of poisons 10 such as from jellyfish, snails and things of that 11 nature, snakes as well. Is that right? 12 A. That's right and at paragraph 87 I say that detailed 13 consideration would require the opinion of an expert 14 toxinologist, toxinologist being someone who is 15 an expert in animal toxins. 16 Q. I understand. 17 Fourthly, please, can you turn back in your report 18 to paragraph 31. 19 A. Thank you. 20 Q. Just a quick survey, please, is this right, that you 21 were asked specifically about what the symptoms of 22 gelsemium poisoning are? 23 A. I was. 24 Q. You conducted a fairly extensive review of literature, 25 going back to the 1800s I think, to look at examples of</p> <p style="text-align: center;">Page 73</p>	<p>1 who seemingly took it to sample it himself? 2 A. Yes. 3 Q. But, perhaps more seriously, several examples of people 4 who have taken it without realising it because it is 5 used to some degree for a genuine medicinal purpose, is 6 that right? 7 A. It was. It no longer is. It no longer is in allopathic 8 medicine but it may be used in Chinese traditional 9 medicine. 10 Q. I am sure the coroner can see the first example, the 11 Tully case, there was nausea, retching, especially on 12 motion, a pale and haggard expression, there were 13 various examples of people going into respiratory 14 failure having taken gelsemium. Perhaps at the foot of 15 your next page, the Nankivell example from 1899: 16 "There was no trouble as long as I lay quiet but on 17 the least exertion there were excessive tremors ..." 18 Then there is a description of vomiting and various 19 other symptoms. The learned coroner can see over the 20 page, perhaps read in due course, the various examples 21 that you have given. 22 Just for the learned coroner's note, the Fung 23 example of 2007, do you see that at the foot of 493 you 24 quote an article from 2007, that is actually within our 25 bundle if the learned coroner wanted to see it, it is at</p> <p style="text-align: center;">Page 75</p>
<p>1 gelsemium poisoning in history? 2 A. Yes, it is rare. 3 Q. You have summarised in paragraph 31 that although you 4 have not seen this in clinical practice, based on your 5 research, you have cited one of examples there, the 6 symptoms are sweating, dizziness, nausea, vomiting, 7 blurred vision, muscular weakness, limb paralysis, 8 dilated pupils, breathing difficulty, coma and 9 convulsion. In severe cases the nervous system is 10 suppressed and death is caused by respiratory 11 depression; is that right? 12 A. That is exactly what I wrote. 13 Q. Just if the coroner wishes to see it, please, at 14 page 491 of our bundle, that is your appendix 2, 15 Professor, to your report, so at the very back of your 16 report you provided not only your CV but a second 17 appendix headed "The actions of gelsemium from the 18 literature". Do you have that? 19 A. I do. 20 Q. That is at the learned coroner's 491. You summarise for 21 the learned coroner there the examples you have taken 22 from the literature of people who have been reported to 23 have taken gelsemium and what has happened to them? 24 A. Yes. 25 Q. Including, as we see at number 2, Arthur Conan-Doyle,</p> <p style="text-align: center;">Page 74</p>	<p>1 page 711, and the Lai article on page 494 is also within 2 our bundle at 663. They are further examples, are they 3 not, of people who have taken gelsemium and experienced 4 things like dizziness, vomiting, weakness, collapse and 5 respiratory depression? 6 A. That is correct. I should perhaps say the two cases in 7 Fung are subsumed into the nine cases of Lai. 8 Q. Thank you. 9 Finally, Professor, when you reached your own 10 conclusions in this case, can I ask you please to turn 11 to paragraph 100, you concluded at that point: 12 "In summary the range of potential poisons, the 13 existence of many rare and little known poisons and the 14 possibility that a newly synthesised poison has been 15 used mean that poisoning cannot be excluded, even if it 16 cannot be proven." 17 You stand by that? 18 A. I do. 19 Q. Your final conclusion overall is at page 479, 20 paragraph 205, that: 21 "There is a very large number of potential poisons 22 available to a determined assassin with adequate 23 resources. Some of these poisons will be rare or will 24 be specially made." 25 Do you stand by that?</p> <p style="text-align: center;">Page 76</p>

<p>1 A. Yes.</p> <p>2 Q. Are you aware of any poisons being specially made to</p> <p>3 avoid detection or is that not something you can help</p> <p>4 with?</p> <p>5 A. I don't think I can help with that; I think that is more</p> <p>6 a matter for Dr Rice.</p> <p>7 Q. Finally you say:</p> <p>8 "Some poisons can be hard or impossible to detect in</p> <p>9 ideal specimens, but those ideal specimens were not</p> <p>10 available here. There is no specific reason to exclude</p> <p>11 poisoning as a potential cause of this man's death."</p> <p>12 Then you go on to talk about the absence of</p> <p>13 predisposition to heart rhythm disturbance or</p> <p>14 channelopathy or any sign of heart disease makes a pure</p> <p>15 cardiac death less likely, but is that perhaps a matter</p> <p>16 for others is that right?</p> <p>17 A. As a general physician I would say I am probably</p> <p>18 entitled to make that statement.</p> <p>19 Could I just comment on the question you asked</p> <p>20 before, about poisons synthesised especially to avoid</p> <p>21 detection. I am not aware of that but I am aware of the</p> <p>22 synthesis of poisons different from poisons that exist</p> <p>23 in nature, as I think I said when I alluded to a paper</p> <p>24 from Moscow.</p> <p>25 Q. By definition, is this right, those synthesised poisons</p> <p style="text-align: center;">Page 77</p>	<p>1 THE CORONER: I want to keep Friday, come what may, but I am</p> <p>2 only just raising the question now because I am mindful</p> <p>3 of what everyone might otherwise be doing at the</p> <p>4 weekend. I just want to raise the question now of</p> <p>5 whether that will actually be a day for submissions or</p> <p>6 whether it won't be.</p> <p>7 All being well I apprehend by the end of Tuesday we</p> <p>8 will have completed the evidence that was timetabled.</p> <p>9 I still want to consider whether there are any avenues</p> <p>10 that I want to explore, and I have been keeping my own</p> <p>11 note as we have been going along of topics, possible</p> <p>12 avenues, some of which I am crossing off as extravagant</p> <p>13 and unhelpful, some of which as you know, I think</p> <p>14 particularly with Mr Suter's help, we have been</p> <p>15 exploring.</p> <p>16 MR SKELTON: Yes.</p> <p>17 THE CORONER: But there is the question that Ms Hill</p> <p>18 adverted to the other day, so far as the Buzzfeed</p> <p>19 article is concerned, I have simply said leave that with</p> <p>20 me but I think there are the Turkish letter of request,</p> <p>21 I think I saw that yesterday or this morning, there has</p> <p>22 been a response to that, hasn't there, I think it was</p> <p>23 yesterday I saw that.</p> <p>24 The French one I think --</p> <p>25 MR SKELTON: Has yet to be responded to substantively and</p> <p style="text-align: center;">Page 79</p>
<p>1 are always going to be hard to detect?</p> <p>2 A. Well, they are not going to be in the library that I was</p> <p>3 asked about before.</p> <p>4 MS HILL: Thank you very much.</p> <p>5 MS BARTON: I have no questions, thank you, sir.</p> <p>6 THE CORONER: Nothing else?</p> <p>7 MR SKELTON: Sir, unless you have any questions we will</p> <p>8 release Professor Ferner.</p> <p>9 THE CORONER: No.</p> <p>10 Thank you very much indeed. Thank you for your</p> <p>11 help.</p> <p>12 Mr Skelton, nothing else for today? I just want to</p> <p>13 have a word about next week but am I right, nothing else</p> <p>14 for today.</p> <p>15 MR SKELTON: Not in terms of intention to read things out at</p> <p>16 this stage, no.</p> <p>17 THE CORONER: No.</p> <p>18 Housekeeping</p> <p>19 THE CORONER: As you know, I have said we are going to break</p> <p>20 now for other reasons so we will do that until Monday,</p> <p>21 at whatever time is most convenient to you. At the</p> <p>22 moment we have got Monday and Tuesday timetabled I think</p> <p>23 I am right in saying for evidence and then Friday for</p> <p>24 submissions.</p> <p>25 MR SKELTON: We do.</p> <p style="text-align: center;">Page 78</p>	<p>1 likewise the Russian request, International Letter of</p> <p>2 Request.</p> <p>3 THE CORONER: Yes.</p> <p>4 MR SKELTON: There is no indication, sir, as to whether or</p> <p>5 not that will be with us next week at all.</p> <p>6 THE CORONER: No.</p> <p>7 MR MOXON BROWNE: Sir, while you are pondering, may</p> <p>8 I enquire whether there is any likelihood of Kew coming</p> <p>9 back with the DNA?</p> <p>10 THE CORONER: That is another thing. I mean there are</p> <p>11 things as it were if they are outstanding I shall</p> <p>12 obviously want everybody's help as to how long they</p> <p>13 suggest we would wait, but I mean the Kew, that is</p> <p>14 an obvious example, absolutely, on the face of it that</p> <p>15 is significant.</p> <p>16 MR SKELTON: It is, sir.</p> <p>17 THE CORONER: We have asked for it and we want it done.</p> <p>18 MR SKELTON: To clarify, Mr Suter has chased that.</p> <p>19 Professor Simmonds we understand is away this week, of</p> <p>20 course she is due to give evidence next week. I tried</p> <p>21 to ask Dr Kite yesterday, but it is not part of his</p> <p>22 specialism and therefore he was unaware when the results</p> <p>23 would come through.</p> <p>24 As was presaged by Professor Simmonds when the</p> <p>25 original request was made, they have a heavy workload at</p> <p style="text-align: center;">Page 80</p>

<p>1 present and could not promise it would be done during 2 the duration of the live evidence. 3 THE CORONER: Quite. 4 MS HILL: Sir, might I address you very briefly on the 5 timetabling issues that may flow from the Buzzfeed issue 6 and the way that we have considered it within our group, 7 because I would like to raise that again if I may, sir. 8 THE CORONER: Yes, sorry, of course you can but what I 9 really want to know is whether it is possible to say now 10 that -- I mean my inkling is to think that it may well 11 be that Friday, that next Friday I want to keep it in 12 any event when we have got everybody together, and 13 everybody is expecting it to be here in case there are 14 some evidential loose ends. 15 MR SKELTON: Sir, I think it is fair to say there is a high 16 likelihood that there will be evidential loose ends that 17 will not be resolved by the conclusion of next week. 18 THE CORONER: I should make it plain I don't want to do 19 submissions twice, I don't want to have submissions on 20 what we have so far and then if there are matters that I 21 want to pursue, and there certainly are some at the 22 moment which are not resolved, and there is no certainty 23 they will be resolved by next Friday, I don't want then 24 to have to get everybody back and have more submissions 25 just about a tiny amount of material.</p> <p style="text-align: center;">Page 81</p>	<p>1 The suggestion that I think was made by my learned 2 friend that this had been somehow machinated by my 3 client and deliberately timed after his evidence is 4 refuted in the strongest possible terms. 5 Secondly, sir, it would be our submission that the 6 application I made, I think supported by 7 Mr Moxon Browne, that you set in place steps to secure 8 the report and the underlying evidence is a very 9 significant issue that may have quite a significant 10 bearing on the future direction of this case. That 11 an early decision from you, sir, on what to do about 12 that issue would be prudent because in my submission it 13 would be quite wrong for us to proceed to submissions, 14 to closing submissions effectively, while that 15 evidential line remains live. 16 Particularly because if that material is disclosed, 17 it could have all sorts of consequences, it could 18 require further evidence to be obtained, it could 19 require further argument about PII, it could require all 20 sorts of procedural wrangling in response to that. It 21 would be quite wrong in my submission to proceed to 22 submissions on Friday while that line remains live, but 23 I certainly press the point that on the face of it this 24 is significant information and all reasonable efforts 25 should be made as soon as possible to obtain it.</p> <p style="text-align: center;">Page 83</p>
<p>1 MR SKELTON: I think two rounds of oral submissions, or 2 indeed written submissions, would not be of assistance 3 I would submit. You may feel, however, given the 4 likelihood of unresolved significant matters next week, 5 that keeping the date for Friday for any spillover of 6 any evidence would be helpful. 7 THE CORONER: I definitely want to do that. 8 Yes, Ms Hill, sorry. 9 MS HILL: Sir, I would like to revert to you on the Buzzfeed 10 issue if I may. 11 THE CORONER: No, of course. I just want to just get the 12 timetable straight in my own mind, of course you can. 13 MS HILL: Three issues that I wish to raise if I may. 14 First of all, I didn't respond when the initial 15 submissions were made to what my learned friend Mr Beggs 16 said about my client. I would just wish to put it on 17 record if I may that the Buzzfeed article was not 18 initiated by my client, that my client did not work with 19 Buzzfeed on the article and that my client had no 20 involvement in the timing of the article's release. 21 Indeed my understanding is that the journalist, who 22 I think is in court, indeed briefed all of the legal 23 teams that the article was going to be published prior 24 to my client giving evidence. Indeed that I think we 25 were the last to be made aware of it.</p> <p style="text-align: center;">Page 82</p>	<p>1 MR MOXON BROWNE: Sir, I wonder if I could invite you to say 2 now whether I think perhaps you are reaching towards 3 that although you want to hold Friday, that that would 4 be for any spillover evidence, and you could probably 5 say now that we will not be making submissions on 6 Friday. 7 THE CORONER: That is really what prompted it. I am 8 actually just trying to help, because as I may have 9 said. 10 MR MOXON BROWNE: Well it affects my weekend -- 11 THE CORONER: It does. I don't want everyone to have to do 12 it twice, as it were. 13 My inclination is to think that there is 14 sufficient -- that still to look at and that it is still 15 uncertain ... if there were 99 per cent probability that 16 everything would be in by the end of Tuesday then that 17 would be rather different, but I don't think it is quite 18 that and as I say I do want to go through matters 19 myself. 20 MR MOXON BROWNE: That is very helpful, sir, thank you. 21 MS HILL: One issue perhaps I should have mentioned before 22 and I don't know if it may already be on your list, but 23 you asked some questions about the Russian court record 24 issue. I don't know if that is on your list. 25 THE CORONER: It is on my list and, yes, it is on my list.</p> <p style="text-align: center;">Page 84</p>

1 MS HILL: Obviously that request might actually be a quicker
 2 and easier one than the Buzzfeed one, but it is one that
 3 might be prudent if there is to be something of a gap.
 4 THE CORONER: Yes. That is on my list.
 5 Mr Skelton, what I am minded to say unless you say
 6 otherwise is to say that we will just -- we will please
 7 keep Friday, but that we are not going to be moving to
 8 submissions and that there is sufficient still to look
 9 at. It is not a criticism of anybody. We will have
 10 done, I am confident, by Tuesday what is timetabled but
 11 I have my own ideas obviously. A lot of them are being
 12 pursued -- Mr Suter I am very grateful has been writing
 13 letters and we are getting material in, but we might not
 14 quite be there.
 15 MR SKELTON: Indeed, sir.
 16 To be clear, there are lines of inquiry which can be
 17 made and need to be considered by your legal team in
 18 terms of what should be asked and in what form and what
 19 can then be discussed. There are clearly issues that
 20 have now been adverted to in court, the ILORs and the
 21 Kew testing which may not be resolved, indeed it is
 22 highly likely that it will not be resolved. In those
 23 circumstances a direction that written submissions will
 24 not be made next week nor oral submissions but Friday
 25 should be kept free by counsel --

Page 85

1 THE CORONER: I am assuming everyone is content if we say
 2 that and don't think it is wasting time, I am sure it is
 3 not.
 4 Let's do that then. What we would have to do, we
 5 would have to look, come Friday, at what is left and
 6 whether anybody suggests we should wait. We will have
 7 to see, but if anybody suggests we should wait further
 8 and if so how long and so on. Then we will just have to
 9 do the last bit of the timetable I think come Friday.
 10 MR SKELTON: What I would propose is that your legal team
 11 over the first two days of next week go through what we
 12 consider to be any investigative steps which are
 13 proportionate and necessary in order to fulfil your
 14 statutory obligation to conclude this Inquest
 15 effectively.
 16 If necessary we can discuss those on Tuesday if we
 17 have time but if not on Friday, with a view to resolving
 18 them expeditiously.
 19 THE CORONER: Yes.
 20 Failing that, we may just have to alert interested
 21 persons on, for the sake of argument, Wednesday or
 22 Thursday just as to quite where we see matters.
 23 MR SKELTON: We may and there are also for example in
 24 relation to the Russian ILOR, there is issue about
 25 whether and how long you should wait for, given

Page 86

1 a potentially low expectation of a substantive response
 2 within the near future.
 3 THE CORONER: Yes, quite.
 4 MS HILL: Sir, might I just make one other probably very
 5 boring suggestion but timetabling diary management
 6 occupies most of my life for various reasons. We have
 7 had difficulties in this case before in finding dates
 8 that everybody in this case who has clearly been
 9 instructed for a long period of time can do. I just
 10 make the practical suggestion if we are likely to go off
 11 from Friday, for perhaps even for another day for
 12 submissions or for further evidence that we give early
 13 thought to that. I know there has been real
 14 difficulties in the past in trying to find suitable
 15 dates and it has led to significant delay for a range of
 16 reasons. It might be that if we are to go off, giving
 17 some thought to a couple of days in September or
 18 something like that might be sensible -- or however long
 19 you think is necessary.
 20 THE CORONER: That sounds a very long time off.
 21 MS HILL: I am just conscious --
 22 THE CORONER: When I have heard everybody as to how long, if
 23 there is anything outstanding anybody suggests we should
 24 wait, I will have to make a decision.
 25 MS HILL: It might just be prudent for people to come on

Page 87

1 Friday, if we attend on Friday, with their dates to
 2 avoid.
 3 THE CORONER: Or even earlier than that. We will have
 4 a better idea I am sure by for example close of Tuesday
 5 as to quite what we think is still to look at.
 6 All right. Good.
 7 Nothing else then?
 8 Thank you all very much. Hope you have a good
 9 weekend.
 10 Monday at 10.00 are we saying, Mr Skelton?
 11 MR SKELTON: Yes, sir.
 12 THE CORONER: Thank you.
 13 (1.03 pm)
 14 (The Inquest adjourned until 10.00 am on
 15 Monday, 19 June 2017)
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Page 88

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14
15
16
17
18
19
20
21
22
23
24
25

I N D E X

Housekeeping1
PROFESSOR ROBIN FERNER (sworn)2
 Questions from MR SKELTON2
 Questions from MR MOXON BROWNE44
 Questions from MS HILL64
Housekeeping78

A	address 81:4	alkaloids 53:5 54:13	69:4	article 75:24 76:1 79:19 82:17,19,23
ability 29:6	adds 18:16	allergic 36:4,11,16 38:4,16,19,23	answers 2:3,6 68:8 68:16 69:15	article's 82:20
able 16:3,23 17:25 29:3 31:7,11 37:19 38:20 41:1 43:24 44:2	adequate 76:22	allopathic 75:7	antibiotic 36:7	articles 67:17
absence 11:3 77:12	adjourned 88:14	allergy 36:7,13,18 36:22 37:10 38:14	antidepressant 8:16	articulated 10:13
absolutely 3:22 4:16 7:17 9:8 16:22 17:5,15 31:23 42:10 45:5 50:5 52:21 56:1 67:9 80:14	adjournment 44:19	allopatheric 75:7	antidepressants 8:22	aside 7:1 15:1 38:25
absorb 16:14,18	administer 16:21 28:21	allowed 38:17	anybody 63:20 85:9 86:6,7 87:23	asked 16:10 17:25 58:6 60:6 61:8 71:25 73:21 77:19 78:3 80:17 84:23 85:18
abundantly 18:5	administered 13:4 16:13 17:17 24:8 25:21 26:24 27:3 28:1,6,13 41:9,16 43:12 45:1	allows 59:7	apologise 48:13	aspects 47:16 66:7 66:20,25
accept 34:8 63:14 63:20,22	administering 16:10	alluded 73:1,6 77:23	apology 55:10	aspirin 9:22
accounts 35:9	administration 10:14 13:1 14:5 14:25 15:9 16:12 17:10 25:22 35:1 35:2 37:8 43:11 45:14,17 46:3,4 46:10,12 47:18	ambient 9:12	apparatus 34:21	assassin 76:22
accumulate 8:2	admit 1:12 2:9	ambulance 49:14	apparent 11:15	assault 13:3
accumulates 7:25 8:2	adopted 4:9	ambulancemen 50:1,18	apparently 11:12 12:13 31:12 49:15 57:1,3	assaulted 13:3
accumulation 11:16	adverted 79:18 85:20	amino 8:25,25	appended 67:16	assay 22:18 29:19 63:16
accurate 55:24 58:7,14 59:4,14 59:25 60:2 62:1,6 63:11,23	advice 3:9	amount 15:13 16:2 21:7 25:18 81:25	appendix 74:14,17	assays 22:17,19,22
acetylcholine 29:25 30:1,6,9,9	aeroplane 38:16	amounts 7:25 14:20 22:24 23:6	application 83:6	asserted 63:8
acid 6:23	affect 42:13,15 47:5	ample 44:7	applied 41:11	assessment 43:22
acids 6:20,23 8:25 8:25	Agency 65:24	ampulla 52:16	apply 10:25 36:13	assist 35:3 64:20
act 12:25	agent 9:7,19 28:22 29:14 31:19 49:2 49:3	anabolic 47:19	appointment 65:11	assistance 82:2
acting 19:1	agents 28:17,20 31:21 32:20,21,22	anaesthetic 37:11 37:13 39:12	appointments 65:11	associate 2:1 45:3
action 8:3 9:25 10:11 12:6	agree 41:3	anaesthetics 45:5	appreciate 18:12 45:24	associated 11:5 14:4 21:20
actions 74:17	agreed 68:25 69:3 69:17,24 70:23	analgesic 40:3	apprehend 79:7	Association 3:14
active 39:11,12 45:7 49:2	ahead 20:3 26:5	analysis 39:1	appropriate 44:15	assuming 19:17 86:1
actively 14:14	alert 86:20	analyst 22:12	arched 53:13	asystole 50:15
actual 9:19	alight 18:11	analytical 29:12	archetype 57:17	attached 64:22
add 41:20 44:6 49:13	alive 51:3	anaphylactic 36:15 39:19 45:21 46:7	area 19:15 66:2	attack 35:16,17
addendum 22:15 41:7	alkalis 6:20,23	anaphylaxis 36:19 37:5	areas 64:16	attend 88:1
	alkaloid 21:21	animal 3:24,25 15:21 33:18 42:8 42:12 72:16 73:1 73:15	argued 56:18	attention 63:17
		anions 1:23 24:5 26:2,4	argument 83:19 86:21	August 2:3 4:20 5:7
		announce 1:7	arms 17:11	available 27:24 36:10 76:22 77:10
		answer 9:21 11:17 12:16 15:13 17:25 33:4 45:25 47:10	arrest 71:4	avenues 79:9,12
			arrhythmia 14:21 19:12 37:20 51:15	avoid 77:3,20 88:2
			arrival 50:18	avoidance 41:3
			arrive 52:17	awards 65:2
			arsenic 11:13	aware 2:10 13:2,8 13:12 19:20 20:4
			Arthur 74:25	

20:5,12,15 21:6 21:21 36:7 39:22 41:17,19 61:1,2 70:15,18 77:2,21 77:21 82:25 awareness 13:20 azide 24:8,12 25:10 azides 24:3,5 25:6 42:1	86:9 bitter 70:21 Black 1:11,12,18 26:2,3 bladder 30:17 blocks 42:18 blood 30:5 56:20 56:21,25 57:7,12 57:15,17 blue 9:1 blurred 74:7 body 10:1 13:4 15:14 29:11 38:9 47:18 72:21 boost 47:18 boring 87:5 bottle 70:7 bottom 54:9 62:20 bound 17:24 bowel 10:10 bowels 30:17 break 25:8 29:10 29:11 30:8 78:19 breaks 29:24 30:6 breathing 42:23 49:1 50:13 74:8 brief 64:16 briefed 82:22 briefly 64:21 65:19 81:4 brings 24:18 British 3:13 broad 35:17 broadly 32:16 54:25 broken 72:20 brought 49:3 Browne 44:21,22 44:23 47:21 48:5 48:8,12,19,21 50:19 51:6 53:2 53:16,20,23 54:4 54:6,12 55:17,22 56:9,12,15 64:11 67:25 80:7 83:7	84:1,10,20 89:8 builds 11:19,22 bump 37:14,15 bundle 1:15,17 2:5 4:23 5:4 20:13 36:10,21 53:10,11 53:12,16,16,22,24 53:25 57:25 64:21 68:13,14,15 71:12 74:14 75:25 76:2 bundles 1:16 business 38:21 buy 17:22 28:8 Buzzfeed 79:18 81:5 82:9,17,19 85:2 bystanders 28:17	12:3,11 14:2 19:5 19:20 23:14 27:6 28:12 29:7 30:10 33:3 34:13 35:3 36:14 39:17 40:16 43:9,12 47:5 68:6 68:19 75:11 76:10 81:13 83:10 87:7 87:8 cases 67:11 74:9 76:6,7 cassava 72:19 categories 42:7 43:4 categorised 36:23 category 41:17 cause 12:23 15:7,8 15:14 18:12 29:4 38:13 40:21 71:4 72:2 77:11 caused 26:19 35:12 51:12 74:10 causes 14:21 30:12 44:12,12 caveat 37:2 caveats 56:4 cell 38:2 cells 38:3 cent 84:15 Centres 3:15 certain 8:24 23:21 43:2 44:2 56:20 certainly 17:1 20:13 27:23 29:11 40:3 44:17 59:9 81:21 83:23 certainty 81:22 cessation 49:1 champagne 38:18 Chan's 54:12 chance 34:17 changes 6:4,14,16 59:8 channelopathies 42:14	channelopathy 51:15,16,19 77:14 channels 42:13,16 42:19 51:18,19 charge 4:7 chased 80:18 chasing 20:2 cheese 9:1 chemical 9:19 26:21 27:2,15,22 28:16,22 32:25 62:2,21 chemicals 21:3 chemist 64:24 chest 35:24 chianti 9:1,4 Chinese 75:8 cholinergic 29:21 30:1,21,22,24 32:7 cholinesterase 29:18,21,24 30:4 30:5 cholinogenic 49:22 49:25 50:4 chromatography 26:4 circular 18:2,9,13 circumstances 16:25 34:5,8 43:23 85:23 cited 74:5 clarificatory 2:4 clarify 23:25 38:8 41:23 55:11 80:18 class 38:15 47:22 48:1 classic 8:8 30:15 38:14 clean 57:11 clear 26:11,12 30:3 32:6 52:7 70:2 72:17 85:16 clearly 32:17 36:25 85:19 87:8
B		C		
b 17:18 19:2 back 28:21 45:6 58:2 69:4 73:17 73:25 74:15 80:9 81:24 background 33:5 Baker 66:24 balance 11:2 22:25 43:20 balanced 43:16 BARTON 78:5 base 3:20 15:15 based 11:3 18:9,24 22:2 28:10 41:4 74:4 basic 13:12 basis 2:10 23:23 26:7 62:11 bear 58:16 bearing 83:10 beats 30:18 beautiful 47:19 becoming 18:2 Beggs 17:20 18:21 82:15 behalf 18:22 64:15 beings 32:21 believe 12:3 20:6 20:16 48:16 better 88:4 beyond 21:25 32:21 33:1 43:4 bit 42:20 48:3 49:24 69:7 71:8				

<p>client 82:16,18,18 82:19,24 83:3 clients 58:6 clinical 3:2,15 5:21 11:4,8 29:16 35:7 35:8,12,15 44:8 48:22,24 65:3,13 66:3 72:9 74:4 close 88:4 closing 83:14 cloth 69:22 70:3 Club 46:25 clue 24:19 clumsy 54:4 cluster 59:21,23 coeluted 59:13 coincidence 59:25 60:12,14 collapse 35:23 48:25 76:4 colleague 55:3 collision 58:4 colon 10:9 column 55:5 coma 30:19 31:2 74:8 come 3:7 7:8 12:17 28:3 43:6 47:2 73:6 79:1 80:23 86:5,9 87:25 comfortable 2:21 coming 17:1 80:8 comment 24:12 62:14,15 77:19 committees 65:21 65:23 common 8:8 40:1 42:19 commonly 40:6 66:15 communication 19:4 company 44:24 comparatively 56:13</p>	<p>compiled 62:5 completed 79:8 completeness 66:10 components 10:3 53:6 compound 22:1 30:12 32:3 58:10 60:22 compounds 22:6,10 23:16 27:21 28:7 29:7 30:8 55:2 61:8,16 62:1,6,7 72:20 comprehensive 41:5 compressions 35:24 compromised 4:13 Conan-Doyle 74:25 conceivable 17:12 37:16 62:12 conceivably 25:1 25:10 27:9 Concentrating 46:16 concentration 38:12 40:10 57:14 57:15 concentrations 9:1 57:13 concerned 18:2 45:3,14 68:20 70:15 79:19 conclude 32:5,8 86:14 concluded 76:11 conclusion 12:18 43:12 76:19 81:17 conclusions 18:23 47:6 76:10 conditions 55:3 conducted 27:6,9 73:24 cone 33:20 conference 22:22</p>	<p>61:3 confident 22:22 85:10 confidently 33:3 34:25 41:1,7 confined 26:20,25 confirm 2:14 4:12 4:16 connected 29:21 conscious 41:15 87:21 consequence 3:12 70:25 consequences 83:17 consider 12:9 33:15 79:9 86:12 considerable 21:6 consideration 73:13 considered 33:17 34:23 41:21 81:6 85:17 considering 33:23 consistent 49:1,6,7 49:9,10,11,21,21 50:4 55:1 consultant 3:2 65:12 contact 13:8 contained 52:8 70:7 contains 13:25 content 51:21 52:4 86:1 contents 10:10 22:5 23:7,9 52:5,8 57:21 58:3,21 context 9:11 36:24 67:8 control 30:16 54:6 convenient 78:21 convulsion 74:9 convulsions 31:2 copies 2:12</p>	<p>copy 4:20 61:13 core 1:15,17 53:24 54:1 57:25 coroner 1:3,5 2:14 2:17 4:7,18 5:14 5:18 6:5,12,19 8:19 11:22 15:17 15:19 16:2 17:1 18:18 38:25 39:5 39:14 44:17 45:12 47:13,21 48:3,7 48:11,15,20 50:11 51:1,2,5,24 53:1 53:15,19 54:2,5,9 55:7,9 56:7,10,14 64:20 65:20 66:12 67:14,23 69:17 71:3,6,17,19,21 74:13,21 75:10,19 75:25 78:6,9,17 78:19 79:1,17 80:3,6,10,17 81:3 81:8,18 82:7,11 84:7,11,25 85:4 86:1,19 87:3,20 87:22 88:3,12 coroner's 74:20 75:22 coroners 67:4 coronial 4:10 correct 4:5,6 5:2,22 6:22 11:24 12:5 14:12 16:5 23:5 23:22,24 27:1,4 27:11 31:6 34:11 39:7 43:8,22 44:1 45:13 46:12 49:12 49:23 54:16 65:1 65:15 66:1,22 67:1,19,21 69:8 70:9 71:23 72:11 72:23 76:6 corrected 55:18 correctly 24:3 59:2 counsel 69:16</p>	<p>85:25 counted 67:20,25 couple 44:25 57:24 87:17 course 5:22 7:7 11:8 12:19 13:3 19:10 24:24 26:5 33:10 36:25 45:22 46:7 49:5,8 50:20 56:22 67:5 75:20 80:20 81:8 82:11 82:12 court 2:24 4:17 9:9 14:8 21:15 67:4,4 82:22 84:23 85:20 courts 67:11 covered 69:21 covert 25:22 covertly 25:21 Cowan 60:5,16 61:5 criminal 67:3,11 crisis 49:22,25 50:4 criticism 52:24 85:9 crops 63:5 crossing 79:12 crux 11:7 cumin 54:21 cumulative 7:21 10:5 11:1,14 43:25 Cure 66:14 curing 11:19 CV 64:19,22,24 65:3 74:16 cyanide 23:15,25 42:1 72:21 cyanide-type 23:15</p> <hr/> <p style="text-align: center;">D</p> <hr/> <p>D 89:3 D-O-X-O-R-U-B... 11:21 damage 11:20,23</p>
--	---	--	--	--

11:25 51:18 data 58:19 60:6 database 61:9,10 63:25 date 2:2 57:21 82:5 dated 2:6 4:20 dates 87:7,15 88:1 day 9:25 10:3 46:21 79:5,18 87:11 days 8:11 23:19 25:12 46:2 86:11 87:17 dead 50:6 deal 72:24,25 dealing 2:7 deals 1:21 71:24 dealt 33:14 death 12:20,24 14:22 18:12 28:12 31:9,25 32:8 43:17 46:22 47:1 68:24 72:2 74:10 77:11,15 decided 14:15 decision 83:11 87:24 defer 29:11,15 63:13 72:14 definitely 82:7 definition 77:25 degrade 56:21 degree 75:5 degrees 32:13 dehydrated 9:14 delay 10:14,20 87:15 delayed 8:3,3,6,12 9:16,18,20 10:12 10:13 12:6,7,16 69:11 72:7 delayed-action 14:10 deliberate 28:11 deliberately 32:25 83:3	delineate 18:20 demise 17:6 demonstrate 31:5,9 demonstrated 43:18 demonstrating 30:24 dependent 8:12 12:7 depends 10:16 16:25 31:1 43:22 46:3 55:4 depression 74:11 76:5 derivative 22:23 derivatives 20:9 describe 12:7 described 23:18 31:10 49:18 50:3 51:14 52:3 description 72:12 75:18 designed 12:7 31:22 47:18 destroyed 57:17 detail 60:20 61:2 68:5 71:8,10 detailed 73:12 details 64:19 detect 57:10 77:8 78:1 detected 34:15 detection 77:3,21 determined 76:22 devastating 45:23 diagnostic 44:11,11 diary 87:5 die 8:11 35:11 50:7 50:8 died 29:2 31:13 50:12,14 dies 12:13 difference 39:9 different 7:8 13:15 13:16 32:13 36:17	48:1 55:14 57:13 63:9 73:9 77:22 84:17 difficult 25:23 42:22 difficulties 19:5 28:16 34:12 87:7 87:14 difficulty 50:11 51:4,6 74:8 digestive 52:6,10 dilate 50:6,9 dilated 50:2,20,23 74:8 dip 29:17 direction 83:10 85:23 directly 62:4 disappeared 58:11 discarded 51:21 disclosed 83:16 discounted 69:7 discovered 35:14 59:21 discovery 59:18 discuss 22:21 86:16 discussed 7:21 11:18 33:2 42:1 44:13 61:3 72:3 85:19 discussions 11:2 20:7 disease 71:3 77:14 dispatch 39:20 dispersed 28:23 displays 29:22 disputed 2:10 dissolved 10:8 disturbance 49:9 51:10 77:13 disturbances 51:12 51:13 divide 42:7 dizziness 74:6 76:4 DNA 80:9	doctor 3:3 64:25 doctors 11:24 document 2:5 20:24 documents 37:10 67:14 doing 18:13 47:3 59:12 67:6 79:3 dose 10:6 11:24 29:4 40:10,13,19 42:20 doses 8:23 41:18 double 60:1 61:18 61:20 doubt 41:3 62:5 doubts 18:10 doxorubicin 11:19 Dr 1:11,12,18 3:17 3:18 4:25,25 19:21 20:11 21:13 21:14,17 22:16 25:13 26:2,3 29:12,15 33:6,7 36:1 39:22 40:20 41:4 42:14 52:13 52:24 55:11,13 57:23 58:6 59:20 60:9,15 61:17 72:3 77:6 80:21 dramatic 38:4 drank 24:22 draw 18:23 38:20 drawn 63:17 dreadful 13:14 drink 13:18 14:10 15:1 25:1 28:3,4 39:11 47:25 69:2 70:12 drooling 49:18 drug 11:19 15:21 38:8 drugs 3:4 9:2 10:7 39:22,23 40:4 45:9,15 47:18 66:18	drunk 13:13 24:16 25:2 28:22 70:7 70:13 duct 52:16 due 1:10 35:19 51:16,16 75:20 80:20 duodenum 52:14 52:18 duration 9:24 81:2 dying 15:24 29:4
				E
				E 89:3 earlier 47:14 51:17 65:6 69:7 88:3 early 47:22 83:11 87:12 ease 25:21 easier 5:11 10:19 57:10 85:2 easy 15:4 63:21 eaten 52:2 70:16 ecstasy 9:10 education 64:24 effect 4:9 9:5 10:8 10:15 17:14 21:2 23:20 32:17 36:17 37:22 43:15 49:2 49:3 72:7 effectively 19:21 71:9 83:14 86:15 effects 8:2 11:15 12:16 15:15 effort 19:22 efforts 35:19 83:24 either 8:2 37:17 41:11 46:9 51:10 59:7 60:14 63:2 70:13 elected 3:12 electrocardiogram 50:16,17 elements 1:22 Elias 19:17 24:21

elicited 65:12	21:12 23:1 31:18	exist 77:22	79:15	farmers 28:8
eliminate 29:6	32:6 35:21 41:12	existence 42:4	expose 13:22	fashioned 8:22
eliminated 26:12	43:18,19 47:10	76:13	exposed 13:18 37:7	fast 12:25 19:1
33:2,9,13 34:7	49:13 50:13,14	expect 16:23 30:23	express 4:15 22:9	fast-acting 12:23
elutant 55:6	52:7,9,19 57:23	37:23	43:13	14:11 68:21
eluted 54:18 58:3	67:2,7 78:23 79:8	expectation 87:1	expressed 7:2	fatal 10:6 15:14
eluting 58:24	80:20 81:2 82:6	expected 11:10	expression 75:12	29:1
elution 53:7 54:25	82:24 83:3,8,18	19:13 23:13 59:5	extension 47:14	features 30:15 44:8
55:1,4,15,20,24	84:4 87:12	expecting 13:9	extensive 73:24	48:22,24
56:3 59:8	evidential 81:14,16	81:13	external 9:7,18	feel 19:17 82:3
embarrassing	83:15	expeditiously 86:18	43:23	feeling 14:19 19:17
64:18	evolving 20:2	experience 18:4	extra 20:16	fellow 3:13,14
emerged 60:1	exact 58:7	65:7	extrapolating 37:2	38:16
emphatically 62:18	exactly 20:5 49:10	experienced 33:15	extravagant 79:12	felt 14:18 19:10,11
62:24	50:10,12 54:22	76:3	extremely 8:24	49:15
endoscopy 45:7	59:13,18 74:12	experiment 15:12	26:20 33:19 41:18	fantanyl 20:8 22:23
ends 81:14,16	examination 20:11	expert 1:16 3:23,23	42:5 63:21	23:1 41:13
energy 58:5	examine 61:24	4:10,23 13:10	eye 16:16	Ferner 1:4,10 2:15
enquire 80:8	examined 58:3	14:17 17:23 18:4	eyes 13:7 16:14,20	2:16,21,25 18:20
entirely 2:22 3:20	example 3:22 8:8,8	18:23 20:7 22:9		44:23 52:21 53:11
18:8 35:19	9:1,9 10:2,9 11:17	22:15,21 24:25	F	64:14 67:15 78:8
entitled 2:13 77:18	15:6 16:19 20:9	25:3 42:5 43:7	face 16:3 17:8	89:6
environmental	22:23 23:11 24:14	45:11 47:10 48:6	80:14 83:23	field 43:7 65:7
1:19	33:16,19 37:7,19	53:22 60:6 63:13	fact 31:4 32:6	72:15
enzyme 29:24 30:5	38:14 40:7 42:15	64:21 73:13,15	43:12 47:6 55:14	figment 31:17
30:13 38:2	42:16 45:5 46:1	expert's 53:24 61:6	59:20 62:25 64:24	figure 58:16,22
equipment 59:6	50:7 56:24 61:15	expertise 3:1,5,7	67:5	59:1,2,16
errors 5:7,12	67:10 75:10,15,23	4:8 18:21 19:16	Failing 86:20	figures 59:15
Esmond 2:25	80:14 86:23 88:4	21:25 43:4 72:15	failure 72:9 75:14	file 20:14,18 53:14
especially 9:11	examples 73:25	experts 1:17 11:18	fair 14:16 27:19	final 2:5 76:19
75:11 77:20	74:5,21 75:3,13	23:20 32:13 35:14	32:10 69:24 81:15	finally 57:19,19
etorphine 15:21	75:20 76:2	41:21 54:1	fairly 61:23 62:11	61:6 67:2,13
41:6,8	exception 41:6	experts' 36:10	73:24	70:22 76:9 77:7
European 3:14	excess 30:9,13	57:25 72:4	fall 41:17	find 22:6 37:23
65:24	excessive 75:17	explain 8:21 38:7	fallen 29:17	39:1,21 63:21
Evaluation 65:24	exclude 23:21 25:4	38:24 41:9 62:12	falls 55:20,22	68:15 87:14
event 35:17 50:23	77:10	explained 19:24	familiar 21:14	finding 22:10 23:13
81:12	excluded 73:8	21:19 60:14 69:16	63:19	25:2 31:15 34:1
everybody 81:12	76:15	explaining 73:5	family 14:3 39:23	87:7
81:13,24 87:8,22	exclusive 51:11	explains 60:15	far 13:1 14:8,8,25	findings 35:5 44:10
everybody's 80:12	exclusively 49:10	explicitly 33:17	15:22 21:21 29:6	fingerprint 63:2,9
everyday 32:11	49:21	40:6	29:19 38:4 45:2	63:11,21
evidence 1:9,10,12	exercise 49:4 72:8	explore 79:10	45:14 60:7 65:4	first 1:18,21 5:25
2:11 3:17 4:15,16	exerting 9:13	explored 71:5	68:18 79:18 81:20	6:21 7:5 10:5
11:4 14:2,3,5 19:6	exertion 75:17	exploring 56:7	farmer 29:17	27:23 37:16 38:15

46:20 48:3,12 49:3 50:14 58:9 60:23 64:18 71:17 75:10 82:14 86:11 firstly 23:4 37:2 fish 42:17 five 58:22 59:7 64:16 flat 50:15 flesh 68:5 71:10 FLOs 70:19 flow 81:5 fluid 55:5 fluoride 6:20 flying 11:10 focus 47:3 55:13 follow 32:5,8 59:23 followed 48:24 following 4:24 5:4 60:4 66:11 food 13:16,18 14:10 15:1 24:17 25:19 47:25 69:2 70:11 foot 66:20 75:14,23 forcible 13:6 14:5 forensic 66:7 67:2 67:8 form 7:14 8:15 13:8 17:10 18:15 25:14 27:12,24 36:15,17,18 37:5 37:18,19 43:19 46:12 50:2 61:18 85:18 formally 18:15 formed 51:24 57:1 former 27:17 70:1 forms 7:8,18,19 12:6 21:4 24:1 32:20 formula 61:16 62:2 formulate 10:19 formulated 10:17 formulation 10:17	forward 51:8 52:22 63:6 found 5:4 19:9 22:13,15 24:23 26:7,8 33:24 56:19,25 57:6 58:10 59:3,4 60:22 61:9 foundation 3:14 four 53:17 59:4 60:2 68:24 Fourthly 73:17 fragment 58:5,8,14 60:3,24 fragmentation 55:25 63:12,14,23 fragmented 60:23 fragments 52:3 free 85:25 French 79:24 Friday 1:1 78:23 79:1 81:11,11,23 82:5 83:22 84:3,6 85:7,24 86:5,9,17 87:11 88:1,1 friend 82:15 83:2 front 4:21 46:17 48:16 61:22 fulfil 86:13 full 2:24 30:19 fulls 49:19 fully 20:15 function 18:6 Fung 75:22 76:7 fungus 72:24 further 1:25 2:6 5:6 20:7 57:20 62:18 65:22 76:2 83:18,19 86:7 87:12 future 83:10 87:2 Fysh 33:6	gamma 34:18 gamut 30:19 gap 46:1 85:3 gas 7:16 16:20 26:16,19,21,24 28:23 gastrointestinal 16:17 gelsemicine 21:20 60:23 gelsemine 54:21,23 gelsemium 50:21 53:5 54:13 73:22 74:1,17,23 75:14 76:3 general 7:5 36:9 40:11 44:24 49:20 77:17 generally 25:15 Gent 33:7 genuine 75:5 geochemistry 2:2 George's 46:25 getting 85:13 give 5:14 9:9 19:3 33:16 45:25 48:15 61:13 80:20 87:12 given 7:24 18:5 37:21 40:19 42:16 44:7 54:14 59:8 66:13,14 67:2,7 69:21 75:21 82:3 86:25 giving 3:17 82:24 87:16 glands 42:18 go 14:15,18,25 15:8 16:7 36:14 37:20 48:8,10 51:8 52:22 54:7 60:10 62:18 63:25 64:1 64:16 65:22 77:12 84:18 86:11 87:10 87:16 goes 13:1 35:9	going 5:6 9:6 11:11 12:23,25 28:21 29:10 31:7 46:23 48:1 53:15 61:12 69:4 72:23 73:25 75:13 78:1,2,19 79:11 82:23 85:7 good 2:17,18 11:12 22:17 31:18 88:6 88:8 Government 3:18 graciously 17:22 gradual 66:4 gradually 10:2 graduate 66:4 grand 53:9 grateful 8:19 85:12 great 23:6 group 81:6 guided 60:5,15 guise 32:19 gut 52:17 gym 46:24 47:8 gymnasia 47:17	57:10 hard 77:8 78:1 harm 31:22 40:21 harmful 8:14 headed 74:17 heading 65:11 66:6 headings 73:6 health 11:12 65:23 heard 14:8 35:6,18 55:7 87:22 hearsay 38:18 heart 11:20,23,25 30:18 31:3 35:12 35:16,17 42:24 49:9 51:10,13 77:13,14 heavy 80:25 help 4:17 9:9 19:18 20:12 51:1,2 52:7 58:1 77:3,5 78:11 79:14 80:12 84:8 helpful 4:8 5:9 18:8 33:10 71:14 82:6 84:20 helping 68:15 helps 71:15 Hermitage 4:4 64:15 heroin 50:7 high 8:25 9:12 57:14,15 61:23 67:10 81:15 highly 24:7 85:22 Hill 64:13,14 68:2 71:7,18,24 78:4 79:17 81:4 82:8,9 82:13 84:21 85:1 87:4,21,25 89:9 histology 72:12 history 25:4 47:1 74:1 hold 84:3 hole 52:16 Homer 42:16 honorary 65:16
	gallbladder 52:17		<hr/> H <hr/> H3P 26:19 haemolysed 56:21 haggard 75:12 hair 1:22 half 59:19 61:18 hand 61:12 Handed 61:14 handling 38:21 hands 17:11 Hang 6:5 happen 19:14 happened 16:4 17:18 24:20 25:5 28:18,25 40:18 47:13 58:1,9 74:23 happening 15:11 16:24 happens 8:14 39:5	
	<hr/> G <hr/> gallbladder 52:17			

honours 65:2	imagine 63:4	initiated 82:18	80:1	72:4
hope 4:20 26:11 88:8	immediate 13:19 69:12	inject 15:21 37:14 39:12,13	intestine 52:15	jointly 23:3
hospital 24:5	immediately 17:3 31:13 40:2	injected 39:8,10,10	intriguingly 66:23	Jong-nam 17:6
hospitals 38:19	impinges 25:3	injecting 50:7	intrinsically 8:6,14 8:23	journalist 82:21
hour 12:14	implied 52:25	injection 13:6 15:4 15:5 37:8,19 45:2 45:4 69:20 70:3	introduce 15:14	judicial 18:6
hours 10:21 46:2,4 68:24	implies 22:19	injections 38:21,22	introduced 57:8	juice 24:15
house 24:20	important 20:9 53:8 59:11	inkling 81:10	investigation 4:9	June 1:1 88:15
Housekeeping 1:8 78:18 89:5,10	impossible 25:23 77:8	innocuous 13:22,23	investigations 67:12	K
HP3 26:17	Inaudible 59:22	Inquest 4:4,7 86:14 88:14	invite 84:1	keep 79:1 81:11 85:7
huge 21:2	incident 28:16	inquiries 67:11	invited 62:17	keeping 79:10 82:5
human 18:4,25 22:1 29:22 32:21 33:1 61:9	inclination 84:13	inquiry 17:21 18:14 85:16	involved 34:13 65:3 65:20	kept 85:25
humans 31:22 66:8	include 23:25	insofar 14:3 70:15	involvement 67:10 82:20	Kew 21:6 80:8,13 85:21
humantenine 54:24	including 21:3 74:25	insoluble 25:16	involving 28:17	kill 18:25 32:21 33:1 66:14
hydrogen 26:23	inconsistent 32:2 59:9	inspect 52:15	ion 21:17,24 22:1 42:13 54:17,25 58:3,20,24 59:13 59:18,19,20 60:1 61:18,20,20 64:6	killer 37:12
hydroxide 6:21,24	increases 11:20,22 47:11	instance 1:18 2:7 31:24	ions 22:11 60:25 61:17 63:16 64:5	kills 9:11
hydroxygelsenici... 54:22	independence 4:14 4:14	instantaneous 46:2	Irregulars 66:24	Kim 17:6
hypersensitivity 37:4 38:1 40:12 46:8	independently 49:18	instantly 63:3	isotope 2:1	kind 7:11 8:19 13:6 13:7 15:8 16:23 21:24 22:1 41:15 42:9
hypotheses 51:10	indicated 69:5 70:10	instructed 51:9 87:9	issue 10:24,25 29:15 32:5 39:17 40:15 81:5 82:10 83:9,12 84:21,24 86:24	kinds 56:4 73:9
I	Indicates 68:12	instruction 4:3,12 18:10	issues 65:21 81:5 82:13 85:19	Kite 21:17 55:11,13 57:23 58:6 59:20 60:9,15 61:17 80:21
idea 55:9 70:3 88:4	indication 80:4	instruments 28:11	Italian 60:22	Kite's 21:14
ideal 77:9,9	induce 51:19	insulin 57:18		knew 16:5 29:3 45:18
ideas 85:11	influenced 34:2	insurance 37:10 44:24	J	know 2:12 3:16 14:3 16:4,8 19:11 20:8 22:20 24:13 24:22 27:8 31:14 34:10 36:2,25 38:7 40:17 43:6 43:16 44:15 45:20 47:7,13,17 50:17 63:8 64:8 71:14 78:19 79:13 81:9 84:22,24 87:13
identification 2:7 55:23 58:20	information 3:21 5:21 11:8 46:16 46:20 47:1,3 49:24 83:24	intended 4:17 9:24 10:1 52:25	jellyfish 73:10	knowing 50:11
identified 21:17 43:5 56:18 64:10 64:12	ingested 14:10 45:4 45:10 62:19,25	intensive 40:7	Jo 61:14	knowledge 3:16
identify 21:22 32:15	ingesting 47:25	intention 78:15	jog 11:11 46:23 48:2,4	
ignore 62:11	ingestion 27:3 37:18	interactions 47:11	joint 4:25 7:2 23:1 36:10 48:11 61:3 68:7,10,14,18 69:5 70:23 71:12	
ill 8:10 19:8,10,10 19:11,17,17 29:2 35:10	inherent 8:7	interest 3:3 65:13		
ILOR 86:24	inhibitor 9:3	interested 2:4,12 4:4,13 63:20 86:20		
ILORs 85:20	inhibitors 8:15	interests 1:11 66:7		
imagination 31:18	initial 71:16 82:14	interfere 51:18		
		interference 30:18		
		internal 54:7,8		
		international 65:23		

18:24 34:2 41:8 42:19 51:25 known 16:1 27:13 31:20 34:5,9 45:7 52:2 63:2,4,15 76:13 knownness 35:3 Korean 31:11	legitimate 18:14 legs 17:11 length 72:4 let's 68:2 86:4 letter 18:9 79:20 80:1 letters 85:13 level 33:10,11 61:24 66:4,4 lever 53:13 libraries 63:22 library 78:2 lidocaine 39:25 40:8,9 life 36:25 50:5 87:6 lignocaine 39:25 40:4 likelihood 22:10 31:7 80:8 81:16 82:4 likewise 12:22 13:16 35:25 80:1 limb 74:7 limit 3:16 10:20,21 10:23 limited 3:22 11:24 linamarin 72:21 line 6:3,9,21 58:22 59:15 83:15,22 lines 85:16 liquid 7:14 16:20 28:23 37:19 69:18 list 33:7 41:20,22 61:8 63:6 64:1 66:12 84:22,24,25 84:25 85:4 literature 27:21 73:24 74:18,22 little 11:8 38:7 42:20 46:25 68:5 71:8,10 76:13 live 1:9 81:2 83:15 83:22 local 37:11,13 39:12 45:5 46:24	locally 39:13 located 63:3 long 9:24 23:13 66:12 75:16 80:12 86:8,25 87:9,18 87:20,22 longer 43:3 75:7,7 look 8:10 20:18 21:7 25:10 36:20 51:20 53:4,9 54:20 58:13 60:6 61:8 62:17,20 69:15 73:25 84:14 85:8 86:5 88:5 looked 19:8,10,19 25:11 26:2,4 34:24 60:18 looking 6:6 22:5 34:19 40:3,3 62:8 62:10 looks 35:10 56:3 59:3 68:11 loose 68:10 81:14 81:16 loss 30:16 lot 54:6 56:12 67:22 85:11 lotion 13:24 low 38:13 87:1 lower 10:9 lunch 51:23 57:2 70:11,15 lunchtime 69:2 lung 72:12 lying 35:11	making 84:5 malicious 45:14,17 46:10 maltoxazine 63:18 man 35:8 39:20 man's 77:11 management 3:9 4:5 87:5 manifest 30:14 31:12 72:8 manufacturers 9:21 marked 2:8 49:15 marker 18:13 marks 55:23 martial 67:11 mask 24:14 mass 55:24 58:7,14 59:4,14,25 60:3,6 62:1,2,6 63:10,11 63:13,15,23 mass/charge 58:5 mast 38:2 matched 61:17 64:4 material 16:18 24:18 53:13 61:21 81:25 83:16 85:13 materials 31:16 matrix 58:12 matter 7:11,19 11:9 18:3,4 23:19 32:17 42:19 46:2 48:6 55:19 64:1 77:6,15 matters 81:20 82:4 84:18 86:22 mean 7:24 24:16 32:24 34:5 36:24 76:15 80:10,13 81:10 meaning 35:7 means 22:17 49:7 measure 67:5 measured 59:14	measurement 38:1 mechanism 30:11 medication 36:16 medications 21:3 medicinal 66:20,25 75:5 medicine 75:8,9 medicines 3:4 9:22 9:24 65:24 medium 55:5,5 57:11 meeting 5:1,3 47:24 61:6 72:4 membrane 45:8 membranes 16:15 16:16,18 mention 5:6 33:23 34:11 48:23 49:15 mentioned 7:20 33:18 36:8 40:6 42:4,8 49:18 84:21 mere 38:21 met 4:24 47:4 48:3 metabolic 51:12 metabolise 56:23 metabolised 57:3 metabolite 64:7 Metabolome 61:9 method 46:3 methylenedioxya... 62:23 milder 37:5 milligrams 25:20 million 58:23 59:5 59:7 60:2,25 mind 11:18 58:16 82:12 minded 85:5 mindful 79:2 Mine 53:20 minimal 23:8 minute 15:4 69:19 minutes 35:10 44:16 54:18,21
<hr/> L <hr/>				
labile 25:8 29:9 laboratories 19:25 20:21 24:6 laboratory 19:24 33:6 lack 35:3 Lai 54:12 55:3 76:1 76:7 large 8:9 15:21 61:25 62:11 63:22 67:3 76:21 larger 64:7 lay 75:16 layman 18:24 19:13 LCMS/MS 63:15 lead 15:24 leading 51:9 learned 18:4,8 33:15 64:20 65:19 66:12 67:14,23 74:20,21 75:19,22 75:25 82:15 83:1 learning 18:17 leave 38:25 79:19 leaves 23:20 43:15 leaving 14:25 lecture 66:14,17,24 lecturer 1:19 lectures 66:12 led 87:15 left 23:9 24:20 34:21 64:5 86:5 legal 44:23 82:22 85:17 86:10	legitimate 18:14 legs 17:11 length 72:4 let's 68:2 86:4 letter 18:9 79:20 80:1 letters 85:13 level 33:10,11 61:24 66:4,4 lever 53:13 libraries 63:22 library 78:2 lidocaine 39:25 40:8,9 life 36:25 50:5 87:6 lignocaine 39:25 40:4 likelihood 22:10 31:7 80:8 81:16 82:4 likewise 12:22 13:16 35:25 80:1 limb 74:7 limit 3:16 10:20,21 10:23 limited 3:22 11:24 linamarin 72:21 line 6:3,9,21 58:22 59:15 83:15,22 lines 85:16 liquid 7:14 16:20 28:23 37:19 69:18 list 33:7 41:20,22 61:8 63:6 64:1 66:12 84:22,24,25 84:25 85:4 literature 27:21 73:24 74:18,22 little 11:8 38:7 42:20 46:25 68:5 71:8,10 76:13 live 1:9 81:2 83:15 83:22 local 37:11,13 39:12 45:5 46:24	<hr/> M <hr/> M-O-N-O-A-M-I... 8:18 machinated 83:2 main 73:5 maintained 3:10 major 54:13 58:5 60:24 maker's 2:11		

58:4 59:10 64:1 miosis 50:3 missed 26:10 misunderstood 52:19,20 mixed 9:16,17 moderate 36:23,24 moist 16:16 molecular 58:7 62:2 moment 78:22 81:22 Monday 78:20,22 88:10,15 monoamineoxida... 8:15,18 9:3 months 23:19 moot 9:2 morning 2:17,18 51:17 79:21 mortem 29:10 38:25 39:2,4 50:22 Moscow 33:25 77:24 motion 75:12 motivation 20:3 mouth 13:7 16:17 16:20 41:14 45:6 49:17 69:21,22 70:4 move 19:19 moving 19:15 85:7 Moxon 44:21,22,23 47:21 48:5,8,12 48:19,21 50:19 51:6 53:2,16,20 53:23 54:4,6,12 55:17,22 56:9,12 56:15 64:11 67:25 80:7 83:7 84:1,10 84:20 89:8 MS/MS 55:14,20 mucous 16:15,18 45:7 49:16,16	murder 66:17,21 66:25 murdered 31:12 muscle 42:24 muscles 42:23 muscular 30:17 74:7 mutually 51:11 MZ 56:19 <hr/> N N 89:3 N3- 24:5 name 2:11,24 Nankivell 75:15 Nardin 55:18 60:18 60:21 nastiness 24:10 national 65:20 natural 33:19 42:15 nature 2:11 73:11 77:23 nausea 74:6 75:11 near 87:2 necessarily 28:15 69:11 necessary 86:13,16 87:19 need 15:13 25:18 25:24 28:2 40:13 40:21 41:23 60:10 85:17 needed 23:18 needle 15:20,23 needs 26:24 27:2 neither 45:15 nerve 29:25 30:7 31:21 32:21,22 nervous 74:9 nevertheless 14:9 new 20:2 46:16 59:12 newly 76:14 nine 76:7	non-forcible 14:25 non-specific 44:9 44:10 nose 16:17,20 30:16 note 36:13 51:11 75:22 79:11 notes 36:9 notice 17:4,11 69:20 70:17 noticed 70:24 novel 34:12 November 5:22 novocaine 37:11 38:24 39:6,8,18 39:20,23 40:15,17 40:19 45:1,3 46:6 number 19:22 22:6 26:3 39:22 47:11 48:16 61:25 62:11 66:17 67:3,20 71:14 74:25 76:21 numbers 5:16 48:9 71:21 nurses 38:19 <hr/> O object 2:13 13:9 17:20 objected 41:11 objecting 18:15 obligation 86:14 observation 50:22 51:3 observe 17:24 19:16 31:11 50:19 observed 17:23 obstruct 18:14 obtain 83:25 obtained 72:16 83:18 obvious 18:23 25:18 33:12 42:7 80:14 obviously 3:18 7:9	13:17 17:3 19:21 28:22 39:15,21 45:1,9 56:12 58:24 80:12 85:1 85:11 occasion 37:6 occasions 67:3 occupies 87:6 occur 25:24,25 35:22 41:10 45:22 occurred 31:25 33:11 37:22 59:9 occurrence 43:10 occurrences 32:12 October 5:23 ocular 16:12 oedema 35:20,22 72:10 officer 46:21,23 old 8:22 once 9:22 29:20 50:6 ones 22:6 33:1,2 62:16 onset 49:9 onwards 72:18,25 open 3:20 27:20 28:10 31:16 opened 52:13 operation 37:14 operative 51:6 opiate 40:4 opinion 59:20 68:18 73:13 opinions 7:1 opioids 41:3,5 opportunities 68:6 opportunity 19:4 42:11 44:7 47:24 47:25 52:23 opposed 11:16 26:7 oral 37:8 46:4 82:1 85:24 orally 45:2,4 orange 24:14	order 15:14 19:23 21:7 63:24 86:13 organic 28:4 Organisation 65:23 organisations 19:23 organophosphate 29:7 30:3,10,25 31:8,19 32:9,22 organophosphates 27:12,23 28:11 42:2 organophosphor... 27:21 28:7,17 29:13 30:7,11,20 31:21 original 4:3,12 67:16 71:11,19 80:25 originally 58:2 outside 19:15 46:5 outstanding 80:11 87:23 overall 76:19 overdose 8:9 10:4 overlooked 53:9 overnight 34:21 <hr/> P pack 56:12 page 4:24 5:4,14,15 5:16 6:2,6,10,15 6:17,18 20:19 36:21 48:9,15,16 48:19 53:3,19 54:8 58:13,21 64:20 65:10,19,22 66:2,20,24 71:12 73:4 74:14 75:15 75:20 76:1,1,19 pages 57:24,25 66:11 67:17,20 paginate 68:1 paginated 6:10 53:11,20
---	--	--	---	---

pagination 54:7,8 71:13	44:9	perspective 43:9	plant-based 21:7	35:16 49:1 50:21
pain 37:12	patients 3:9 35:22 40:7 50:7	pesticide 27:23	plants 72:20	66:8 68:6,19 71:1
pale 75:12	pattern 55:25	pesticides 27:12 28:8	plausible 17:16 18:3	72:2 73:22 74:1 76:15 77:11
pallor 48:24	63:12,14,23	pharmaceutical 9:21 10:17	playing 16:7	poisonous 33:19 45:16
pancreas 52:17	peak 34:20,20 56:19	pharmacological 10:11	please 2:24 5:10 6:22 36:5 45:25	poisons 3:5,16,23 7:8,22 8:3,3 9:15
paper 54:6 55:12 55:18 60:18,21 61:3,15 77:23	peanut 38:14 40:12	pharmacologically 10:20	51:8 52:22 64:15 64:17,22 65:10 68:4,7,16 69:4,15	10:12,12 11:14 12:1 15:7 23:25
papers 61:12	penicillin 36:11,13 36:18 37:16,18,22 38:8,10,13,20,22	pharmacologist 3:2	70:22 71:7,8 73:17,20 74:13 76:10 85:6	32:23 33:7,9,12 33:14 34:6,9,12 34:22,25 35:1
paracetamol 8:9,10 9:23	44:25 45:1 46:1	pharmacology 65:4 65:14,21 66:3	pleases 44:21	41:20 42:4,8,12 43:3,5,10 44:2
paradigm 8:15 17:5	people 20:23 34:24 47:24 49:14 74:22 75:3,13 76:3 87:25	phenotype 35:7,14	pm 44:20 88:13	51:12,18 66:15 71:9 72:16,19,24 73:1,7,9 76:12,13
paragraph 5:13 6:1 6:7,17 36:8 48:8 48:10,19 50:20 51:8,20 53:3 56:16 71:14,15,16 71:24 72:18,24,25 73:12,18 74:3 76:11,20	peppery 70:19,21	phenoxymethylp... 36:12	point 8:1 9:3 17:19 18:18 19:8 24:18 24:21 35:5 40:12 40:13 44:8 50:12 61:23 68:2 76:11 83:23	76:21,23 77:2,8 77:20,22,22,25
paralysed 42:22	perceived 45:16	phosphene 26:15 26:19,21	pointers 43:14	police 36:21 46:21 46:23 47:9 61:7
paralysis 74:7	Perepilichnaya 18:22 70:18	phosphide 26:6,22 26:23 27:2 71:25	points 46:15 60:25	polonium 32:19 34:16,19,20
parameters 54:13	Perepilichnyy 17:16 19:7 24:20 32:7 34:2 36:6 37:17 45:10 46:24 51:22 62:19,25 68:20 69:19 70:25	phosphides 25:14 25:14,15 26:14 42:1	poison 3:15 7:6,24 8:6 9:4,6,16 11:1 12:6,15,15,23 13:25 14:6,10,11 14:13,21 16:11,21 18:25 19:2,19 21:4 23:21 30:3 32:15 34:14,14 41:25 42:9 43:2 43:14,25 51:10,13 51:14,16 52:1 68:21 69:10,11,12 76:14	pondering 80:7 poor 57:16 72:6 portion 52:9 portions 52:6 posed 2:4 positing 17:1 position 41:24 43:15 positive 23:14 34:20 possibilities 32:10 38:6 44:11 60:8 63:7 possibility 12:9,11 22:4,8 26:6 39:16 49:8 51:22 55:15 60:9 69:6,9 70:3 70:10 72:7 76:14
Paris 11:10 69:6 70:12,13	Perepilichny's 10:25 12:3 14:2 43:17 45:18 46:22 54:18 57:2	physical 13:8	poisoned 3:9 11:9 12:15 13:18 19:12 29:13 30:25 43:21 51:22 68:21,23 69:1,6	possible 12:1,20,21 14:9 15:1 18:11 36:14 43:3,3
part 10:1,9 15:15 47:22 52:14 57:1 72:5 80:21	Perry 4:25 21:13 22:16 25:13 39:22 40:20	physician 3:2 65:13 77:17	poisoning 7:6,20 11:5,13 15:7 18:11 30:10,12,20 31:4,8 32:9 35:13	
particular 3:3,5 10:1 14:5 19:20 34:1 35:3 36:14 40:16 56:21 65:13	perfect 23:4,11	pick 7:12 22:23 64:19		
particularly 23:7 23:14 47:17 52:15 62:17 63:17 79:14 83:16	performed 20:6 38:5	picked 40:11,20		
partly 33:23 67:5	period 7:25 10:14 14:14 17:14 26:25 46:11 56:13 87:9	picking 22:17		
parts 58:23 59:4,7 60:2	Perry's 19:21 20:11 41:4	picture 35:8,8,12 35:15 72:9		
passengers 38:16	person 17:13 19:3	piece 46:20		
pathological 14:2	persons 2:4,12 4:4 4:13 86:21	PII 83:19		
pathology 11:6 12:18 35:18 43:18		pinpoint 30:15 50:3,8		
		pinprick 15:10		
		place 5:3 23:4,12 23:13 83:7		
		plain 81:18		
		plant 3:23 21:24 34:14 72:15,18		

47:11 51:25 56:20 56:22 57:14 62:10 68:5,19,20,23 69:1,18,25 70:6 70:14 72:2,18 79:11 81:9 83:4 83:25 possibly 11:17 22:1 35:13 68:10 72:22 post 29:10 38:25 39:1,3 50:22 66:4 postulate 46:6,9 postulated 21:25 postulating 45:16 61:17 potent 31:20 potential 41:20,25 70:16 76:12,21 77:11 potentially 16:9 21:3,24 87:1 powder 7:11 powders 25:15 practical 50:5 87:10 practice 29:16 36:9 74:4 pre-death 43:18 preceding 14:22 47:1 precisely 28:18 predisposition 77:13 preparations 10:18 46:13 presaged 80:24 prescribed 66:15 presence 8:24 62:13 present 8:25,25 22:24 81:1 preservation 23:10 press 83:23 presumably 12:22 14:18 16:5 27:17	presumed 54:23,23 54:24 prevent 11:25 previously 21:11 34:15 58:8 73:7 pricked 15:20 16:6 primary 66:7 principle 55:19 63:6 70:14 prior 32:7 34:24 36:2 46:23 82:23 probabilities 11:3 22:25 43:20 probability 60:10 84:15 probably 12:22 24:9,13 25:20,22 26:20 28:3 39:18 39:22 40:11,15 46:9 47:17 61:7 71:21 77:17 84:4 87:4 problem 20:10 35:6 38:19 50:5 problems 23:3 procaine 37:10 procedural 83:20 procedures 40:8 proceed 83:13,21 process 12:12 produce 9:17 60:24 produced 1:25 4:19 4:25 57:7 58:5,19 60:3 products 33:19 professor 1:4,10 2:1,15,16,21 17:22 18:20 21:14 21:16 34:13 36:3 39:15 40:23 44:14 44:23 52:21 56:18 57:9 60:5,16 61:5 64:14,23 65:16 67:15 70:22 72:5 72:14 74:15 76:9	78:8 80:19,24 89:6 Professor's 18:1 profile 67:11 projects 19:22 promise 81:1 prompted 84:7 pronouncing 24:3 properly 22:12 62:5 properties 72:7 proportionate 86:13 proposal 1:11 2:9 propose 86:10 proposed 16:5 proposition 18:12 propositions 67:18 proven 76:16 provide 58:6 provided 5:20 33:8 52:4 61:15 66:11 67:15,22 74:16 provoke 51:13 proximate 17:3 prudent 83:12 85:3 87:25 pseudoaconitine 34:14 published 82:23 puffer 42:17 pulmonary 35:20 35:22 72:10 pupil 50:20 pupils 30:15 50:2,3 50:6,8,8,25 74:8 pure 77:14 purpose 41:23 75:5 pursue 81:21 pursued 47:8 85:12 purview 43:7 put 1:13 9:19 12:12 17:8 18:9 32:17 36:1 47:19 50:25 51:1 56:11 61:21	63:1 82:16 putting 18:13 63:6 <hr/> Q <hr/> qualified 27:17 quantities 28:2 42:6 question 14:17 16:2 17:20,24,24 18:15 22:12,16 25:12 33:11,24 45:11,24 52:1 57:5 68:16 69:4,16 77:19 79:2,4,17 questions 2:4,6,19 7:5 13:2,11,12 26:11,14 29:12 44:22,25 64:13,15 64:16 68:4,8 71:8 71:25 78:5,7 84:23 89:7,8,9 quick 73:20 quicker 85:1 quickly 29:2 46:1 quiet 75:16 quite 8:22 12:13 23:13 56:12 57:10 69:7 81:3 83:9,13 83:21 84:17 85:14 86:22 87:3 88:5 quote 75:24 <hr/> R <hr/> radiation 13:19 radioactivity 1:20 raise 79:4 81:7 82:13 raises 22:16 raising 79:2 range 20:1 21:2 38:6 65:20,22 66:13 72:18,24,25 76:12 87:15 rapid 29:4 rapidly 16:19 31:25 rare 34:6,25 43:5	43:10,10 45:21 74:2 76:13,23 rareness 32:15 35:2 Ratcliffe 52:13,24 ratio 58:5 rationale 72:5 rave 9:11 ray 34:18 reach 10:9 18:24 reached 11:7 76:9 reaching 84:2 reaction 8:6,12 9:18 29:22 30:2 30:21,22,24 32:7 36:11,16 37:4 38:4,14,23 39:19 40:14,17,22 45:21 46:1,8,8 reactions 36:4 38:1 40:12 45:22 read 1:10,13 5:22 6:3,20,22 75:20 78:15 readily 16:14 27:24 reading 1:20 2:2 18:1 ready 62:12 real 39:16 87:13 realise 17:18 realised 17:7 realising 13:24 14:11 15:5,9 75:4 really 17:23 18:3 18:16,21 23:18 81:9 84:7 reason 19:16 35:23 57:2,12,16 77:10 reasonable 9:10 83:24 reasons 10:13 46:17 78:20 87:6 87:16 recall 40:4 58:2 received 15:5 19:3 46:20
--	--	---	---	---

recipient 28:5,14	remains 83:15,22	respectfully 47:23	rounds 82:1	73:2
recipients 28:24	remarkable 60:12	respiratory 16:17	route 39:20	scratch 15:6
recognise 22:4 23:2 28:24 62:21	remember 61:10	30:16 72:9 74:10	rugby 16:7	scratched 15:2
recognised 19:2,3 28:13 50:20	Remembering 54:17	75:13 76:5	rule 26:6 41:1 43:1 44:2 71:9	screen 40:11
recognising 24:10	remind 60:20 68:9	respond 82:14	ruled 11:2 23:1 40:16 41:2,4,7	screening 54:13
recognition 15:10 28:5	reminding 54:20	responded 79:25	rules 55:14	second 6:3,9 37:6 57:24 58:19,22 74:16
record 20:12,19 82:17 84:23	remove 18:10 27:10 37:14	response 38:10 79:22 83:20 87:1	run 14:15 16:9 17:12 44:3 47:14 47:22	secondly 23:10 55:12 68:4 83:5
recorded 50:1 58:8 58:13	render 9:7	responsible 38:3	running 14:16,18 16:6 17:17 34:21 35:9 37:20,22 47:7 68:21	seconds 58:25
recording 50:15	report 1:21,25 2:3 4:19 5:7 7:2,21 16:15 18:1,7,8 22:16,21 26:5 33:5,8,13,24 34:8 34:11,23 36:8 40:9 46:16,18 48:9,11,12 54:7 57:21 60:5 64:22 67:16,18 68:7,10 68:11 70:24 71:12 71:16 72:17 73:6 73:17 74:15,16 83:8	result 29:23	Russian 34:3 80:1 84:23 86:24	secretes 42:17
recovered 52:3	reported 74:22	results 80:22	<hr/> S <hr/>	secretions 30:15
refer 72:8	reports 21:15 40:7	resuscitated 35:23 35:24	Sadly 65:9	section 64:24 65:2 70:23,24
reference 4:23 36:20,22 37:9 48:15 53:4 55:12	represent 44:23	resuscitation 35:19 35:24	safe 8:16	secure 83:7
references 53:8	request 61:7 79:20 80:1,2,25 85:1	retching 75:11	sake 86:21	see 4:2 7:12 20:19 30:23 31:1,3 34:1 39:16 40:2 48:21 54:12 58:21,21,25 59:15 62:21 63:7 64:23 65:2,4,11 65:19 66:6,13 67:10 74:13,25 75:10,19,23,25 86:7,22
referring 38:10 54:15	require 73:13 83:18,19,19	retention 53:6 54:14	saliva 49:16,19	seeing 40:4
refers 6:3 22:18	required 41:18 55:10	retrieved 54:17	salsolinol 63:18	seemingly 75:1
refuted 83:4	requires 9:7	retrospect 5:12	sample 2:8 75:1	seen 19:6 20:24 24:21 31:16 50:16 74:4
registrar 3:8	research 3:21 19:23 21:7,19 66:6 67:17,22 74:5	returning 11:11	samples 23:4,6,10 52:4,11 56:21 57:16	sees 40:9
regret 53:21	resemblance 60:13	revert 82:9	sarin 28:19	selection 62:5
regulatory 67:12	resolved 34:16 81:17,22,23 85:21 85:22	review 73:24	saw 19:17 57:9 79:21,23	senior 1:19 3:8 4:7
regurgitation 36:1	request 61:7 79:20 80:1,2,25 85:1	rhythm 49:9 51:10 51:13 77:13	saying 11:22 20:16 26:3 27:8 32:2 40:1,15 46:25 49:5 50:21 54:24 55:9 56:10 63:19 78:23 88:10	sensation 15:10
reiterate 55:8	requires 9:7	Rice 3:17,18 4:25 29:12,15 33:6 72:3 77:6	says 18:22	sense 9:17 10:21 13:10 14:17 16:23 25:3 30:23 32:11 33:13 34:17 35:17
related 39:23	research 3:21 19:23 21:7,19 66:6 67:17,22 74:5	right 22:3 26:3 31:24 39:5 40:1 42:3,20 45:15 50:5 52:21 53:23 54:9,9 57:4 63:3 64:23,25 65:5,8 65:25 66:25 67:15 67:23 68:3,18 70:4,5,23 71:6,15 72:1,10,22 73:2 73:11,12,20 74:11 75:6 77:16,25 78:13,23 88:6	scene 24:24	sensible 87:18
relates 60:21	requires 9:7	rightly 18:21 72:14	scheme 53:9	sensibly 63:8
relation 57:20 86:24	research 3:21 19:23 21:7,19 66:6 67:17,22 74:5	rise 17:20	science 20:3	sensitive 22:20
relative 25:21	required 41:18 55:10	risk 11:20,23	scientists 20:6 60:22	sensitivity 22:16 45:19
relatively 8:16 16:7 25:8 26:3 57:11	requires 9:7	Robin 2:16,25 89:6	Scorpion 4:1	sent 19:22 20:20
release 10:3,5,10 28:19 69:12 78:8 82:20	research 3:21 19:23 21:7,19 66:6 67:17,22 74:5	round 12:13 37:15	scorpions 33:20	
released 38:3	resemblance 60:13			
relevant 22:15 38:12 42:13	resolved 34:16 81:17,22,23 85:21 85:22			
reliable 31:15	request 61:7 79:20 80:1,2,25 85:1			
relieve 9:22	requires 9:7			
remain 28:12 69:17	research 3:21 19:23 21:7,19 66:6 67:17,22 74:5			

sentence 6:22	34:10 43:6 47:11	soaked 69:22	32:23 35:5 37:25	stop 19:13 30:8
separate 26:14	55:9 56:2 79:19	Society 3:13	43:14 47:16 77:10	42:22,23
separately 49:17	Simpson 42:16	sodium 6:24 24:12	specifically 31:22	stopped 31:3
September 87:17	single 10:6 60:1	42:15,18	49:16 69:15 73:21	stops 30:18
series 46:15 53:5	61:20 64:6	solid 7:11 55:5	specimens 77:9,9	story 15:16,17 16:4
serious 9:5 37:6,7	sir 1:4,9,15 2:9	Soluble 25:16,17	spectral 63:2,9,11	32:19 34:16
38:22	17:20 42:11 44:15	solution 24:9,11,12	spectrometry 62:3	straight 62:21 63:7
seriously 14:19	44:21 48:18 51:2	24:16	63:13,16	82:12
75:3	52:23 53:14,24	solutions 24:6	spectroscopic 60:6	Street 66:24
serum 29:18 30:4,5	55:11 78:5,7 80:4	solvents 28:4	spectroscopy 34:18	strikes 60:11
38:2	80:7,16 81:4,7,15	somebody 15:5,8	spectrum 63:10	Strong 6:20,23
set 40:13 83:7	82:9 83:5,11 84:1	17:1,2 29:13	spillover 82:5 84:4	strongest 83:4
settled 69:14	84:20 85:15 87:4	37:14 45:18 67:7	spirit 17:21	structure 6:4,12,14
severe 74:9	88:11	somebody's 31:17	sports 20:3,6	6:16 62:3,4
sheep 29:17	sit 2:20,21	someone's 62:13	spot 5:12	stuck 64:6
shell 33:20	situation 64:5	soon 83:25	spotted 5:25	study 53:5
shock 36:15	size 59:19	sorrel 1:22 52:2	spray 13:6 16:20	sub-speciality 3:10
short 17:14 26:25	Skelton 1:4,6 2:15	56:25 70:20,20	17:10,13	subject 56:3
44:19 56:13	2:19,20 4:19 5:15	sorry 1:6 10:19	sprayed 41:11	subjected 58:4
shortly 31:13 48:24	5:20 6:6,15,22,25	24:8 26:10,19	69:18 70:6	submission 83:5,12
49:2	12:1 16:1,9 17:7	27:19 38:25 40:10	sprays 16:12	83:21
showed 34:19	18:20 39:10,15	48:9,12 50:16	squirted 45:6	submissions 78:24
shown 33:5	44:14 48:18 55:11	52:23 54:3,4 55:8	St 46:25	79:5 81:19,19,24
shows 52:9	55:19 78:7,12,15	59:2 69:13 81:8	stage 31:1 78:16	82:1,2,15 83:13
side 50:25	78:25 79:16,25	82:8	stand 2:20 7:1	83:14,22 84:5
sideways-on 68:11	80:4,16,18 81:15	sort 3:10 15:9 28:1	76:17,25	85:8,23,24 87:12
sign 50:21 77:14	82:1 85:5,15	45:25 46:10 69:10	standard 28:7	submit 82:3
significance 44:5	86:10,23 88:10,11	sorts 10:12 20:4	start 4:16	subsequently 20:17
55:16	89:7	83:17,20	started 14:15	substance 7:11
significant 57:1	skin 16:19 17:11,13	sought 20:10 52:15	state 2:24 8:12 12:7	15:13,22 22:23
80:15 82:4 83:9,9	41:12,13	sounds 16:3 53:25	50:25 51:1	25:19 27:2 29:25
83:24 87:15	skipping 26:5	87:20	state-created 42:9	30:7 55:4 56:23
signs 11:4 30:20	slightly 18:1 48:1	soup 70:19,19,20	statement 4:25 7:2	57:6 62:25
31:3,12 39:2,3	66:23	source 3:21 28:10	23:2 77:18	substances 8:13
43:17 49:3,6,20	slow-release 10:2,4	31:16	statements 1:15,18	15:25 20:2 22:13
similar 26:21 53:6	12:15 37:21 46:13	South 31:11	statutory 86:14	22:14 29:8,9
55:1 60:22	69:9,11	space 26:20,25	stay 20:3	57:11,17 61:16
Similarly 13:17	slowly 30:18	speaking 32:16	steps 83:7 86:12	substantially 9:13
Simmonds 21:14	small 1:6 7:24	46:13	sterile 24:6	substantive 87:1
21:16 34:13 56:18	15:15 16:7 26:3	special 45:18	steroids 47:19	substantively 79:25
57:9 80:19,24	34:20 41:18 42:6	specialism 80:22	stomach 22:2,5	subsumed 76:7
simplicity 61:13	52:2,14,16	specially 76:24	23:7,9 51:21 52:4	subtle 46:12
simplistic 12:22	snails 73:10	77:2	52:5,8 54:18	success 56:2
simplistically 7:9	snake 4:1 33:25	species 63:23	57:21 58:3,20	sudden 12:20,23
simply 1:12 26:7	snakes 33:20 73:11	specific 25:9 27:5	62:13	suddenly 12:13

suffered 32:9 69:19	symptoms 9:22	taught 66:2	33:21 39:11,19	thinking 45:15
sufficient 15:24	11:4 14:23 30:19	team 19:22 85:17	41:14	70:16
29:4 84:14 85:8	31:5,9 43:17	86:10	therapeutic 8:23	third 6:21 71:7
sufficiently 49:15	73:21 74:6 75:19	teams 82:23	40:10,10,13,19	Thirdly 23:12
suggest 47:23 49:6	synthesis 33:25	telephone 19:9,13	thing 1:6 5:25 13:7	thorn 15:6 16:11
58:23 60:13 61:19	77:22	telephones 19:7	16:23 18:2 41:15	thought 12:12
62:10 80:13	synthesised 76:14	tell 16:4 29:12 39:6	58:9 59:3 80:10	52:12 60:9 87:13
suggesting 56:2	77:20,25	49:24 62:3,4	things 2:14 5:11	87:17
62:19,24	system 9:20 74:9	temperature 9:12	19:23 22:5 35:13	Thousands 62:9
suggestion 36:6	systemic 14:23	tens 25:20	41:2 46:16 53:9	threatening 37:1
83:1 87:5,10		term 33:22 69:14	62:20 70:14 73:10	three 5:11 7:19
suggests 47:21 86:6	T	terms 16:12 25:6	76:4 78:15 80:11	8:11 53:6 55:23
86:7 87:23	tab 1:17,25 2:5	29:7 32:20 40:24	think 4:3,24 7:19	60:24 62:20 66:11
suitable 87:14	4:23 5:4 20:18	41:8 47:10 78:15	10:16 12:9,11,12	82:13
sulphuric 6:23	53:10,12,20,22,25	83:4 85:18	13:22,23 14:13,19	thrown 23:8
summarise 36:3	68:14	test 19:24 20:20	15:12 16:15,25	thrust 26:11
40:23 43:1 74:20	tabbed 53:10	22:7 23:9 25:7	19:15,20 21:10,17	Thursday 86:22
summarised 74:3	table 33:5 54:12	27:5,9 29:17	22:12,25 23:2,20	till 1:14
summary 44:6	68:10	34:17,18 37:25	24:23 25:22 26:2	time 1:11,13,19 2:1
76:12	tablespoon 49:19	38:4,11 45:6 58:9	27:1,19 29:8	3:8 5:6 7:25 8:10
summon 19:18	tablet 37:17,21	59:12	32:10 33:8,18	8:11 17:14 25:1
suntan 13:23	tablets 9:23,23 10:2	tested 21:2 24:24	34:8,11,16 36:1,9	26:25 29:20 45:25
suppliers 28:9	10:4 36:12,23	25:9 39:22,24,25	36:23 37:25 39:18	46:7,11 50:17
supported 67:18	tabs 1:16	testing 1:22,23 20:1	39:25 40:18 41:3	54:25 55:4,15,20
83:6	taipan 33:21	20:4 23:3,12,18	41:21 42:3,19	55:24 56:3,13
supports 12:18	take 8:9 10:3,8 12:3	25:6,24 29:8 33:3	43:22 44:7 47:2	58:24 59:8,13,14
suppose 10:22	20:11 25:14,18	37:23 41:4,5 43:2	49:5,20,25 50:2	60:1 63:5 65:17
13:10 16:2 25:12	27:5,12 28:2	85:21	50:14 51:6 52:7	78:21 86:2,17
33:4 47:12	41:14 46:15 52:23	tests 20:4,5,8,16	52:20,21 53:16	87:9,20
suppressed 74:10	57:19 67:20 68:2	22:5 57:20	54:10,14 55:13,19	timed 83:3
sure 14:24 22:8	taken 24:17 37:17	tetrodotoxin 42:17	56:7,11 57:5,8	times 17:23 53:6,7
26:1 61:12 75:10	41:1 55:12 61:4	42:18	59:1,7,12,19,23	54:14,21 55:1
86:2 88:4	74:21,23 75:4,14	thank 1:5 2:14,23	60:9 61:2,6,7,15	timetable 82:12
surgeon 15:16,18	76:3	4:18,19 5:5,24	61:21 62:8,16,20	86:9
Surrey 61:7	takes 3:3	6:25 7:4 20:15,22	63:17,18,19 64:15	timetabled 78:22
survey 73:20	talk 16:15 27:17	21:1 40:25 42:25	65:2,6,12 66:4,11	79:8 85:10
susceptible 45:20	35:7 72:6,19	44:14 46:19 48:20	68:2,10,13,14,15	timetabling 81:5
suspicion 18:9,10	77:12	51:7 53:2,19	69:14,16,24 71:13	87:5
Suter 68:15 80:18	talked 72:17 73:9	54:11 57:22 60:17	71:21,24 73:1,25	timing 7:6,20 10:24
85:12	talking 55:17 60:25	61:5 64:3 71:23	77:5,5,23 78:22	41:9 43:16 68:6
Suter's 79:14	63:10	73:19 76:8 78:4,5	79:13,20,21,22,24	82:20
sweat 49:16	tandem 63:15	78:10,10 84:20	81:10,15 82:1,22	timings 68:19
sweating 74:6	taste 24:14 70:21	88:8,12	82:24 83:1,6 84:2	tingling 42:21
swift 31:4	tastes 13:13 24:12	theoretical 16:10	84:13,17 86:2,9	tiny 81:25
sworn 2:16 89:6	24:13	theory 12:20,21	87:19 88:5	tissues 6:12 16:14

toads 73:2	tremors 30:19	80:22	unlikeliness 32:14	69:17 70:23 86:17
today 1:13 8:10	75:17	uncertain 50:14	unnoticed 16:8	viewed 21:20
78:12,14	tried 80:20	84:15	unpleasant 24:13	views 3:20 4:14
Tokyo 28:19,20	tries 10:24	unclear 52:4	28:4	72:16
told 15:22 38:15	trigger 38:22	unconscious 35:11	unrecognisable	visible 6:13
46:22 53:24 56:24	triggered 12:8	unconsciousness	56:24	vision 74:7
59:11 70:18	trouble 35:13 75:16	29:5	unresolved 82:4	visited 46:24
top 6:10 42:3 58:13	troubled 67:22	undated 1:21	unresponsiveness	volume 36:21
59:15 71:15	true 37:3	undergraduate	48:25	voluntarily 45:10
topic 66:14,17	truly 40:22	66:3	untoward 28:6,25	voluntary 46:9
67:13 70:22 71:7	try 11:25 40:23	underground	unwell 10:5 14:19	vomit 70:24
topics 66:13 79:11	54:6	28:20	update 66:6	vomiting 35:20,25
touching 57:5	trying 17:21 26:10	underlying 83:8	upper 52:6,9,14	36:2 48:25 74:6
toxic 8:1,23,24 9:6	26:12 36:3,13	understand 4:11	urine 1:22,23 2:8,8	75:18 76:4
9:7,10,19 21:3	39:15 84:8 87:14	11:1,11 14:7 21:5	23:11 56:25 57:6	VX 31:14,19 32:22
22:24 24:7 26:20	tryptase 38:2	26:13 29:19 38:5	57:7,8,8,11,16	
42:6 56:19 70:17	Tuesday 78:22 79:7	44:9 45:2 52:11	use 13:23 18:23	W
toxicological 20:10	84:16 85:10 86:16	60:7 73:16 80:19	29:6 33:22 34:24	wait 80:13 86:6,7
44:12 47:16	88:4	understanding	63:1	86:25 87:24
toxicologist 33:6	Tully 75:11	27:7,20 28:10	usual 10:14	waiting 9:18
toxicologists 3:15	Turkish 79:20	39:3 61:25 64:9	usually 39:8,10	want 46:15 53:4
27:20 33:15	turn 64:21 65:10	82:21		57:19 61:24 62:17
toxicology 3:13	68:7,16 71:11	understood 27:8	V	78:12 79:1,4,9,10
11:5 12:18 23:23	73:17 76:10	35:21 52:13 55:17	various 20:20,23	80:12,17 81:9,11
32:12 40:6,9	turned 33:22	70:20	24:1 46:17 67:18	81:18,19,21,23
43:19	twice 81:19 84:12	undertaken 20:8	72:19 75:13,18,20	82:7,11 84:3,11
toxin 8:7 69:23	two 5:16 8:11 9:4	22:19 37:24	87:6	84:18
70:8	19:7 26:14 42:7	undertakes 29:18	Vater 52:16	wanted 25:10 49:13
toxinologist 73:14	43:4 46:4 49:18	undertook 21:6	vegetable 42:12	50:10 75:25
73:14	59:23 60:24,25	undisturbed 52:11	56:23	war 28:17 29:14
toxins 3:24,25	64:5 69:25 70:1,2	undoubtedly 42:5	venom 4:1 33:25	32:24
16:14 21:8 33:18	76:6 82:1 86:11	unexpected 22:13	venoms 4:1 33:23	warning 72:6
42:15 73:1,15	two-hour 46:10	unfortunately	versed 18:5	washed 52:18
trace 50:15	type 31:9 32:25	21:13 32:12 68:13	version 6:10,15	washings 52:9
tract 30:16 52:6,10	37:3 38:1 46:8	unhelpful 79:13	vet 15:18	wasn't 14:4 17:18
tracts 16:18	types 7:6,21 8:5	unidentified 54:17	veterinary 15:16	36:25 43:2 47:8
traditional 75:8	18:25 19:19 23:21	54:25 58:20 61:20	15:18	51:25 61:2 64:9
transformed 38:9	32:22 43:2 44:2	61:22 64:6,8	victim 13:17 30:24	Wastell 1:6,9 53:22
transmitted 41:13	typical 56:3	uninformative	victims 13:2 28:24	wasting 86:2
transmitter 29:25		29:20	view 4:8 11:4 12:3	way 10:16,19 12:13
30:7	U	unit 40:8	14:9,13 18:7	16:13 25:1,9
traumas 16:7	UK 70:12,13	University 1:20 2:2	22:10 24:25 25:3	28:12,21 30:4
travel 38:15	unable 21:21 23:20	unknown 21:17	27:5 41:21,25	35:6 47:6,13 57:9
traversed 23:8	43:1	22:6,10 35:2	43:13,19 47:5	59:7 60:15 62:12
treat 11:25	unaware 13:17	unknowns 34:9	51:3,24 60:7 69:5	62:12 64:18 81:6

ways 16:10	works 3:18	13 68:8,16	359.1960 58:22	64 89:9
weakness 30:17 74:7 76:4	World 65:23	130 56:15,16	359.1965 56:19 58:4 59:19	66 71:15,16,24
weaponised 33:22	worth 67:17 73:5	14 54:21	36 20:18	663 53:25 76:2
weapons 27:15,22 28:11 33:22	wouldn't 39:21 40:21	16 1:1 36:8 69:16	367 57:25	67 72:6
Wednesday 35:18 86:21	wrangling 83:20	180 58:6 62:6 63:24	368 57:25 58:13	69 66:23
week 1:14 3:17 78:13 80:5,19,20 81:17 82:4 85:24 86:11	writing 85:12	180.1016 59:15	369 58:21	<hr/> 7 <hr/>
weekend 79:4 84:10 88:9	written 46:18 82:2 85:23	180.1020 58:14,17	39 1:16	7.1 54:21
weeks 10:22 11:9	wrong 6:6 72:22 83:13,21	1800s 73:25	<hr/> 4 <hr/>	7.6 54:23
weigh 7:12 32:13	wrote 74:12	181 20:19	4 59:1,2,16	711 76:1
weight 58:7	<hr/> X <hr/>	1899 75:15	40 1:16,25 35:10	72 72:18
well-defined 10:23	X 89:3	19 5:13 70:23 88:15	419 5:16	76 1:17 72:24
went 20:21,23 33:7 37:20 47:6,7	<hr/> Y <hr/>	1975 22:19	421 48:17	76A 2:5
wetness 15:23	yards 19:8 35:10	1984 65:6	422 6:10	78 89:10
whilst 37:22 62:4	year 5:3	1987 65:4	424 6:17	79 72:25
wide 20:1	years 65:18 67:6	19B 70:24	44 51:20 89:8	<hr/> 8 <hr/>
widely 63:16	years' 65:7	<hr/> 2 <hr/>	449 4:24	8.3 54:24
wife 46:22	yesterday 19:25 21:2,10,11,19 23:15 55:7,13 56:8 57:23 79:21 79:23 80:21	2 1:17 2:3,5 4:23 36:21 53:25 54:12 74:14,25 89:6,7	453 5:15,18	82 53:22,25
Wilmshurst 36:1 42:14	young 17:8	200 19:8 35:10	455 6:2 48:18,19	862 54:9
window 23:13	<hr/> Z <hr/>	2007 75:23,24	456 6:15	87 73:12
wiped 52:18	<hr/> 0 <hr/>	2013 1:24 58:2 59:4 59:21 60:3	458 6:18	877 5:4 68:14
wish 2:20 82:13,16	0005 5:17,18	2016 2:3 4:20 5:7	460 71:12	<hr/> 9 <hr/>
wishes 74:13	<hr/> 1 <hr/>	2017 1:1 2:6 88:15	467 53:3	98 5:4 68:14
wishing 18:14	1 1:15 4:20 5:7 20:14,18 37:3 38:1 46:8 89:5	205 76:20	479 76:19	99 84:15
witness 49:17 56:8	<hr/> 1.03 88:13	22 5:3	482 64:20	
woman 17:8	10 2:8 65:18	22.1(d) 2:9	483 65:10	
wonder 84:1	10.00 1:2 88:10,14	24 2:6 20:19 53:10 53:12,20	484 65:19,22	
wondering 18:16 59:24 60:11	100 76:11	25 66:17	486 66:6	
word 6:21 29:9 51:7 71:17 78:13	11.20 44:18	26 71:20	487 66:10	
words 58:10	114 52:22 53:3	29 48:8,10,19	488 66:20	
work 9:25 10:1,7 19:21 60:21 82:18	11B 69:5	<hr/> 3 <hr/>	49 6:17,18	
working 30:6,8 42:23	12 66:14 71:22	3 5:4 58:22 68:15	491 74:14,20	
workload 80:25	12.02 44:20	3,4 62:23	493 75:23	
		30 65:7 67:6	494 76:1	
		300 67:16	<hr/> 5 <hr/>	
		31 50:20 73:18 74:3	53 66:20	
		32 52:5,5	58 4:23	
		33 52:5,5	59 54:8	
		34 6:1,7 52:5,5	<hr/> 6 <hr/>	
		35 51:8	6 53:12,16	
		354/71 36:21	6.39 58:24 59:9,14	
			6.8 54:21	
			6.9 54:18,22 58:4	