

EXPERT REPORT COVER PAGE

Expert Personal Details	
Title:	Ms
Family Name:	Gerhard
Given Names:	Jae
Expert Work Details	
Occupation:	Principal Scientist
Company:	Independent Forensic Services
Work Address:	PO Box 2466
Suburb/Town:	North Parramatta
State:	NSW
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EXPERT REPORT

Section 177, Evidence Act 1995 No. 25

Name:	Jae Gerhard	Telephone:	██████████
Address:	Independent Forensic Services PO Box 149 Penrith NSW 2751		
Occupation:	Principal Scientist Independent Forensic Services		

STATES:

1. This statement made by me accurately sets out the evidence that I would be prepared, if necessary, to give in court as a witness. This statement is true to the best of my knowledge and belief and I make it knowing that, if it is tendered in evidence, I will be liable to prosecution if I have wilfully stated in it anything that I know to be false, or do not believe to be true.
2. I acknowledge for the purpose of Rule 31.23 that I:
 - (i) have read the Expert Witness Code of Conduct in Schedule 7 of the NSW Uniform Civil Procedure Rule (Amendment 82) 2016, under the Civil Procedure Act 2005 and,
 - (ii) agree to be bound by the Code

1. Qualifications and Experience:

1.1.I hold a Bachelor of Science (in Biomedical Science)(Honours) from the University of Technology, Sydney.

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1.2. I also hold a Certificate IV in Scene of Crime Examination from Canberra Institute of Technology and a Certificate IV in Workplace Training and Assessment.

1.3. I am currently an Industry Fellow at the Centre of Forensic Science at the University of Technology, Sydney.

1.4. I have been employed in the forensic science field since 2002. During this time, I have undergone training and gained extensive knowledge and experience in forensic case assessment, item examination using various techniques for detecting and sampling biological material for DNA analysis, bloodstain pattern analysis, and the analysis and interpretation of DNA for criminal case work and human identification.

1.5. During the course of my employment, I have also undertaken numerous training courses and seminars (including but not limited to):

- ANZFSS 25th International Symposium on Forensic Science 'Forensics: Designing the future' Brisbane, (2022)
- Applying a Casework Assessment and Interpretation Approach to Probabilistic Genotyping Results Evaluative reporting for contact traces/activity level reporting workshop, International Symposium on Human Identification (2022)
- 31st International Symposium on Human Identification (ISHI) (2020)
- International Association of Bloodstain Pattern Analysts Annual Conference, (2020)
- International Symposium on Human Identification (2020)
- Validation Principles, Practices, Parameters, Performance Evaluations, and Protocols Workshop, International Symposium on Human Identification (2020)
- Case for DNA Evidence Based on Probabilistic Genotyping Workshop, International Symposium on Human Identification (2020)
- STRmix™ User Training (2016)
- ANZFSS 23rd International Symposium on the Forensic Sciences "Together Informing Justice" in Auckland, New Zealand (2016)
- Exploring Ways to Report DNA Findings given Activity Level Propositions Workshop (2014)
- ANZFSS 22nd International Symposium on the Forensic Sciences "Detect, Decipher and Deliver: the Future of Forensic Evidence" in Adelaide, Australia (2014)
- Advanced DNA Interpretation (2013)
- International Society of Forensic Genetics World Congress, Melbourne Australia (2013)
- ANZFSS 21st International Symposium on the Forensic Sciences "From Convicts to

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- Criminalistics” in Hobart, Australia (2012)
- Clandestine Laboratory Safety and Investigation (2011)
- Laboratory Based Bloodstain Pattern Analysis (2011)
- Impressions and Expressions, Expert Evidence in Report and Courts facilitated by the Australian Academy of Forensic Sciences (2011)
- Interpretation of Complex DNA Profiles (2010)
- ANZFSS 20th International Symposium on the Forensic Sciences “Forensic Science on Trial” in Sydney, Australia
- Bloodstain Pattern Analysis (2010)
- ANZFSS 19th International Symposium on the Forensic Sciences “Domestic Crime to International Terror” Melbourne, Australia (2008)
- Digital Crime Scene Photography (2006)
- Scene of Crime Examination (2005)
- Fingerprint Fundamentals (2005)
- Ridgeology (2005)
- Crime Scene Photography (35mm Film) (2005)
- Rapid Response and Disaster Victim Identification (2004)
- ANZFSS 17th International Symposium on the Forensic Science “Challenges and Changes” Wellington, New Zealand (2004)
- Bloodstain Pattern Analysis (2003)
- Introduction to Hair and Fibre Analysis (2003)
- Introduction to Crime Scene Analysis (2003)
- Court Presentation of Evidence (2003)
- Statistics for Forensic Biology (2003)

1.6. I am also a member of the following professional bodies:

- Australian and New Zealand Forensic Science Society (ANZFSS), professional member
- International Association of Bloodstain Pattern Analysts (IABPA)
- International Society of Forensic Genetics (ISFG)

1.7. I undertake annual proficiency testing in the areas of forensic DNA interpretation, including Y-STRs and bloodstain pattern analysis (BPA).

1.8. I have been accepted as an expert and given evidence in the following courts:

- NSW Local Court
- NSW District Court
- NSW Supreme Court
- County Court of Victoria
- Supreme Court of Victoria
- District Court of South Australia
- Federal Court of Western Australia
- Coroners Court of Northern Territory

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- Supreme Court of Northern Territory
- Supreme Court of Queensland
- Tauranga District Court (New Zealand)

2. Appendix A contains a list of references.

3. **Source Material**

3.1. In the preparation of this report, I have been supplied and reviewed the following:

- Expert Brief to Independent Forensic Services (which included five crime scene photographs)
- Letter of Instruction – Paul Rath – 09 May 2023

4. I have been requested to review the bloodstain pattern evidence on the clothing of Mr Rath, based on three black and white photos which depict Mr Rath in the position he was said to have been found, to determine whether there is any bloodstain pattern evidence to assist in determining whether Mr Rath was physically assaulted prior or subsequent to his death.

5. The opinions in this report are wholly or substantially based on my specialised knowledge and experience.

6. **Limitations and Assumptions**

6.1. This report is independent and impartial and expresses my opinions based on the information provided. Should additional information be supplied I reserve the right to revise my findings.

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6.2. The two close up photographs supplied depict the position Mr Rath was located in and only a small portion of his body and clothing is visible. No photographs have been supplied which allow all of his clothing to be viewed. Furthermore, as the photographs are black and white making an interpretation of the clothing very challenging as a number of assumptions regarding any visible staining present need to be made.

7. Background information

7.1. Information has been provided that Mr Rath was found deceased at the base of a cliff at the Fairy Bower headland, Manly on 16 June 1997.

7.2. He is described as wearing a brown suit, with his trousers pulled down, exposing his underwear and mid-thigh.

7.3. The body of Mr Rath was located at the bottom of a cliff approximately 45 metre high.

7.4. An autopsy of Mr Rath has indicated that he had numerous external injuries, such as a contusion with oedema over the right eye and cheek, "old" blood from both nostrils and a small amount of blood in the right ear. He also suffered from a number of fractures in the legs, sternum, ribs and spine.

8. Technical information

8.1. This information is intended to provide the reader with background scientific information on technical issues addressed as part of this independent review.

8.2. Bloodstain Pattern Analysis (BPA)

8.2.1. Bloodstain pattern analysis involves the examination of the size, shape and distribution of blood stains to determine the events or mechanisms responsible for their deposition. It utilises the underpinning sciences of physics, mathematics and biology.

8.2.2. Due to the complexity of bloodstain pattern analysis, often it is not possible to determine the sequence of events or actions that resulted in the deposition of the

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blood staining, solely from visualising the bloodstains. Therefore, bloodstain pattern analysis often involves consideration of propositions presented by the relevant parties in the case. The blood pattern analyst can then use their expertise, and other information available in the case, to determine which of the supplied versions of events is the most likely explanation for any bloodstain patterns present.

8.2.3. Sometimes, within a crime scene, it is not possible to test every bloodstain, however, it is recommended that the presence of blood be verified with approved tests where ever possible. This may mean testing only one or two stains if they form part of a continuous pattern. If photographs are all that remain for evaluation, then it is recognised that an ABC approach to bloodstain pattern verification can be taken. This refers to using the appearance, behaviour and context of the stains to improve confidence that the stains are blood [1]. However, when examining crime scenes or physical items, it is also recommended that chemical tests for blood are conducted.

8.2.4. The definitions used in this report are from internationally recognised Organization of Scientific Area Committees for Forensic Science (OSAC BPA) terminology, published in the ASB technical report 033, first edition 2017, unless otherwise described.

9. Examination and interpretation black and white photographs depicting Mr Rath in the location he was found

9.1. In my opinion, the limited photographs supplied do not enable me to provide an opinion on whether the dark staining observed in the black and white photographs has been deposited by some type of assault or by the fall and tumble from the cliff top. I base this opinion on two reasons:

- (i) It is not reasonable to consider all of the dark staining observed is blood. There is the very real possibility that given the case circumstances that some of this dark staining observed in the photographs of the clothing could be mud or dirt.
- (ii) Even if the dark staining observed is assumed to be blood, in my opinion the discrete staining observed on the back of the jacket, the sleeves of the jacket and

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the cuffs of the shirt, could have been deposited as a result of a tumble down the cliff whilst bleeding or by some form of assault. The information supplied is too limited to form an opinion on which is more likely. If additional photographs of the clothing were supplied, it may assist in the evaluation.

10. Conclusion

- 10.1. In my opinion, the photographs supplied are insufficient to provide an opinion on the deposition staining on the clothing of Mr Rath.

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Expert Report of Jae Gerhard
Case No: IFS2023023
Inquest into the death of Mr Paul Rath

Appendix A

1. Wonder, A.Y., *Blood Dynamics*. 2001: Academic Press.
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A handwritten signature in black ink, appearing to read "Jae Gerhard", written over a horizontal line.

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