The Sheku Bayoh Public Inquiry

Witness Statement

Laura MacPhie

Taken by [redacted] on MS Teams on Thursday 21 April 2022

Witness Details

1. My full name is Laura MacPhie. My date of birth is in 1968. My contact details are known to the Inquiry.

2. I work within the Biology Function and the Mark Enhancement Laboratory (MEL). I am a Mark Enhancement Recovery Officer there. I work at the [redacted]

3. The Mark Enhancement Recovery Officer role is a self-regulating role in that you are responsible for allocating your own work and directing your own examinations. So what you might find with other departments within forensic science is that a scientist will direct an examiner to do some work, and then the results will be fed back to the scientist, who will then report that out. We do everything from start to finish in our task, but there are informal systems in place for taking the next case that's due to be done. But if anything comes in that's of pressing deadlines or of significance or that's a serious case with loss of life, it may be that your team manager or someone else who's been

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involved in the forensic strategy meeting may then help allocate work or ask people who's available to do what.

4. My role is, effectively, when productions from crime scenes come into the laboratory, I will then assess them, examine them chemically, treat them for the recovery of fingerprints, but also for the sampling of DNA, and also for the recovering of any other trace evidence.

5. I've done that for just over 10 years. I was doing this role in 2015. Prior to that, I was qualified as a fingerprint expert, which I had done for probably 10 years before that. So I have got just over 21 years' service now.

6. I have taken what was known as the "Forensic Laboratory Officer" course and examination down at the College of Policing, as it was, in Durham. That qualifies me to do the job that I do.

7. Also the training for the fingerprint expert is generally put on a par with a degree course because it tends to last maybe three to four years. There are a number of significant exams and job-based training courses and examinations that you undertake both of the practical skills and also of the theoretical knowledge.

8. In my job in the MEL we maintain our training and competence folder because we're UCAS accredited.

9. I have to demonstrate over the course of the year that I have maintained my competence in each of the analysis and treatment types that are involved in the MEL job. Independently of work, I also undertook the Worshipful Society of Apothecaries Diploma in Forensic Medical Science. I submitted a dissertation for that two years ago, interrupted by COVID, sat the exam last year, and I passed.

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Work of MEL

10. In MEL we effectively works with productions that are seized from crimes. So it's crime scenes. So they may be direct submissions that the police may seize and then submit to us, or it may be items that have been seized by scene examiners, which is then submitted into us.

11. We cover productions from every type of crime and every severity of crime. There are some instances as well where we would maybe go out and work at a crime scene, but that isn't relevant because that didn't happen in this case. So, when an item comes in, we will initially assess that in line with the request. That's on an ERF or on a standard forensic instruction (SFI). We'll look at it and assess whether what we think is relevant for carrying out ties in with the request that we've been asked.

12. So the first thing that we would always look at with an item is whether DNA sampling is a priority, because that has to be done as soon as you've opened the bag and you can't open the production bag anywhere else other than within the DNA secure premises that we have within the Mark Enhancement Lab. This is where everything in it is cleaned, you're wearing full protective equipment, hair nets, masks, lab coats, gloves. This minimises the risk of cross contamination between productions and between the examiner themselves and the productions.

13. And having opened the item and looked at it, you then are in a position to start thinking about what fingerprint examinations you're going to carry out and that can be a whole range of non-invasive tests using lights. Sometimes you can find latent marks on an item, if the surface is appropriate, just with a torch. Nothing more elaborate than a torch being shone at an angle at it. We would then photograph that. In a case where it's a serious case or a major inquiry where there's been, for example, a loss of life, we would generally carry out a visual examination, then a white light examination and then we

would use lasers. This is equipment that has the ability to fluoresce either backgrounds or body fluids, such as perspiration, as you would find in sweat on a fingerprint, and sometimes that will throw up the fact that there's friction ridge detail there that you couldn't see with the naked eye.

14. We will then use the lasers or the other light sources and filters on the camera to photograph that as it is and then you would move on to the next least destructive testing process, which tends to be fingerprint powders. You would powder that. Pretty much everybody has at least a passing awareness of what fingerprint powdering looks like. Any marks that are developed will either be photographed, or they will be lifted onto low-tack adhesive tape, which is then put onto an acetate, and then that itself is photographed and creates a black and white photograph.

15. Following the powdering, then, depending on whether there are any contaminants present, whether the item has been wet or kept dry, what the substrate that's the actual surface of the item, we'll then tailor our treatments and examinations according to those circumstances.

16. So there are a number of chemical treatments that we can use, some of which use superglue fuming in an enclosed cabinet so some of these treatments can cause any fingerprints to be permanently stuck to the item with the fumes of the glue. We have a luminous glue that lets you use a laser, a Crime-lite, to shine on that and it'll fluoresce, and you can take a photograph of that. We have another ordinary superglue that doesn't fluoresce. Sometimes you can see that it forms a kind of white crust in the shape of the fingerprint. Sometimes that's sufficiently contrasting with the background for you to be able to photograph it, and if not, then you would add powders to it, which would then adhere to the ridges that have shown up in the glue and you would photograph that.

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17. There are wet chemical treatments that we would use for items that are porous. If the item was paper or semi-porous, then there are chemical treatments that we would use for that, but these weren't used in this case. If there was blood present, there are reagents and chemicals that we would use which adhere to certain components within the blood, which allow you to then say that this is a fingerprint in blood as opposed to any other contaminant. And then at the very end of the process, there is an aqueous solution that we use that's the second last thing that you would ordinarily do, and that's in an either black or white formula that would allow you to maximise the contrast with the background colour, and then you would photograph what results from that.

18. There's a lot of significance in the fingerprint side of our work, purely because we don't carry out the actual DNA analysis and comparison work, we're only really sampling the initial material. That then gets passed on to another department. Our activity within DNA is limited, but we are aware that you only get one shot really at recovering the DNA. So for all the range of work tasks, we do tend to focus on the fingerprint side of it.

Instructions from PIRC

19. The extent of the request from PIRC was available to us for everybody to see on the evidence management system (EMS) that we use. We use it almost entirely within the MEL, whereas other departments will still have paper case files. So rather than a colleague coming to us and asking us for X, Y, Z, we'll be able to see that on the whole system in its entirety, in the form in which it's been received, whether that's been a SFI or whatever.

20. So there were elements within the Sheku Bayoh productions that I worked on. There was an element of discussion with colleagues because there were some shared examinations with colleagues, but my direction, as far as I can

remember, came from the EMS in the same way that it would do with any other case, whether minor or serious.

Fingerprint examination

21. I am vaguely aware of there being a mark on the vest. That's something that my colleagues in Chemistry would work on because that's not a good surface for recovering fingerprints.

22. At first, what I focused on on the vest were the reflective strips and the police badging and anything that had a smooth surface on it. I know that I did recover some level of detail from the reflective area. The front or the back of the vest. I photographed that, but it was made insufficient by my colleagues in fingerprints.

23. There were a number of conversations over different days with Chemistry colleagues in relation to the vest and the knife. Because I knew that I was going to be adding liquid chemicals to areas of the vest that might not be restricted to the shiny parts, what I didn't want to do was have any chemicals run off onto the fabric part and impede Chemistry's ability to look at anything. I know that they had concluded all their examinations before I did that, but I do have a recollection that I carried out a light source examination of the fabric of the vest and did not come up with anything significant on it.

Mark on police vest

24. For the MEL to be assessed as looking at only fingerprints and palm prints, that's not fully the remit of what we're doing. We will recover DNA, we'll recover any other trace evidence, and we will examine and enhance any friction ridge detail. But we're always alert to everything else that may be there, whether it's hairs and fibres, fluids, accelerants, and we will

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automatically defer to the more relevant department if we were to find something like that.

25. If we were to find a footwear impression on anything then we would involve Chemistry because they are the ones who have the database to be able to access anything like that. That's not to say that we couldn't enhance marks that we find that are footwear impressions. We could do that on an item in the lab. There would be a discussion about a strategy and then we will decide whether they're going to treat it or we're going to treat it.

26. Footwear impressions are a kind of a grey area in that Chemistry get called out to do them outside, but then other people, as far as I understand it, scene examiners will photograph them. When we go out to scenes to use blood reagents for fingermarks and palm prints in blood, we will sometimes come across footwear impressions, and we will let Chemistry know that that's the case.

27. For the Sheku Bayoh investigation, I have read my notes taken at the time of the examination: "*Chemical enhancement in conjunction with general chemistry input of any apparent footwear impressions disclosed with HILS*". HILS is High Intensity Light Sources. I did not see anything of any relevance or anything that looked like a footwear mark when I carried out my fluorescence exam.

28. In my notes under my heading "*Fluorescence and Quasar*", I've said that, "*It was examined negative on the 8th of July 2015.*" And then I've said, "*There's a range of quasar wavelengths, Crime-lites, UV and IR. Reflective strip negative and no improvement of marks and/or glare on the fabric area of the yellow vest.*"

29. And then for the next section, which relates to the actual laser part of it, which is just the same thing but a different kind of kit, I have said: "*It was examined*

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negative on the 8th of July 2015. Yellow and green lasers the reflective strip is negative and reduction or no improvement of marks on the fabric area of the yellow vest." The way that the fluorescence works is by changing perceptions of the colour by changing the lighting.

30. We weren't able to see anything further than what the mark looks like in normal light. That's as far as we would be able to go.

31. This information would be available on our EMS for any other practitioners to see, and I am quite certain that I have reported this back to the PIRC. I have been told the terms of an email I sent to Maurice Rhodes at PIRC on 16 October 2019 at 10:55am in which I wrote: *"In conclusion, none of the examinations carried out in the MEL generated any further useful detail than LM3, from the gilet in general, or specifically from any darker partial marks on it."* LM3 is the fingerprint sample.

32. Maybe I've implied it too much, but that is a full examination of the entire item, and I would also have been looking at anything in relation to footwear impressions. When I've confirmed with Chemistry that there's nothing else that they need to look at in relation to footwear before I've commenced the fingerprint exam, it's because we've exhausted everything with it, and it's to show that I wasn't then doing fingerprints at the expense of any potential footwear mark because we had ruled out anything of significance there.

33. I have been asked if I recall seeing the dark mark. I couldn't describe what it is, how dark, light, shape, everything, but I do remember being directed to the general area as being an area of particular interest. That will have been in conversation with Chemistry. I wouldn't be surprised if I look through my list of treatments and things, if there's been some Biology input to it also. But I would have paid attention to that even if no one else had flagged up to me because we're always very alert to other departments' needs. I can't just race

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into doing something because it might destroy something that someone else needs.

34. I have been asked what substance made the mark. I can't recall that. Once I will have ruled that out as a contaminant that I can do anything with, from a reagent point of view, regardless of whether it's for fingerprints or footwear, then it won't be in my mind. I won't be processing that any more actively, other than keeping an eye out for if anything unexpected happens with it. So I can't remember what it looks like, I can't remember whether it was in the upper or lower portion, at what angle.

35. My attention will have been drawn to it in relation to Chemistry having exhausted what they could do and then bringing it to us and asking us if there was anything we could do with it.

36. I believe the facts stated in this witness statement are true. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website.

May 16, 2022 | 8:27 AM BST
Date.....Signature of witness.....[redacted]