Friday, 16 June 2017
(10.00 am)
THE CORONER: Yes.
MR SKELTON: Sir, may I call Professor Ferner.
THE CORONER: Thank you.
MR SKELTON: Sorry, before that Mr Wastell has a small thing to announce.
Housekeeping
MR WASTELL: Sir, before the live evidence of Professor Ferner, we were due to read the evidence of Dr Black. In the interests of time my proposal is that you simply admit the evidence of Dr Black now and if we have time read it out later today, if not we will put that over till next week.
The statements, sir, are in core bundle 1 of the expert bundles, behind tabs 39 and 40 and then one in core bundle 2 of the experts behind tab 76. They are statements from in the first instance Dr Black, who was at the time a senior lecturer in environmental radioactivity at the University of Reading.
The first report is undated, but he deals with testing of elements in the urine, hair and the sorrel, as well as anions in the urine. The testing was in 2013.
Behind tab 40 he has produced a further report, by

which time he was associate professor in isotope geochemistry at the University of Reading, the date is 2 August 2016 and in that report he answers some clarificatory questions posed by interested persons.
The final document, behind tab 76A in bundle 2, is some further answers to questions dated 24 May 2017. In that instance dealing with the identification of an urine sample marked "urine 10".
Sir, the proposal is to admit it under 23.1(d) on the basis it is unlikely to be disputed. You are aware of the maker's name, the nature of the evidence, all interested persons have had copies of it and they know they are entitled to object.
THE CORONER: Yes, I confirm all those things, thank you.
MR SKELTON: Professor Ferner.
PROFESSOR ROBIN FERNER (sworn)
THE CORONER: Good morning.
A. Good morning.
Questions from MR SKELTON
MR SKELTON: You may sit or stand as you wish, Professor Ferner, you may be more comfortable if you sit but it is entirely up to you.
A. Thank you.
Q. Could you state your full name to the court, please?
A. I am Robin Esmond Ferner.

Q. Your expertise is what?
A. I am a consultant physician and clinical pharmacologist, that is to say a doctor who takes a particular interest in drugs and medicines.
Q. Do you have a particular expertise in poisons?
A. I do.
Q. How have you come by that expertise?
A. From the time when I was a senior registrar I gave advice in the management of poisoned patients.
Q. Have you maintained as it were a sort of sub-speciality in that?
A. I have, yes, and I have as a consequence been elected a fellow of the British Toxicology Society and a foundation fellow of the European Association of Poison Centres and Clinical Toxicologists.
Q. Is there a limit to your knowledge of poisons? We know that we have Dr Rice who is giving evidence next week, and Dr Rice obviously works for the Government.
A. He does.
Q. Do you base your views entirely on as it were open source information and research?
A. Absolutely, and even that is limited. For example, I am not an expert on plant poisons and I am not an expert on animal toxins.
Q. Animal toxins such as what?

A. Scorpion venom, snake venoms and so on.
Q. I see.
Your original instruction I think was by one of the interested persons in this Inquest, namely Hermitage Capital Management. Is that correct?
A. That's correct.
Q. The senior coroner who was then in charge of the Inquest took the view that your expertise would be helpful to his investigation and so in effect adopted you as a coronial expert?
A. That is as I understand it.
Q. Can you confirm that your original instruction by one of the interested persons has not compromised your independence or the independence of the views you express in your evidence?
A. I confirm absolutely that my evidence from the start was intended to help the court.
THE CORONER: Thank you.
MR SKELTON: Thank you. You have made or produced a report dated 1 August 2016, I hope, do you have a copy of that in front of you?
A. I do.
Q. For reference, it is in expert bundle 2, tab 58, page 449 and following. You also I think have met with Dr Perry and Dr Rice and produced a joint statement of

that meeting?
A. That's correct.
Q. That meeting took place on 22 May this year and can be found in bundle 3, tab 98, page 877 and following.
A. Thank you very much.
Before going further, is now the time to mention some errors in my report of 1 August 2016?
Q. Yes.
A. Would that be helpful?
Q. Please do?
A. There are three things that I -- it is always easier to spot errors in retrospect.
At paragraph 19 --
THE CORONER: Can you just give me the page again for that?
MR SKELTON: Page 453 is that?
A. Well I have two page numbers, one of which is 419 and one of which is 0005.
THE CORONER: Which is as you say 453 or 0005, yes.
A. Yes.
MR SKELTON: This is where you say I have been provided with no clinical information?
A. Correct, of course that should read "November" not "October".
Q. Thank you.
A. That was the first thing I spotted.

At paragraph 34 --
Q. Page 455?
A. On the second line "is" should read "are", so it refers to changes, not to structure.
THE CORONER: Hang on.
MR SKELTON: I may be looking at the wrong page.
Paragraph 34 did you say?
A. I did.
Q. The second line?
A. It is the top of page 422 in the paginated version that I have.
THE CORONER: Yes, so, "... in the structure of tissues that are visible".
A. Yes, so it is changes, not structure.
MR SKELTON: It is actually page 456 in the version I have, so "changes in the structure"?
A. Yes. At paragraph 49, which could be on page 424.
Q. 49, page 458?
THE CORONER: Yes.
A. "Strong acids and alkalis", "fluoride" should read "hydroxide", the first word in the third line down.
MR SKELTON: Please read out the correct sentence.
A. "Strong acids or alkalis, such as sulphuric acid or sodium hydroxide".
MR SKELTON: Thank you.

Aside from that, do you stand by the opinions expressed in this report and in the joint statement?
A. I do.
Q. Thank you.
Can I ask you some general questions first of all about types of poison and timing of poisoning?
A. Yes, of course.
Q. Poisons may come in different forms. Very simplistically and obviously?
A. Yes.
Q. A solid matter of some kind, a powder, a substance that one can that one can pick up, weigh, see.
A. Yes.
Q. A liquid form?
A. Indeed.
Q. Or a gas?
A. Absolutely.
Q. Other forms.
A. Well I think those are the three forms of matter, so --
Q. Indeed. Timing of poisoning, you mentioned in your report and have discussed it cumulative types of poisons?
A. Yes.
Q. By which you mean a poison which is given in small amounts over a period of time and accumulates to the

point where it becomes toxic?
A. Yes, either it accumulates or its effects accumulate.
Q. Delayed poisons or delayed action poisons?
A. Yes.
Q. Can I ask just about the types of those. Can you have a poison which has an intrinsically delayed reaction, just inherent to the toxin?
A. Yes, the classic example, the common example is paracetamol, where if you take a large overdose of paracetamol today you may not look ill for some time and then in two or three days time you die.
Q. What about a state dependent delayed reaction?
A. Yes, so there are some substances which are not intrinsically harmful unless something happens. The paradigm is monoamineoxidase inhibitors which are a form of antidepressant, which are relatively safe.
Q. Could you say that again?
A. Monoamineoxidase, M-O-N-O-A-M-I-N-E-O-X-I-D-A-S-E.
THE CORONER: You are very kind, they will be grateful. So am I.
Yes, just explain about that.
A. These are now quite old fashioned antidepressants which are not intrinsically toxic in therapeutic doses, but which become extremely toxic in the presence of certain amino acids present -- the amino acids present in high

concentrations for example in chianti or blue cheese, and so if you were taking those drugs, it is a moot point as to when the monoamineoxidase inhibitor is the poison or the chianti, but the two together have a serious effect.

Q. This is a poison which of itself isn't going to be toxic but requires an external agent to render it toxic?

A. Yes. Absolutely.

It might help the court if I give another example, which is ecstasy, which is itself reasonable toxic but which kills you, especially in the context of a rave where the ambient temperature is high, where you are exerting yourself substantially or where you may be dehydrated.

Q. Can I ask you about whether or not there are poisons which are delayed because they are mixed, the poison itself has been mixed in the sense that it -- to produce a delayed reaction, so isn't waiting for an external agent, but the actual toxic chemical that is put in your system is delayed?

A. The answer to that is yes, pharmaceutical manufacturers make medicines to relieve symptoms at once, like aspirin tablets or paracetamol tablets, but they also make medicines which are intended to have a long duration of action, they work throughout the day or which are

intended to work in a particular part of the body.

For example, slow-release tablets will gradually release their components during the day. If you take an overdose of slow-release tablets you may not seem very unwell at first, but the cumulative release after a single dose can be fatal.

With the drugs that work only after they have dissolved, then you take them and they have no effect until they reach, for example, the colon, the lower part of the bowel and then they release their contents and have their pharmacological action.

Q. Those sorts of poisons, the delayed poisons which can be delayed for the reasons you have articulated, what is the usual period of delay between administration and effect?

A. I think that depends very much on the way that they are formulated and the pharmaceutical formulation of such preparations --

Q. Sorry, perhaps it is easier to formulate it in this way. Is there a limit to the delay, pharmacologically?

A. Well there could be a limit in the sense of hours I suppose rather than weeks, but it is not a very well-defined limit.

Q. If one is just taking the issue of timing and one tries to apply it to Mr Perepilichnyy's case, the issue of

cumulative poison, as I understand it in your discussions you have ruled that out on the balance of probabilities in his case. Is that based on the absence of evidence in your view of clinical signs and symptoms associated with poisoning, together with toxicology and pathology?

A. Yes, you have reached the crux actually which is that of course there is very little clinical information, but someone who was poisoned over a matter of weeks would not be expected to be well, flying to and from Paris as I understand it and returning and going for a jog, apparently in good health if this were, let us say, arsenic poisoning.

Q. Can you have poisons which are cumulative but their effects only become apparent at the end of that accumulation, as opposed to during it?

A. The answer to that is possibly. The example that came to mind when we discussed this as experts is the cancer curing drug doxorubicin which, as it builds up, increases the risk of heart damage. That is D-O-X-O-R-U-B-I-C-I-N.

THE CORONER: You were saying as it builds up it increases the risk of heart damage?

A. Correct, so the dose is limited by those doctors who treat cancer to try to prevent heart damage.

MR SKELTON: It is possible to have such poisons?

A. Yes.

Q. In Mr Perepilichnyy's case, you I believe take the view that it is unlikely?

A. Correct.

Q. A delayed action poison, so in one of the forms that you describe, so state dependent or designed to be delayed or triggered by something.

You I think consider that is a possibility?

A. Yes.

Q. Why in his case do you think that is a possibility?

A. I think the -- I would put the thought process the other way round. If someone dies apparently quite suddenly, within an hour of being well, could they have been poisoned by a slow-release poison or by a poison whose effects were delayed? And the answer to that is yes.

Q. We will come on at the end to whether or not the pathology and the toxicology supports that conclusion.

A. Yes, of course.

Q. In theory it is possible, sudden death?

A. In theory it is possible.

Q. Likewise presumably, it is probably again simplistic that a fast-acting poison is going to cause a sudden death?

A. It is going to act fast, yes.

Q. As far as administration goes, may I ask you these questions. Victims may well be aware that they have been assaulted and during the course of that assault something has been administered to their body?
A. Yes.
Q. So a forcible injection of some kind, a spray in the eyes or in the mouth, that kind of thing.
They may be aware of some form of physical contact with an object which they were not expecting?
A. Yes, I suppose. These are not in a sense expert questions.
Q. They are basic questions, yes. They may be also aware that they have just drunk something that tastes dreadful?
A. Yes, or different.
Q. Or different. Likewise with food?
Similarly, a victim may be unaware, obviously there may be a poisoned drink or food, they could be exposed to something like radiation without any immediate awareness of that?
A. Yes.
Q. They could expose to something they think is innocuous, or use something they think is innocuous, like suntan lotion or something like that, without realising that contains a poison?

A. Yes.
Q. In Mr Perepilichnyy's case, the pathological evidence and insofar as we know the evidence from his family and those who associated with him was that there wasn't any evidence of a forcible administration of any particular poison?
A. I understand.
Q. As far as this court has heard so far. It is nevertheless possible in your view that he could have ingested in his food or drink a delayed-action poison or a fast-acting poison without realising it?
A. Correct.
Q. I think your view is that whatever that poison was, it didn't seem to be actively affecting him in the period that he decided to go for a run and indeed started running. Is that fair?
A. Again, this is not in a sense an expert question. If he felt well enough to go running then presumably he was not feeling seriously unwell. I think that is what it amounts to.
Q. Can you get a poison which causes an arrhythmia, a cardiac death, without any preceding cardiac or systemic symptoms?
A. I am sure you can.
Q. As far as non-forcible administration may go, leaving

aside food and drink, it is possible, is it, that he could have been scratched by something?
A. Yes.
Q. Minute injection, how easy is it to do that without somebody realising they have received an injection?
A. Well a scratch by a thorn for example would be enough to cause poisoning with some poisons.
Q. Can you go past somebody and cause that kind of administration without them realising, some sort of a pinprick sensation or other recognition of it happening?
A. Well it is not an experiment I have done, but I think the answer is yes, that the amount of substance you need to introduce into the body in order to cause fatal effects can be very small. I base this at least in part on the story of the veterinary surgeon who --
THE CORONER: The story of who?
A. The vet, veterinary surgeon.
THE CORONER: Yes.
A. Who pricked himself with a needle that he had used to inject a large animal with a drug called etorphine and as far as can be told, the only substance that got into him was the wetness on the needle and that was sufficient to lead to him dying.
So there are substances --

MR SKELTON: Although he will have known he had got a --
THE CORONER: That I suppose is an amount question. On the face of it, it sounds as if, because you are able to tell the story, that we know how it happened.
A. Correct. As has been proposed, presumably he knew he had pricked himself, but if you are running, if you are playing rugby and so on, relatively small traumas can go unnoticed, so we don't know --
MR SKELTON: So someone can run past you, potentially?
A. Yes. You asked for theoretical ways of administering poison and this is one, as I say a thorn.
Q. In terms of sprays, there are ocular administration is one way in which something can be administered, because the tissues of the eyes more readily absorb toxins?
A. Yes, in my report I think I talk of mucous membranes, which is to say the moist membranes of the eye, the nose, the mouth, the gastrointestinal and respiratory tracts. Those mucous membranes absorb material more rapidly than the skin, for example.
Q. So a spray of liquid or gas into the eyes, nose, mouth, could administer a poison?
A. Absolutely.
Q. Would one expect to be able to sense that kind of thing happening?
A. I think it depends on the circumstances. Yes.

THE CORONER: Certainly if you are positing somebody coming up to somebody else, as it were, when they were not otherwise immediately proximate, you obviously would notice it, would you?

A. Yes, absolutely. There the paradigm is the recent demise of Kim Jong-nam.

MR SKELTON: Yes, where he realised that something was being put in his face by a young woman?

A. Yes.

Q. What about a spray or other form of administration on the skin of the arms, hands, legs that you don't notice. As it were, is it conceivable that someone can run past another person, spray something on to the skin which has an effect within a short period of time?

A. Absolutely.

Q. How plausible is it that Mr Perepilichnyy was administered something while running and (a) didn't realise that had happened and (b) wasn't affected to the point where he could make a phone call?

MR BEGGS: Sir, can I rise, not to object to the question because it is a spirit of inquiry we are all trying to buy into, but the Professor has very graciously already observed several times this is not really an expert question. I am bound to observe that the question that has just been asked I might be able to answer just by

reading the Professor's report. I am just slightly concerned the whole thing is becoming circular, whether it is plausible or not is not really a matter for this very learned expert, it is a matter of human experience which, of which you are abundantly versed, given your judicial function.

I say that because the whole report on one view is a very learned, very helpful report which is entirely circular. It is based on suspicion put in a letter of instruction. If you remove the suspicion, one doubts whether anyone would alight upon poisoning as a possible cause of death. I appreciate even that proposition is circular, all I am doing is putting a marker down without wishing to obstruct legitimate inquiry, I am not formally objecting to the form of question. I am just wondering whether it really adds anything to your learning.

THE CORONER: You carry on for now but I have the point, yes.

MR SKELTON: You are careful, Professor Ferner, to delineate between your expertise and really, as Mr Beggs rightly says on behalf of Mrs Perepilichnaya, one must be careful not to use an expert to draw obvious conclusions that a layman could reach. Based on your knowledge of the types of poison that can be used to kill a human

being, that are fast acting, how likely is it that such a poison can be used which is not recognised or (b) is recognised but doesn't give the person who received it opportunity to make a communication?

A. Yes, well, again, there are difficulties in this case over the evidence that I have seen, that it is said that Mr Perepilichnyy had two telephones on him, that he looked ill 200 yards from the point at which he was found and yet that he didn't make a telephone call. Now whether he looked ill and felt ill, of course, we don't know but if he felt ill, whether it was because of the cardiac arrhythmia or because he had been poisoned, the layman might have expected him to stop and telephone but that didn't happen.

Again I think I am moving outside my area of expertise but I observe that whatever the reason for him feeling ill, assuming he did feel ill when Mr Elias saw him, he didn't summon help.

Q. May I move on to the types of poison that were looked for in this particular case. I think you are aware obviously of Dr Perry's work, which is effectively a team effort, she sent off a number of projects to other organisations in order to research for things that she couldn't test in her own laboratory. She explained yesterday that one of the laboratories she used was

capable of testing for a wide range of as it were evolving or new substances because they are chasing the sports science where there is a motivation to stay ahead of the testing. You are aware of those sorts of tests?

A. Yes. I am not aware exactly of what tests were performed by the sports scientists because I believe after, perhaps after the expert discussions, further tests were undertaken. But I do know that fentanyl derivatives, for example, are now an important toxicological problem and are carefully sought.

Q. Would you like me to take you to Dr Perry's examination record, would that help just so you are aware of it?

We certainly have it in the bundle for you. It is in file 1.

A. Thank you. It may be that I am fully aware of what you are saying but I believe there were extra tests done subsequently.

Q. There are. If you look just on file 1, tab 36, page 181, you will see as at 24 May what the record is of the test that she sent out and the various laboratories that she went to.

A. Thank you.

Q. Or the various people she went to.

A. That is a document which I have seen.

Q. You have?

A. Thank you. Yes.
Q. She said yesterday in effect she tested for a huge range of potentially toxic chemicals, including medications and other forms of poison.
A. Yes, I understand that.
Q. You are aware also that Kew undertook a considerable amount of research in order to look for plant-based toxins?
A. Yes.
Q. You were not here yesterday I don't think, you had been here previously but not yesterday?
A. I was here when the cardiologist gave evidence, but unfortunately Dr Perry didn't.
Q. Are you familiar with Professor Simmonds and Dr Kite's reports to the court?
A. Yes, and with Professor Simmonds.
Q. Dr Kite I think identified an unknown ion --
A. Yes.
Q. -- in his research, which he explained yesterday he viewed as not being associated with a gelsemicine alkaloid, as far as he was aware, but he was unable to identify it?
A. Yes.
Q. It was potentially a plant ion of some kind but he also postulated, which is beyond his expertise, that it could

be a human ion of some kind, compound, possibly a stomach based one?
A. Right.
Q. Do you recognise that as a possibility that when one tests for things such as stomach contents looking for compounds that you can find a number of unknown ones within that test?
A. I am sure it is a possibility, yes.
Q. Is that something that you couldn't express an expert view on, the likelihood of finding unknown compounds or ions?
A. No, I think that is properly a question for an analyst to say how often unexpected substances are found, and indeed to say how often substances which might be relevant are not found. In her addendum to the expert report Dr Perry raises a question about the sensitivity of assays, which means how good they are at picking up something that is there. She refers to an assay undertaken in 1975 and implies that her assays are much more sensitive, but I don't know and she doesn't say in her report and we didn't discuss this at the expert conference, how confident she is that her assays would pick up a substance for example a fentanyl derivative which was present in toxic amounts.
Q. She has I think on the balance of probabilities at least

ruled out fentanyl in her evidence and in the joint statement. She did recognise -- as I think you all did jointly -- that there are problems with the testing that took place in that firstly the samples were not perfect?
A. Correct.
Q. The amounts of some of the samples were not great, particularly the stomach contents, as has now been well traversed, were thrown away so there were minimal stomach contents left to test.
Secondly, the preservation of some of the samples, the urine for example, was not perfect.
Thirdly, some of the testing that took place, took place quite long after the expected window of finding something positive. That was particularly the case she said yesterday in respect of cyanide or cyanide-type compounds?
A. Yes.
Q. Where the testing she described needed to be really in a matter of days rather than months.
In effect that leaves you as experts I think unable to exclude certain types of poison --
A. Correct.
Q. -- at least on the basis of the toxicology?
A. Correct.
Q. Just to clarify, those poisons include, do they, cyanide

in its various forms?
A. Yes.
Q. Azides, if I am pronouncing that correctly, what are they?
A. Azides are anions, N3- which are used in hospital laboratories to make solutions sterile and which are highly toxic.
Q. Sorry, how would an azide be administered?
A. Probably as a solution.
Q. Without someone recognising the nastiness of that solution?
A. I can't comment on what sodium azide solution tastes like, it probably tastes unpleasant but I don't know whether you could for example mask the taste in orange juice.
Q. When you say "solution", you mean drunk by someone or taken in food?
A. Yes, yes, and this brings us to another material point which is there doesn't seem to be any clue as to what happened from when Mr Perepilichnyy left his house to the point at which he is seen by Mr and Mrs Elias, so one doesn't know whether he drank something.
Q. No, I don't think anything was found that could have been tested at the scene but of course he could have -- again, this is not an expert view but he could

conceivably have had a drink some time on the way without you finding what he drunk from?
A. Yes, it impinges on the expert view only in the sense that one cannot exclude it by the history of what happened.
Q. In terms of testing for azides, when does one have to do that and what does one have to test?
A. They are relatively labile, they break down and they have to be tested for in a specific way.
Q. Conceivably had one wanted to look for an azide, you could have looked but within what --
A. A few days, I suppose. Again, that is a question for Dr Perry.
Q. Phosphides, what form does phosphides take?
A. Well phosphides are generally powders.
Q. Soluble or insoluble?
A. Soluble.
Q. Does one need to take an obvious amount of it or in a food substance or --
A. Well a few tens of milligrams probably.
Q. That can be administered with relative ease covertly?
A. I think its covert administration would probably be difficult but not impossible.
Q. The testing for that, when does that need to occur and how does it occur?

A. I am not sure about that. But it was not one of the anions which was looked for by Dr Black I think I am right in saying. Dr Black had a relatively small number of anions which he looked for with chromatography.
Q. I am of course skipping ahead, but in your report where you rule out the possibility of phosphide, is that on the basis that it simply hasn't been found as opposed to it can't now be found?
A. Yes.
Q. Sorry, I may have missed a "not" there. I was trying to make clear, I hope that the whole thrust of my questions was clear that it had not been eliminated. I was trying to understand --
A. Yes, there are two separate questions about phosphides. One is whether phosphene, which is --
Q. A gas?
A. -- HP3 --
Q. Yes.
A. -- sorry, H3P, might have caused this. Phosphene gas is extremely toxic, but probably only in a confined space.
Q. So there is a gas phosphene, is it a similar chemical to phosphide?
A. Yes, it is, if you like, hydrogen phosphide.
Q. That can be administered as a gas but that needs to be over a short period of time in a confined space?

A. Yes, correct. So I think is that unlikely.
Q. Whereas phosphide is a chemical substance which needs to be administered through ingestion?
A. Yes, correct.
Q. You take the view there is no specific test for it that has been conducted in this case?
A. That is my understanding.
Q. As I understood it, you were saying you don't know whether or not that test could conceivably be conducted at this remove?
A. Correct.
Q. Organophosphates can take the form of pesticides, this is well known --
A. Yes.
Q. -- or chemical weapons?
A. Yes.
Q. Presumably you are qualified to talk about the former and not the latter?
A. I think it is fair to say that we all have -- sorry. Toxicologists have some understanding, from the open literature, of organophosphorous compounds used as chemical weapons.
Q. First of all, organophosphates, certainly in pesticide form, are readily available?
A. Yes.

Q. How would they be administered and in what sort of quantities would one need to take them?
A. You would probably have to drink them and they come in organic solvents and they would be unpleasant to drink.
Q. Is there likely to be recognition by the recipient of something untoward having been administered?
A. The standard organophosphorous compounds that are used as pesticides which farmers can buy in agricultural suppliers, yes.
Q. Based on your open source understanding of organophosphates as weapons, deliberate instruments of death, does that remain the case as well? That the way that they are administered is recognised by the recipient?
A. Not necessarily, and actually this is one of the difficulties that, if there were a chemical incident involving organophosphorous war agents then bystanders might be affected and that is precisely what happened in Tokyo when there was a release of sarin, which is one of these agents, in the Tokyo underground.
Q. Going back to the way in which one may administer it, as a chemical agent, that obviously was not drunk by --
A. No, it was dispersed as a liquid or gas.
Q. Did the recipients or the victims of that recognise that something untoward had happened to them before it became

fatal?
A. Well some of them became ill very quickly and died. I am not able to say whether they knew that they were dying, but sufficient dose would cause rapid unconsciousness.
Q. As far as the ability to eliminate them, the use of organophosphate compounds in this case, in terms of the testing, again, are they substances -- I think you used the word "labile" didn't you, are they substances that are going to break down post mortem?
A. Certainly they break down in the body, but I would defer to Dr Rice on the analytical questions of how you tell if somebody has been poisoned with an organophosphorous war agent.
Q. You would defer to Dr Rice on that issue?
A. Just to say that in clinical practice, if you have a farmer who has fallen in the sheep dip, then the test that one undertakes is called a serum cholinesterase assay, but as far as I understand it that was not done at once and that becomes uninformative after some time.
Q. The cholinesterase, is that connected to the cholinergic reaction that you get, the human being displays as a result?
A. Yes, cholinesterase is an enzyme that breaks down acetylcholine, which is a nerve transmitter substance.

If you have too much acetylcholine you get a cholinergic reaction.
Q. To be clear, with an organophosphate poison do you always get serum cholinesterase, is that the way --
A. Serum cholinesterase is an enzyme which is in our blood. If it is working, it breaks down acetylcholine, which is a nerve transmitter substance. Organophosphorous compounds stop it working, so you don't break down acetylcholine so you get an excess of acetylcholine.
Q. In every case of organophosphate poisoning?
A. Yes, it is the mechanism by which the organophosphorous compound causes poisoning.
Q. How does that excess of that enzyme, how does that manifest itself?
A. The classic features are pinpoint pupils, secretions from the nose and the respiratory tract, loss of control of bladder and bowels, muscular weakness, cardiac interference, your heart beats slowly and then stops, coma and tremors, that is the full gamut of symptoms and signs from organophosphorous poisoning.
Q. That is the cholinergic reaction?
A. That is the cholinergic reaction all together.
Q. Do you expect, in the sense that it is likely, to see a victim demonstrating that cholinergic reaction if they have been poisoned by organophosphate?

A. It depends which stage you see them, because if they have already gone into coma or convulsions or their heart has stopped, you may not see all these signs.
Q. In fact the poisoning can be so swift that you don't demonstrate the symptoms?
A. Correct.
Q. Again though, going on likelihood, are you able to say how likely it is that an organophosphate poisoning would demonstrate some symptoms before death of the type you have described?
A. I am not able to say. I observe that the South Korean who was apparently murdered did not manifest those signs immediately but died very shortly afterwards.
Q. That was said to be via VX, but I don't know how reliable that finding is?
A. No, well, I have only seen the open source materials and so I can't say whether that is a figment of somebody's imagination or whether there is good evidence for it.
Q. Is VX an organophosphate agent?
A. It is the most potent of the well known organophosphorous nerve agents.
Q. And specifically designed to harm humans?
A. Absolutely.
Q. Is it right in that instance that it is said that the death occurred rapidly?

A. It is, yes.
Q. From what you were saying, that is not inconsistent with such a compound?
A. No.
Q. Just to conclude on that issue, it doesn't follow with the fact that there isn't any clear evidence of a cholinergic reaction in Mr Perepilichnyy prior to his death. It doesn't follow that you conclude it is unlikely that he suffered an organophosphate poisoning?
A. All of the possibilities are I think it is fair to say unlikely in the sense that these are not everyday occurrences. Unfortunately it is not for the toxicology experts to weigh up the different degrees of unlikeliness.
Q. No. You can identify the rareness of the poison and who might have the capability, broadly speaking, but whether or not it was put into effect is clearly not a matter for you.
A. Yes, this is the polonium story in another guise.
Q. Just in terms of the other forms of agents that can be used to kill human beings, beyond nerve agents such as VX, organophosphate nerve agents, are there types or specific poisons?
A. Do you mean that are used in war?
Q. Any type of chemical that can be deliberately used to

kill a human being beyond the ones that we have discussed and the ones that have been eliminated confidently by testing in this case?

A. So the answer is yes, there are many, I suppose. The background to my report was that I was shown a table in which a laboratory toxicologist, Mr Fysh, Dr Rice and another went through a list of poisons and Dr Gent I think provided a report on this, and said these are poisons that have been eliminated.

On one level of course that is very helpful, but at another level, the question that occurred to me is: what poisons are there that are obvious and which haven't been eliminated? That in a sense is what my report dealt with, but there are many other poisons which more experienced or learned toxicologists might consider.

Q. Can you just give an example of those that haven't been explicitly considered?

A. I mentioned animal toxins I think. And there are extremely poisonous natural products, for example from the cone shell or from scorpions or indeed from snakes like the taipan, which could at least in theory be, if I can use the term, weaponised, turned into weapons.

I mention venoms partly because in considering this question, I have found that there is a report from Moscow of the synthesis of the venom from a snake, but

you will see that that particular finding may have been influenced by knowledge that Mr Perepilichnyy was Russian.

Q. Yes.

I mean in circumstances where there are known very rare poisons which could have been used and which haven't been or cannot be eliminated and in circumstances where I think as you accept in the report there are known unknowns, in that there are poisons which you simply will not know about.

A. Correct. In my report I think I mention some of the difficulties with novel poisons in the past, so Professor Simmonds and I were involved in a case where the poison was a plant poison called pseudoaconitine, which had not previously been detected.

The polonium story was only resolved I think by chance in the sense that the test that was done, which was gamma ray spectroscopy was not the test you would do if you were looking for polonium and only showed a positive peak, a very small peak, for polonium because the apparatus was left running overnight.

So there are poisons which have been used in the past and which were considered in this report but which prior to their use people had not looked for.

Q. One can say confidently there are poisons that are rare

in their administration, there are poisons that are unknown in their administration but that very rareness or lack of knownness doesn't assist on a particular case such as this?

A. Not unless there are specific findings which point one way or the other. That is the problem, I heard the cardiologists talk about phenotype, meaning the clinical picture and the clinical picture here is a man who by all accounts was well until he goes running and 40 minutes later looks very ill and within 200 yards is lying unconscious and about to die.

That clinical picture could be caused by heart trouble or by poisoning or possibly by other things that none of the experts have discovered. So the phenotype, if I can call it that, the clinical picture does not say this is poisoning. Or indeed this is a heart attack, "heart attack" in the broad sense of a cardiac event.

The pathology, as I heard on Wednesday, could have been due entirely to the resuscitation efforts.

Q. So the pulmonary oedema, the vomiting --

A. If I understood the evidence -- as I say, it is not for me -- it was that pulmonary oedema can occur in patients who collapse for any reason and are then resuscitated by cardiopulmonary resuscitation, by chest compressions.

Q. And likewise vomiting?

A. Yes, or regurgitation as I think Dr Wilmshurst put it. I don't know if there was vomiting prior to that.

Q. Before trying to summarise where you end up, Professor, can I ask about allergic reactions.

A. Please.

Q. There is a suggestion that Mr Perepilichnyy may have had an allergy to an antibiotic, were you aware of that?

A. Yes, and I mentioned it in my report, at paragraph 16, that general practice notes which were not I think available in the joint experts' bundle say that he had an allergic reaction to penicillin, phenoxymethylpenicillin tablets.

Q. Trying to apply that note of an allergy to penicillin to a particular case, is it possible that you can go into -- is it a form of anaphylactic shock that one gets from an allergic reaction to a medication or is a different form of effect?

A. It can be and a penicillin allergy often is a form of anaphylaxis.

Q. For reference for those that would like to look, it is in the police bundle volume 2, page 354/71, where there is reference to an allergy.

A. I think categorised as "moderate" to tablets.

Q. What does "moderate" mean in this context?

A. I don't know of course, but it clearly wasn't life

threatening.

There is a caveat to extrapolating from that firstly because if this were a true so called type 1 hypersensitivity reaction, what you would call anaphylaxis but in a milder form, that is almost always more serious on the second occasion that you are exposed. It is always more serious with, for example, injection rather than oral administration.

I should say that there is also a reference in one of the insurance documents to allergy to procaine, the local anaesthetic novocaine.

Q. Which is a pain killer?

A. It is a local anaesthetic, so if you were having an operation to remove a bump, somebody would inject it round the bump.

Q. Just first of all taking penicillin, is it conceivable that Mr Perepilichnyy could have taken either a tablet or had some other form of ingestion of penicillin in liquid form for example or by injection and then be able to go running and then went into an arrhythmia --

A. Yes, or indeed was given a slow-release tablet of penicillin so the effect occurred whilst he was running.

Q. Would you expect to find that in the testing that has been undertaken?

A. No, I don't think so, because the specific test for

type 1 hypersensitivity reactions is measurement of the serum mast cell tryptase, which is another enzyme which is released by the cells that are responsible for the dramatic allergic reaction. That test, as far as I understand it, was not performed.

This is just another of this range of possibilities that would explain what little we know.

Q. Just to clarify, there is the drug penicillin before it is transformed in the body and then there is the response to penicillin, you are referring to the latter, aren't you, the test?

A. Yes, it is not relevant -- the concentration of penicillin may be very, very low and still cause the reaction. Again, the classic example is peanut allergy where I am told that if you travel first class on the aeroplane and one of your fellow passengers is allergic to peanuts you are not allowed to have peanuts with your champagne, but that is hearsay.

The problem in hospitals is nurses who get allergic to penicillin and who then are not able to draw up the injections, because the mere business of handling penicillin injections may be enough to trigger serious allergic reaction.

Q. Could you explain novocaine, how that --

THE CORONER: Sorry, at post mortem -- leave aside anything

you might find as it were on analysis, but just at post mortem, would there be no signs of that?

A. My understanding is that there are no signs at post mortem.

THE CORONER: Right. And the same as it happens with novocaine that you are about to tell us about?

A. Correct, yes.

Novocaine is usually injected, that is the difference here.

MR SKELTON: Usually injected but not always injected.

A. Well in theory you could drink it, but it is only active if you inject, but only active as a local anaesthetic if you inject it or locally.

THE CORONER: Yes.

MR SKELTON: Obviously what we are trying to do, Professor, is see if there is any real possibility that this is an issue in this case.

A. I don't think novocaine probably is. Although at least in theory, if he had had an anaphylactic reaction to novocaine, it would be a route to dispatch a man.

Q. When you said you wouldn't find it, obviously as you are probably aware, Dr Perry tested for a number of drugs, is novocaine related to a family of drugs that she would have tested for?

A. She is, she tested for lidocaine, lignocaine I think

I am right in saying. It would be common for her to do so. I can't immediately see it.

Q. She is certainly looking for analgesic, she is looking for opiate drugs, lignocaine I don't recall seeing but it may be --

A. It isn't explicitly mentioned but commonly in toxicology reports, for example if patients are on the intensive care unit and they have had lidocaine for procedures, one sees lidocaine on the toxicology report. So a therapeutic concentration -- sorry, a therapeutic dose would probably be picked up by the general screen. The point about hypersensitivity reactions is the peanut point, that you don't need a therapeutic dose to set the reaction off.

Q. Just on the issue of novocaine, you were saying probably ruled out in this particular case?

A. Well I don't know enough about his reaction to novocaine or what happened. What I think I said was that if a therapeutic dose of novocaine had been given, it would have been picked up by Dr Perry but I have also said that you wouldn't need very much to cause harm if someone truly had an allergic reaction.

Q. Can I try and summarise where you end up, Professor, in terms of what you --

A. Thank you.

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

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

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

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

and novocaine. Obviously penicillin can be administered orally or by injection, as I understand it. As far as novocaine is concerned, we perhaps associate that with injection, can that be ingested orally?

A. Yes, absolutely. Local anaesthetics for example are squirted into the back of the mouth before the test known as endoscopy, so they are active on the mucous membrane.

Q. Yes. Obviously those are both drugs that could have been ingested voluntarily by Mr Perepilichnyy, whether or not that is likely is not an expert question but one for the coroner.

A. Correct.

Q. As far as a malicious administration is concerned, would I be right in thinking that neither of these drugs are perceived as poisonous so that if one is postulating malicious administration, it would seem to be by somebody who knew of Mr Perepilichnyy's special sensitivity?

A. Yes, you would have to know he was susceptible to an anaphylactic reaction because these are rare reactions, but when they occur of course they are devastating.

Q. I appreciate that. If it is not a question you can answer, please do say but can you give some sort of time

gap how quickly for example would a penicillin reaction, is it instantaneous or is it a matter of hours or days?

A. It depends on the method of administration, but even with oral administration, one or at most two hours would be the outside.

Q. Yes, so we have to postulate -- novocaine?

A. Same, it is the time course of the anaphylactic reaction, the type 1 hypersensitivity reaction.

Q. We have to postulate, probably, either a voluntary or a malicious administration within a sort of two-hour time period?

A. Correct. Or some subtle form of administration, like the slow-release preparations we were speaking about.

Q. Yes.

I want to take you to a series of points in your report. Concentrating on new information, things that you for various reasons may not have had in front of you when the report was written.

A. Thank you.

Q. The first of those is a piece of information we received from a police officer, that on the day of Mr Perepilichnyy's death his wife told him, that is the police officer, that prior to going for his jog, Mr Perepilichnyy visited the local gym, which is called St George's Club. You were saying there is very little

information about the history preceding the death but that is something that I think has only recently come into focus. No other information, what he was doing there, who he met, why he was there.

Does that affect your view of the case, your conclusions in any way, the fact that before he went running he did something, and all we know is he went to the gym. It wasn't something that was pursued by the police.

A. The answer to that is, in terms of expert evidence, it simply increases the number of possible interactions I suppose.

THE CORONER: The same way one doesn't know what happened earlier on in his run. It is just an extension of that, isn't it?

A. Yes, there are some specific toxicological aspects of gymnasia, particularly, as you probably know, the administration of drugs designed to boost the body beautiful, if I can put it like that, anabolic steroids and so on.

MR MOXON BROWNE: The coroner suggests it is in the same class as the early part of the run. I would just very respectfully suggest that there is perhaps this, that there is the opportunity of meeting people and the opportunity of ingesting food and drink, so it is

perhaps in a slightly different class from going for a jog.

THE CORONER: Could he not have met someone on the first bit of his jog?

MR MOXON BROWNE: Yes, he could but anyway it is not an expert matter, so there we are.

THE CORONER: There we are.

MR MOXON BROWNE: Can we go to paragraph 29 of your report -- sorry, I don't have page numbers. Could you go to paragraph 29.

THE CORONER: Are we in the joint report?

MR MOXON BROWNE: No, I am sorry. The first report, I apologise.

Do you have that?

THE CORONER: I do, but give me the page reference again.

A. I believe I have it in front of me with the page number 421.

MR SKELTON: 455, sir.

MR MOXON BROWNE: Paragraph 29, 455 is the page.

THE CORONER: Thank you.

MR MOXON BROWNE: Do you see what you have there?

A. "The clinical features of ..."

Q. That is the one. You mention:

"The clinical features of pallor, followed shortly afterwards by collapse, unresponsiveness, vomiting,

cessation of breathing are consistent with poisoning by an agent whose effect became active shortly before the first signs or an agent whose effect was brought on by exercise."

Of course I think what you are saying is that those signs might be consistent with what you suggest, but that is not all they are consistent with by any means?

A. No, and of course one possibility is that they are consistent with the onset of a heart rhythm disturbance.

Q. Exactly, it is consistent but not exclusively consistent?

A. Correct.

Q. I just wanted to add to that that the evidence we had from the ambulance people of something that he apparently felt sufficiently marked to mention specifically of mucous and sweat, mucous and saliva in the mouth and also another witness separately and independently described drooling, he mentioned two tablespoon fulls of saliva or whatever.

In general, I think both of those signs are consistent with, but not exclusively consistent with, a cholinogenic crisis?

A. Correct.

Q. There is another bit of information which might tell against a cholinogenic crisis, which I don't think you

had, which is that the ambulancemen recorded on their form that the pupils were dilated, whereas I think miosis, what you described as pinpoint pupils, would be consistent with a cholinogenic crisis?

A. That is absolutely right. In life the practical problem is that once you are dead your pupils dilate, so for example patients who die from injecting heroin have pinpoint pupils until they die and then the pupils dilate.

Q. That is exactly what I wanted --

THE CORONER: Then you have the difficulty about knowing exactly at what point he has died.

A. Yes. Yes, and the evidence about breathing is uncertain. The first evidence that he has died I think is the recording of asystole, a flat trace on the electrocardiogram and I am sorry I have not seen the electrocardiogram and don't know what time that was, but it was after the arrival of the ambulancemen.

MR MOXON BROWNE: Yes. Just as you observe in your paragraph 31, of course dilated pupil is a recognised sign of poisoning by gelsemium, but you are saying that if the observation was made post mortem, they would be dilated in any event?

A. Yes.

Q. Can we put the state of the pupils to one side? Or can

the coroner put the state or does it help?

A. Well, it might help the coroner if, sir, you came to the view that he was still alive when the observation was made. That is the difficulty.

THE CORONER: Yes.

MR MOXON BROWNE: I think "difficulty" may be the operative word. Thank you.

Then if we can go forward, please, to paragraph 35, where you say you have been instructed that the leading hypotheses are either heart rhythm disturbance or poison and you note that these are not mutually exclusive since the poisons and the metabolic disturbances caused by poison can provoke the heart rhythm disturbances, so we could have poison, we could have what has been described as a channelopathy or we could have an arrhythmia which is not due to a channelopathy but is due to poison?

A. Indeed, and as I said earlier this morning there are poisons that damage your channels that interfere with your channels and so induce if you like a channelopathy.

Q. Can we look at paragraph 44. You say:

"The stomach content was discarded even though there was the possibility that Perepilichnyy was poisoned at lunch."

The coroner may have formed the view that that wasn't done in the knowledge that there was a possible

question of poison, but there we are.

He was known to have eaten sorrel but only small fragments were recovered, none from what was described as the stomach content, unclear whether samples provided as 32, 33 and 34 -- 32 is stomach contents, 33 and 34 are the upper portions of the digestive tract.

I think it is clear from the evidence, it may help you, that while the stomach contents may have contained washings, evidence shows that the upper portion of the digestive tract didn't, so we have, as it were, as I understand it, undisturbed samples.

A. Well, it may not be for me to say but I thought I understood Dr Ratcliffe to say that he had opened the duodenum, which is the upper part of the small intestine, and particularly sought to inspect the ampulla of Vater, which is a small hole where the duct from the pancreas and the gallbladder arrive in the gut, and had therefore wiped or washed the duodenum but I may have misunderstood his evidence.

Q. I think it is much more likely that I misunderstood, Professor Ferner, I think you are absolutely right.

If you go forward, please, to 114 --

A. Sorry, perhaps I could just take the opportunity, sir, to say I have no criticism at all of Dr Ratcliffe and none was intended, if that was implied.

THE CORONER: No, no.
MR MOXON BROWNE: Thank you.
Page 467, paragraph, what did I say? 114.
I want to just look at that reference. You say:
"In one study of a series of gelsemium alkaloids three components had very similar retention times or elution times."
Sometimes these important references can be overlooked in the grand scheme of things. Can we look at tab 24, if you have a tabbed bundle. It is not paginated -- I am in what I call the Ferner bundle, bundle 6, tab 24.
You have all your material under one lever arched file. Do you have that, sir?
THE CORONER: What is going to be there?
MR MOXON BROWNE: I think the bundle is called bundle 6.
There are four --
A. Could it be behind me?
THE CORONER: Say the page again, thank you very much.
MR MOXON BROWNE: It is tab 24. Mine is not paginated, I regret to say.
MR WASTELL: It is in the expert bundle, tab 82.
MR MOXON BROWNE: All right.
Sir, I am told it is in the core expert's bundle under tab 82. 663, so that sounds like bundle 2 of the

core experts.
THE CORONER: Are you there?
A. I am there. I am so sorry.
MR MOXON BROWNE: I am sorry to be so clumsy.
THE CORONER: You are not.
MR MOXON BROWNE: We have a lot of paper to try to control.
If we go to internal pagination of that report to page 59, internal pagination.
THE CORONER: All right, which will be 862, bottom right, I think.
A. Thank you very much.
MR MOXON BROWNE: You see Lai and Chan's table 2, the screening parameters of the major gelsemium alkaloids and the retention times are given, I think this is what you are referring to.
A. Correct.
Q. Remembering that the unidentified ion retrieved from Mr Perepilichnyy's stomach eluted at 6.9 minutes.
A. Yes.
Q. I am just reminding you of that. Then we look at the times for gelsemine 6.8 minutes, cumin 7.1, 14 hydroxygelsenicine is exactly the same, 6.9 and then -- these are all presumed, or presumed gelsemine 7.6, presumed humantenine 8.3. What you are saying is that the elution time for the unidentified ion is broadly

consistent with the elution times for other similar compounds?
A. Well, under the conditions that Lai and his colleague used, the elution time depends on the substance and on the solid medium, the column and on the fluid medium, the elutant.
THE CORONER: We heard all about this yesterday.
A. I am sorry to reiterate.
THE CORONER: No, I am simply saying that we have an idea about that. There is no apology required.
MR SKELTON: Sir, may I just clarify for one Dr Kite was not taken to the paper but secondly just for your reference, I don't think you were here yesterday, Dr Kite focus is the fact that the MS/MS is different rules out the possibility that the elution time being the same is of significance.
MR MOXON BROWNE: I understood him to have been talking about the Nardin paper, but I will be corrected.
MR SKELTON: As a matter of principle I think he said that if the MS/MS is not the same then the elution time falls away.
MR MOXON BROWNE: Falls away, yes, indeed.
We have three identification marks, we have the accurate mass, we have the elution time and we have the fragmentation pattern.

A. Absolutely.
Q. Without much success, I was simply suggesting that the elution time looks typical but that is subject to all kinds of caveats.
A. Yes.
Q. Yes.
THE CORONER: Which I think you were exploring with the witness yesterday?
MR MOXON BROWNE: Yes.
THE CORONER: As you were saying, we have to be very careful about it, I think was how you put it.
MR MOXON BROWNE: Yes, I obviously had quite a lot to pack into a comparatively short period of time.
THE CORONER: You did.
MR MOXON BROWNE: 130, if you would.
Do you have paragraph 130?
A. I have, yes.
Q. "Professor Simmonds has argued that if the identified peak at MZ 359.1965 were toxic it would have been found in the blood. This is possible but not certain, in particular haemolysed blood samples may degrade."
Of course, it is also possible isn't it that the vegetable substance itself may metabolise so that it becomes unrecognisable? We were told for example that sorrel was not found in the blood or the urine yet it

formed apparently a significant part of Mr Perepilichnyy's lunch. That the reason for that, apparently, was that it could well have metabolised. Is that right?

A. Yes, I think the question that I was touching on here is, if a substance is found in the urine, it has to have got into the urine from the blood or be produced in the urine or introduced into the urine afterwards. I think that was the way Professor Simmonds saw it, but actually it quite often happens that it is easier to detect substances in urine, which is a relatively clean medium, than it is in blood. That is one reason.

The concentrations may be very different and it may not be possible to have a high enough concentration in blood while there is a high enough concentration in urine, but another reason is that in poor samples, substances get destroyed in blood. The archetype is insulin.

Q. Finally, almost finally, I want to take you to some further tests that were carried out in relation to the stomach contents after the date of your report --

A. Thank you.

Q. -- by Dr Kite, who gave evidence yesterday.

It is just a couple of pages, it is in the second of the experts' core bundle at pages 367 and 368.

If I can just help you as to what happened. You will recall that originally back in 2013, when the stomach contents were examined, the ion that eluted in 6.9 minutes, 359.1965, when subjected to collision energy produced a major fragment of mass/charge ratio at 180. My clients asked Dr Kite if he could provide the exact molecular weight, the accurate mass of that fragment which had not previously been recorded. He did the test again. The first thing that happened was he found the same compound, in other words it hadn't disappeared in the meantime, it was still there in the matrix.

If you look at page 368 at the top he has recorded that the accurate mass of that fragment was 180.1020?

A. Yes.

Q. Can I just ask you to bear that figure in mind, 180.1020.

A. Yes.

Q. Then he has produced some data for the second identification of the unidentified ion in the stomach contents which we see on page 369. You will see at figure 3 in the second line we have 359.1960, so five parts per million less but still I would suggest very obviously the same ion, this time eluting at 6.39 seconds. Do you see that?

A. Yes, I think I am on figure 4.

Q. Yes, I am sorry, you are correctly on figure 4.

He found what looks very much like the same thing he found in 2013. The accurate mass is about four parts per million off, but that is to be expected with the equipment.

A. I think one allows five parts per million either way.

Q. Yes and the elution time, given the changes that may have occurred, is certainly not inconsistent at 6.39 minutes.

But what he told us, and this is important, and I think may be new to you, is that in doing that test, at the same time an ion coeluted at exactly the same time, 6.39, and the accurate mass was measured as 180.1016. You see that on the top line of the figures at figure 4.

A. Indeed.

Q. That is the discovery of an ion more or less exactly half the size of the 359.1965 ion. I think it is the opinion of Dr Kite that in fact the ion that he discovered in 2013 may be a cluster?

A. (Inaudible).

Q. A cluster of the two, and I think you follow that. I am just wondering whether it seems to you to be a coincidence or otherwise that the accurate mass of the

single ion that emerged at the same time as the double one had within four parts per million the same accurate mass as the fragment that was produced in 2013, if you are following.

A. I am guided by the report of Professor Cowan, who was the expert asked to look at the mass spectroscopic data and his view as far as I understand it was that was one of the possibilities.

Q. Yes, he calls it a possibility. I think Dr Kite thought it was a probability. We need not go into that. I am just wondering whether that strikes you as a coincidence, that they should have that remarkable resemblance to one another, I would suggest?

A. Well it is either a coincidence or it is explained in the way that Dr Kite explains it but I am guided by Professor Cowan.

Q. Very well, thank you.

Have you looked at the Nardin paper or shall I ask for it --

A. Not in detail. Remind me?

Q. The Nardin paper relates to some work done by some Italian scientists who found that a compound similar to gelsemicine, although not the same, fragmented first to produce a major fragment again within two or three points per million of the two ions that we are talking

about. Were you aware of that?
A. I wasn't aware of it in detail. I don't think it was discussed at the joint conference where this paper was taken.
Q. I will ask Professor Cowan about that. Thank you.
Then finally, I think that at your expert's meeting, I think probably at the request of Surrey Police, you were asked to look at a list of compounds which had been found on a database called the Human Metabolome Database, do you remember that?
A. Yes.
Q. I am sure it is in the papers but I am going to hand you if I may for simplicity a copy of it, if I give those to Jo. (Handed)
I think this paper was provided to you as an example of compounds or substances which had a formula which matched that of the ions that Dr Kite was postulating might form one half of the double ion, if you are with me. Because I suggest it was that whether it is a double ion or a single ion they are both unidentified and I think that this material which has been put in front of you, you say unidentified but it could be anyone of these. That is the point I, at a fairly high level, want to examine with you.
A. My understanding was that there is a very large number

of compounds with the same accurate mass and the same chemical molecular formula and that the mass spectrometry does not tell you the structure or does not directly tell you the structure, so whilst this selection is no doubt properly compiled as being compounds which have the accurate mass of 180. ... there are many other compounds as well.
Q. There are, but I think by looking at them --
A. Thousands.
Q. By looking at them, it is possible I would suggest to you to ignore a fairly large number on the basis that there is no conceivable way or no ready way to explain their presence in someone's stomach.
A. I can't comment.
Q. You cannot comment.
These were the ones that I think you were particularly invited to look at and I want to say before I go any further, as emphatically as I can, I am not suggesting that Mr Perepilichnyy ingested any of these things. I think if you look up three from the bottom you will see a chemical that you recognise straight away?
A. 3,4 methylenedioxyamphetamine.
Q. I say again, emphatically, I am not suggesting Mr Perepilichnyy ingested that substance, but the fact

is that because of what it is, and the use it is put to, the spectral fingerprint is either very well known or can be instantly located. Is that right?
A. I imagine so, yes. As you say, it is well known.
Q. Yes, and it crops up all the time.
In principle, if you are putting forward a list of possibilities, you see straight away that that is not one which can sensibly be asserted, because we know that the spectral fingerprint is different?
A. You are talking about the mass spectrum.
Q. The accurate mass and the spectral fingerprint, ie the fragmentation pattern.
A. Again, I would defer to an expert on mass spectrometry to say what the fragmentation pattern is but I accept that it will be well known and that LCMS/MS, tandem mass spectrometry, is widely used to assay these ions.
Q. I think your attention was particularly drawn to salsolinol and maltoxazine, and although I think you are saying you are not familiar with those, I think you would accept if anybody was interested, it would be extremely easy to find out what the fingerprint was?
A. I accept that there are large libraries of the fragmentation pattern of species whose accurate mass is of the order of 180.
Q. Yes, and you could go on to a database and it is

a matter of minutes that you could go through this list?
A. Yes.
Q. Thank you.
If you did that, and none of them matched, you would be left with a situation that whether it is two ions stuck together unidentified or a single ion, maybe a metabolite of the larger one, it is still unidentified, we don't know what it is?
A. My understanding is that whatever it was, it wasn't identified.
MR MOXON BROWNE: And still isn't?
A. And is still not identified.
Questions from MS HILL
MS HILL: Professor Ferner, I would like to ask you a few questions please on behalf of Hermitage. I think I have five brief areas of questions I would like to go through with you please.
First of all, without embarrassing you in any way, I would like to pick out details from your CV if I may to assist the learned coroner. It is at page 482 of the expert bundle. Just very briefly, if you could turn the CV that you have attached to your report up, please.
Is this right, Professor, that as we see under your education section of the CV you were a chemist in fact before you were a doctor. Is that right?

A. That's correct.
Q. We can see I think from your awards and honours section of your CV that you have been involved in clinical pharmacology as far as I can see since 1987; is that right?
A. Actually rather earlier, 1984 I think.
Q. That is over 30 years' experience in this field; is that right?
A. Sadly, yes.
Q. If you turn over the page, please, to 483, under the appointments heading we see that you are appointment, as I think was elicited before, is one of consultant physician but your particular interest is in clinical pharmacology?
A. Correct.
Q. You have been a honorary professor of that for some time?
A. Over 10 years, yes.
Q. We can see on page 484, just briefly for the learned coroner, that you are involved in a range of national committees around pharmacology issues and indeed as we go further down the page on 484, a range of international committees the World Health Organisation and the European Medicines Evaluation Agency, is that right?

A. Correct.
Q. Just over the page, you have taught in the area of clinical pharmacology at both an undergraduate and a graduate level, I think post gradual level even?
A. Indeed.
Q. As we see update the "Research" heading on 486, one of your primary interests is in the forensic aspects of poisoning in humans?
A. Yes.
Q. Just for completeness at 487 and thereafter for the following three pages I think you have provided the learned coroner with a long list of lectures that you have given on a range of topics. We can see can we at 12 you have given a lecture on the topic "Cure or kill: commonly prescribed poisons"?
A. Yes.
Q. At number 25, a lecture on the topic of "Murder with drugs"?
A. Yes.
Q. At 53, at the foot of page 488, "The medicinal aspects of murder"?
A. Correct.
Q. Then perhaps slightly more intriguingly on 69 over the page you gave a lecture to the Baker Street Irregulars on "Medicinal aspects of murder", is that right?

A. That's correct.
Q. Finally, you have given evidence in a forensic capacity on a large number of occasions in both the criminal court and in the coroners court?
A. Yes, that is partly a measure of course of the fact that I have been doing it for 30 years.
Q. Yes, but you are indeed somebody who has given evidence in a forensic context before?
A. Absolutely.
Q. We can see for example your involvement in some high profile criminal cases, inquiries, courts martial and regulatory investigations.
Then just finally on this topic, although the learned coroner doesn't have these documents, Professor Ferner, is it right when you provided your original report you appended to it about 300 and something pages worth of research, articles and so on, that supported various propositions in your report?
A. Yes. That is correct.
Q. We counted the pages, so take the number from me.
A. Correct.
Q. You provided a lot of research that we haven't troubled the learned coroner with; is that right?
A. Yes.
MR MOXON BROWNE: You may have counted them but you didn't

paginate them.
MS HILL: I think we did, but let's not take that point right now.
Secondly, please, can I ask you some questions to flesh out a little of the detail about the possible opportunities and timing for a poisoning in this case. Could I ask you, please, to turn up in the joint report, it is the answers to questions 13 and thereafter.
A. Could you remind me --
Q. I think the joint report is possibly loose on the table, isn't it, it is the sideways-on report that looks like that? (Indicates)
A. I think it is in a bundle but unfortunately I --
Q. I think it is 877 in the joint bundle, tab 98. In bundle 3 I think, Mr Suter is helping you find it.
Can you turn up, please, the answers to question 13.
A. Yes.
Q. Is this right, that your joint opinion was that as far as the possible timings for a poisoning in this case are concerned, it is possible that Mr Perepilichnyy was poisoned with a fast-acting poison while out running?
A. It is.
Q. That it was possible that he had been poisoned in the four hours before his death?
A. We agreed that.

Q. And it is also possible that he had been poisoned in his food or drink at lunchtime?
A. We agreed.
Q. Then just going back, please, to the answer to question 11B, you have also indicated your joint view that the possibility of him having been poisoned in Paris, and so quite a bit earlier, could not be discounted?
A. Correct.
Q. Not least because of the possibility of a slow-release poison of some sort?
A. Not a slow-release poison necessarily, but a delayed immediate release poison --
Q. Yes, sorry.
A. -- I think was the term we settled on.
Q. More specifically, please, just look at the answers to question 16. I think you already explained to counsel to the coroner that you remain of the agreed view that it is possible that someone could have sprayed a liquid on Mr Perepilichnyy, he could have suffered a minute injection perhaps that he didn't notice but also someone could have given him something over his mouth, covered something over his mouth that was a cloth soaked in a toxin?
A. Yes, I think it is fair to say that we agreed that all are possible but that the latter two were less likely

than the former two.
Q. Just to be clear, the latter two you have said are the injection possibility and this idea of a cloth over the mouth. Is that right?
A. That's right.
Q. You said it is also possible he could have been sprayed, as you said, or drunk from a bottle that contained a toxin?
A. Correct.
Q. As you have also indicated, there is the possibility something was in his lunch or some other food that he had had in the UK or in Paris, or in a drink that he had drunk in either the UK or Paris?
A. All these things are in principle possible.
Q. Were you aware insofar as his lunch is concerned, thinking now about the potential for him having eaten something that he didn't notice had something toxic in it, were you aware that Mrs Perepilichnaya has told the FLOs that the soup was a peppery soup?
A. No, but I understood that it was sorrel soup and sorrel has a bitter peppery taste.
Q. Just finally on this topic, Professor, please, is this right that your agreed view at section 19 of the joint report, section 19B, is that the vomit that was noticed in Mr Perepilichnyy could have been a consequence of

poisoning?
A. It could.
THE CORONER: Yes, you said or cardiac disease.
A. Yes, or indeed cardiac arrest from any cause as was explored.
THE CORONER: Right.
MS HILL: A third topic please, could I ask you some questions about a little bit more detail, please, on the poisons that you effectively cannot rule out, just to flesh out a little of the detail, if I may.
Could I ask you to turn up in your own original report, page 460 of the joint bundle.
A. I don't think I have the same pagination so it would be helpful to know what the paragraph number is.
Q. It is top right, but it is paragraph 66 if that helps you, paragraph 66 of your initial report?
THE CORONER: What is the first word in it?
MS HILL: Phosgene.
THE CORONER: Do you have your original --
A. 26.
THE CORONER: I think your own numbers, it will be probably a 12.
A. Correct. Thank you.
MS HILL: Paragraph 66 deals there with phosgene. I think you were asked some questions about phosphide but is

this right you have also said in here that phosgene poisoning is a possible cause of his death?
A. Yes, I did. And Dr Rice and I discussed it at some length at the joint experts' meeting.
Q. Part of the rationale for that, Professor, is that you talk about phosgene having as you say at 67 poor warning properties, there is a possibility of a delayed effect that could be more manifest on exercise and you refer to the clinical picture of respiratory failure with pulmonary oedema. Is that right?
A. Correct.
Q. And the description of the lung histology?
A. Yes.
Q. You have rightly said, Professor, that you defer to those who have expertise in the field of plant and animal poisons for their views if they are obtained. Just to be clear, in your report you have talked at paragraph 72 and onwards about a range of possible plant poisons such as cassava you talk about, and various plants that have compounds in them that are broken down to cyanide in the body, such as linamarin -- that is possibly said wrong by me -- is that right?
A. I am not going to correct you.
Q. You deal with a range of fungal poisons at paragraph 76 and you deal at paragraph 79 and onwards with a range of

animal poisons such as toxins as I think you alluded to from scorpions and from toads is that right?
A. Yes, and.
Q. And over the page --
A. Perhaps it is worth just explaining that the main headings come from the report that I alluded to previously where poisons were said to have been excluded.
Q. You have talked there about different kinds of poisons such as from jellyfish, snails and things of that nature, snakes as well. Is that right?
A. That's right and at paragraph 87 I say that detailed consideration would require the opinion of an expert toxinologist, toxinologist being someone who is an expert in animal toxins.
Q. I understand.
Fourthly, please, can you turn back in your report to paragraph 31.
A. Thank you.
Q. Just a quick survey, please, is this right, that you were asked specifically about what the symptoms of gelsemium poisoning are?
A. I was.
Q. You conducted a fairly extensive review of literature, going back to the 1800s I think, to look at examples of

gelsemium poisoning in history?
A. Yes, it is rare.
Q. You have summarised in paragraph 31 that although you have not seen this in clinical practice, based on your research, you have cited one of examples there, the symptoms are sweating, dizziness, nausea, vomiting, blurred vision, muscular weakness, limb paralysis, dilated pupils, breathing difficulty, coma and convulsion. In severe cases the nervous system is suppressed and death is caused by respiratory depression; is that right?
A. That is exactly what I wrote.
Q. Just if the coroner wishes to see it, please, at page 491 of our bundle, that is your appendix 2, Professor, to your report, so at the very back of your report you provided not only your CV but a second appendix headed "The actions of gelsemium from the literature". Do you have that?
A. I do.
Q. That is at the learned coroner's 491. You summarise for the learned coroner there the examples you have taken from the literature of people who have been reported to have taken gelsemium and what has happened to them?
A. Yes.
Q. Including, as we see at number 2, Arthur Conan-Doyle,

who seemingly took it to sample it himself?
A. Yes.
Q. But, perhaps more seriously, several examples of people who have taken it without realising it because it is used to some degree for a genuine medicinal purpose, is that right?
A. It was. It no longer is. It no longer is in allopathic medicine but it may be used in Chinese traditional medicine.
Q. I am sure the coroner can see the first example, the Tully case, there was nausea, retching, especially on motion, a pale and haggard expression, there were various examples of people going into respiratory failure having taken gelsemium. Perhaps at the foot of your next page, the Nankivell example from 1899:
"There was no trouble as long as I lay quiet but on the least exertion there were excessive tremors ..."
Then there is a description of vomiting and various other symptoms. The learned coroner can see over the page, perhaps read in due course, the various examples that you have given.
Just for the learned coroner's note, the Fung example of 2007, do you see that at the foot of 493 you quote an article from 2007, that is actually within our bundle if the learned coroner wanted to see it, it is at

page 711, and the Lai article on page 494 is also within our bundle at 663. They are further examples, are they not, of people who have taken gelsemium and experienced things like dizziness, vomiting, weakness, collapse and respiratory depression?
A. That is correct. I should perhaps say the two cases in Fung are subsumed into the nine cases of Lai.
Q. Thank you.
Finally, Professor, when you reached your own conclusions in this case, can I ask you please to turn to paragraph 100, you concluded at that point:
"In summary the range of potential poisons, the existence of many rare and little known poisons and the possibility that a newly synthesised poison has been used mean that poisoning cannot be excluded, even if it cannot be proven."
You stand by that?
A. I do.
Q. Your final conclusion overall is at page 479, paragraph 205, that:
"There is a very large number of potential poisons available to a determined assassin with adequate resources. Some of these poisons will be rare or will be specially made."
Do you stand by that?

A. Yes.
Q. Are you aware of any poisons being specially made to avoid detection or is that not something you can help with?
A. I don't think I can help with that; I think that is more a matter for Dr Rice.
Q. Finally you say:
"Some poisons can be hard or impossible to detect in ideal specimens, but those ideal specimens were not available here. There is no specific reason to exclude poisoning as a potential cause of this man's death."
Then you go on to talk about the absence of predisposition to heart rhythm disturbance or channelopathy or any sign of heart disease makes a pure cardiac death less likely, but is that perhaps a matter for others is that right?
A. As a general physician I would say I am probably entitled to make that statement.
Could I just comment on the question you asked before, about poisons synthesised especially to avoid detection. I am not aware of that but I am aware of the synthesis of poisons different from poisons that exist in nature, as I think I said when I alluded to a paper from Moscow.
Q. By definition, is this right, those synthesised poisons

are always going to be hard to detect?
A. Well, they are not going to be in the library that I was asked about before.
MS HILL: Thank you very much.
MS BARTON: I have no questions, thank you, sir.
THE CORONER: Nothing else?
MR SKELTON: Sir, unless you have any questions we will release Professor Ferner.
THE CORONER: No.
Thank you very much indeed. Thank you for your help.
Mr Skelton, nothing else for today? I just want to have a word about next week but am I right, nothing else for today.
MR SKELTON: Not in terms of intention to read things out at this stage, no.
THE CORONER: No.
Housekeeping
THE CORONER: As you know, I have said we are going to break now for other reasons so we will do that until Monday, at whatever time is most convenient to you. At the moment we have got Monday and Tuesday timetabled I think I am right in saying for evidence and then Friday for submissions.
MR SKELTON: We do.

THE CORONER: I want to keep Friday, come what may, but I am only just raising the question now because I am mindful of what everyone might otherwise be doing at the weekend. I just want to raise the question now of whether that will actually be a day for submissions or whether it won't be.
All being well I apprehend by the end of Tuesday we will have completed the evidence that was timetabled. I still want to consider whether there are any avenues that I want to explore, and I have been keeping my own note as we have been going along of topics, possible avenues, some of which I am crossing off as extravagant and unhelpful, some of which as you know, I think particularly with Mr Suter's help, we have been exploring.
MR SKELTON: Yes.
THE CORONER: But there is the question that Ms Hill adverted to the other day, so far as the Buzzfeed article is concerned, I have simply said leave that with me but I think there are the Turkish letter of request, I think I saw that yesterday or this morning, there has been a response to that, hasn't there, I think it was yesterday I saw that.
The French one I think --
MR SKELTON: Has yet to be responded to substantively and

likewise the Russian request, International Letter of Request.
THE CORONER: Yes.
MR SKELTON: There is no indication, sir, as to whether or not that will be with us next week at all.
THE CORONER: No.
MR MOXON BROWNE: Sir, while you are pondering, may I enquire whether there is any likelihood of Kew coming back with the DNA?
THE CORONER: That is another thing. I mean there are things as it were if they are outstanding I shall obviously want everybody's help as to how long they suggest we would wait, but I mean the Kew, that is an obvious example, absolutely, on the face of it that is significant.
MR SKELTON: It is, sir.
THE CORONER: We have asked for it and we want it done.
MR SKELTON: To clarify, Mr Suter has chased that. Professor Simmonds we understand is away this week, of course she is due to give evidence next week. I tried to ask Dr Kite yesterday, but it is not part of his specialism and therefore he was unaware when the results would come through.
As was presaged by Professor Simmonds when the original request was made, they have a heavy workload at

present and could not promise it would be done during the duration of the live evidence.
THE CORONER: Quite.
MS HILL: Sir, might I address you very briefly on the timetabling issues that may flow from the Buzzfeed issue and the way that we have considered it within our group, because I would like to raise that again if I may, sir.
THE CORONER: Yes, sorry, of course you can but what I really want to know is whether it is possible to say now that -- I mean my inkling is to think that it may well be that Friday, that next Friday I want to keep it in any event when we have got everybody together, and everybody is expecting it to be here in case there are some evidential loose ends.
MR SKELTON: Sir, I think it is fair to say there is a high likelihood that there will be evidential loose ends that will not be resolved by the conclusion of next week.
THE CORONER: I should make it plain I don't want to do submissions twice, I don't want to have submissions on what we have so far and then if there are matters that I want to pursue, and there certainly are some at the moment which are not resolved, and there is no certainty they will be resolved by next Friday, I don't want then to have to get everybody back and have more submissions just about a tiny amount of material.

MR SKELTON: I think two rounds of oral submissions, or indeed written submissions, would not be of assistance I would submit. You may feel, however, given the likelihood of unresolved significant matters next week, that keeping the date for Friday for any spillover of any evidence would be helpful.
THE CORONER: I definitely want to do that.
Yes, Ms Hill, sorry.
MS HILL: Sir, I would like to revert to you on the Buzzfeed issue if I may.
THE CORONER: No, of course. I just want to just get the timetable straight in my own mind, of course you can.
MS HILL: Three issues that I wish to raise if I may.
First of all, I didn't respond when the initial submissions were made to what my learned friend Mr Beggs said about my client. I would just wish to put it on record if I may that the Buzzfeed article was not initiated by my client, that my client did not work with Buzzfeed on the article and that my client had no involvement in the timing of the article's release.
Indeed my understanding is that the journalist, who I think is in court, indeed briefed all of the legal teams that the article was going to be published prior to my client giving evidence. Indeed that I think we were the last to be made aware of it.

The suggestion that I think was made by my learned friend that this had been somehow machinated by my client and deliberately timed after his evidence is refuted in the strongest possible terms.
Secondly, sir, it would be our submission that the application I made, I think supported by Mr Moxon Browne, that you set in place steps to secure the report and the underlying evidence is a very significant issue that may have quite a significant bearing on the future direction of this case. That an early decision from you, sir, on what to do about that issue would be prudent because in my submission it would be quite wrong for us to proceed to submissions, to closing submissions effectively, while that evidential line remains live.
Particularly because if that material is disclosed, it could have all sorts of consequences, it could require further evidence to be obtained, it could require further argument about PII, it could require all sorts of procedural wrangling in response to that. It would be quite wrong in my submission to proceed to submissions on Friday while that line remains live, but I certainly press the point that on the face of it this is significant information and all reasonable efforts should be made as soon as possible to obtain it.

MR MOXON BROWNE: Sir, I wonder if I could invite you to say now whether I think perhaps you are reaching towards that although you want to hold Friday, that that would be for any spillover evidence, and you could probably say now that we will not be making submissions on Friday.
THE CORONER: That is really what prompted it. I am actually just trying to help, because as I may have said.
MR MOXON BROWNE: Well it affects my weekend --
THE CORONER: It does. I don't want everyone to have to do it twice, as it were.
My inclination is to think that there is sufficient -- that still to look at and that it is still uncertain ... if there were 99 per cent probability that everything would be in by the end of Tuesday then that would be rather different, but I don't think it is quite that and as I say I do want to go through matters myself.
MR MOXON BROWNE: That is very helpful, sir, thank you.
MS HILL: One issue perhaps I should have mentioned before and I don't know if it may already be on your list, but you asked some questions about the Russian court record issue. I don't know if that is on your list.
THE CORONER: It is on my list and, yes, it is on my list.

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

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

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

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

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