

**VIRGINIA:**

**IN THE SUPREME COURT OF VIRGINIA**

**COMMONWEALTH OF VIRGINIA**

**V.**

**ROBIN LOVITT**

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**Record No.** \_\_\_\_\_

**AFFIDAVIT OF DR. GEORGE RILEY**

Dr. GEORGE RILEY, being duly sworn, depose and state as follows:

1. I am over the age of eighteen and have personal knowledge of the facts contained in this affidavit.
2. I hold a Ph.D. in Biology from Georgetown University, in Washington, DC. I have been employed at Fairfax Identity Laboratories for over a year and a half as Assistant Director and Forensic Laboratory Manager. Prior to this I was employed at the Genelex Corporation in Seattle, WA for five and a half years where I was Scientific Director and director of the Forensic Lab. I have worked in Human Identity testing and Forensic DNA Analysis for over seven and a half years. I have tested an estimated 1500 forensic samples myself, have reviewed the testing of an estimated 10,000 samples, and have supervised the testing of over 20,000 samples, using the Hitachi FMBIO and PowerPlex and the ABI 310 and Profiler and COfiler systems. I have testified as a qualified DNA expert over 20 times in various jurisdictions across the United States on cases that ranged from sexual assault to capital homicide. I have testified for both the prosecution and the defense.
3. I have reviewed testimony and exhibits presented at the trial of this case regarding DNA evidence and DNA testing, as well as photocopies of gel images and STaRCall spreadsheets

that were generated by Commonwealth forensics experts during the DNA testing process. From my review of these materials, it is my opinion that additional DNA testing could have, and should have, been performed on two key pieces of evidence -- the scissors the Commonwealth alleged to be the murder weapon and Mr. Lovitt's blue jacket.

#### **The Commonwealth's DNA Testing of the Scissors**

4. Carol Palmer, the Commonwealth's forensics expert, testified that she obtained human DNA from two areas on the scissors- Area A: the lower blade portion near the tip; and Area B: mid-section of the scissors right below the handle. (App. 1167-68).

5. Ms. Palmer tested the DNA samples she collected using the PCR (Polymerase Chain Reaction) method and the PowerPlex 1.1 system. (App. 1160-63). The PowerPlex 1.1 system uses eight different locations of DNA (loci) as markers: CSF1PO, TPOX, TH01, vWA, D16S539, D7S820, D13S317, and D5S818. (App. 1923-A).

6. Using this testing method, Ms. Palmer determined that DNA matching the DNA profile of Clayton Dicks (the deceased) at all eight loci was present at Area A of the scissors. (App. 1175-76). She noted that Mr. Lovitt and his cousin Mr. Grant are eliminated as contributors of this DNA. (Id.)

7. The PCR testing of Stained Area B in the mid-section of the scissors revealed that DNA from more than one person was present in the sample. (App. 1177). At one of the eight markers on the PowerPlex System -- the vWA locus -- there are three alleles present, which indicates that DNA is being contributed by more than one person. (App. 1177-78; 1923-A). In addition to the two alleles that match Mr. Dick's generic profile at this locus, there is an additional "17" allele that does not match Mr. Dick's DNA. (Id.) Ms. Palmer testified that Mr. Dicks could not be eliminated as a contributor to the mixture of DNA in Stained Area B, but that she could not draw any

conclusion one way or the other as to whether Mr. Grant could be eliminated as contributor of the 17 allele in the DNA mixture. (App. 1175-78). In response to the prosecutor's questions she stated that she was unable to draw a conclusion, and therefore not able to eliminate Mr. Lovitt either, as contributor of the 17 allele.

8. Given that Ms. Palmer cited the very rare expected frequency of the DNA from the blood on Stained Area A as 1 in greater than 5.5 billion, she should have given an indication of the probability of finding a 17 allele at vWA, which is exceedingly common (48%-Caucasian, 29%-Black, 43% Hispanic).

**Additional DNA Testing of Area B Could Conclusively Rule Lovitt Out  
As The Second DNA Contributor**

9. More informative and in some cases more sensitive testing is employed in other laboratories, including private laboratories. For example, the PowerPlex 2.1, Profiler, and COfiler systems all have additional markers not included in the PowerPlex 1.1. Retesting of the Stained Area B of the scissors by our laboratory would have very likely given results that would have been more conclusive and sufficient to draw a conclusion that the Commonwealth's expert could not draw regarding the DNA profile of the second contributor of DNA on the scissors. Some of the additional loci included in these other tests, particularly those with lower molecular weights, would very likely have given additional information regarding the DNA profile of the second contributor at Stained Area B of the scissors.

10. Additional DNA tests could have been performed on the mixture at Stained Area B that would rule Mr. Lovitt out as the contributor of the additional DNA in the mixture. In particular, more sensitive testing of the sample from Stained Area B could show whether the second allele from the DNA contributor whose 17 allele is present is masked in the sample or is a result of allelic dropout. "Masking" occurs when the allele is present in the sample and showing, but is the same as another allele in the mix. In this case if the contributor of the 17 allele at the vWA loci had an 11, 14, or 17 as a second allele at that locus, masking would occur. If masking was occurring, and the second contributor was either a 11,17, a 14,17, or a 17,17, Mr. Lovitt would be ruled out as a contributor. More sensitive testing, therefore, could have, and should have, been performed on this sample. Amplification of a larger amount of the Stained Area B DNA would give more information and could give a profile that would exclude Mr. Lovitt.

11. PCR testing today is more advanced than it was three years ago when the Virginia laboratory performed DNA tests on the evidence in this case. In addition to implementation of systems with additional loci, such as PowerPlex 2.1, Profiler and COfiler, substantial progress has been made in laboratories' abilities to do more sensitive testing. Therefore, additional PCR testing on Stained Area B of the scissors would likely provide a more detailed DNA profile of the second DNA contributor and could conclusively rule Mr. Lovitt out as being the second contributor.

#### **DNA Testing of Untested Areas Of The Scissors**

12. Additional DNA testing could also have been done on portions of the scissors that were not swabbed and sampled by Ms. Palmer. Ms. Palmer testified that she "did not swab the entire length of the scissors," and that there were areas of the scissors that were not tested for genetic material. (App. 1187-88). Ms. Palmer also failed to perform DNA testing on the handle of the

scissors. Testing of the handle of the scissors could have recovered DNA from the skin of the person who wielded the weapon. This testing of items for DNA from skin contact is currently fairly common. This additional testing, too, could have ruled Lovitt out as a DNA contributor on the scissors.

#### **DNA Testing of Lovitt's Jacket**

13. Ms. Palmer also performed DNA testing on a jacket that came from Mr. Lovitt. (App. 1169-70). She testified that she found a stain about the size of a nickel that she determined to be blood on one area of the front of the jacket. (App. 1170, 1182). In order to extract DNA from the stain thought to be blood, Ms. Palmer cut out a portion of the material from the jacket. She tested a portion of the stain for DNA, and left a part of the stain untested. (Id.) Ms. Palmer's test of the blood on the jacket was inconclusive, either because of the small amount of DNA or PCR inhibition. (App. 1181, 1123-A). She testified that the stain on the jacket was blood, but that she could not tell whether the blood was human or animal blood. (App. 1182, 1185-86).

14. The stain on Lovitt's jacket could easily have been re-tested for the presence or absence of human blood by any of several immunochemical methods specific for human blood. This additional testing could have shown that the stain was not human blood. No documentation indicated that the test that Ms. Palmer did was confirmatory for blood. If the test for blood was presumptive, then there is the possibility that the stain on the jacket was not blood.

15. Ms. Palmer's STaRCall bench notes indicate that she did analyze the DNA from the stain on Lovitt's jacket and that she obtained a profile consistent with Mr. Lovitt and inconsistent with Mr. Dicks. Five loci were analyzed; all were consistent with Mr. Lovitt's DNA, and none were consistent with Mr. Dicks' DNA. Ms. Palmer then ruled those results inconclusive, possibly due to

the results being weak. This strongly indicates that retesting would conclusively show that the stain on Mr. Lovitt's jacket was his own blood.

16. Increasing numbers of laboratories are reporting exculpatory evidence that does not meet the standards used for reporting inculpatory evidence. Given that the profile that was obtained was consistent with Mr. Lovitt's DNA and not consistent with Mr. Dicks' DNA, even if it were subsequently ruled inconclusive, it would be improper to suggest that the blood on the jacket could be from Mr. Dicks. I find it troubling that what should have been exculpatory evidence was used to bolster the case against Mr. Lovitt.

17. Retesting this stain could have easily been accomplished by any of several methods that alleviate PCR inhibition, by concentrating the DNA extract, by the simple expedient of loading more PCR product on the gel, by re-extracting the stain, or by adjusting the analysis parameters, such as color separation or grayscale.

#### **Re-Testing of Genetic Material Is Common In Criminal Cases**

18. DNA testing has become increasingly more powerful in the last decade in Virginia and elsewhere across the country. Numerous criminal defendants have been exonerated on the basis of DNA evidence. It is very common for defendants or counsel for defendants to have biological evidence that was used by the Commonwealth of Virginia at trial be re-tested by an independent laboratory. Fairfax Identity Laboratory where I work routinely re-tests evidence in criminal cases.

#### **Review of Additional Material**

19. The entire case file upon which this analysis depended, including, but not limited to all chain of custody, body fluid testing, extraction, quantitation, amplification notes, original quality copies of quantitation data, and Standard Operating Procedures in effect at the time of analysis plus

modifications made since (materials not provided) would be necessary to do a complete review of this work. Furthermore, given the weakness of the critical results, it would be necessary to examine the original gel images and the computer files from which they were generated to make the most accurate assessment of those results. Photocopies of images rarely do justice to weak results.

20. I declare under penalty of perjury that the forgoing is true and correct.

George Riley      11/29/01  
Dr. George Riley      Date

Subscribed and Sworn  
to before me this 29th  
day of Nov., 2001

J. M. Abbott  
My Commission Expires:

4/30/02