

PEER REVIEW REPORT: MONTANA V. JIMMY RAY BROMGARD

WE, the undersigned, have reviewed the direct examination transcript of the testimony of Arnold Melnikoff, hair examiner and Laboratory Manager of the Montana Laboratory of Criminalistics, in the case of State v. Jimmy Bromgard. We have focused our attention on the questions and answers below, in which Mr. Melnikoff discussed the probabilities of erroneous associations in the microscopical comparison of human hair.

On page 236 of the transcript are the following questions and answers:

Q. How common is it for two individuals to have head hair which is microscopically indistinguishable?

A. Well the best way that I know to answer that question is to relate to my own case work experience, and I have done over 700 cases involving head hair and have only had five or six cases where I could not distinguish the head hair between two individuals.

Q. What is your experience in the same regard with pubic hair?

A. Well I have probably examined less cases because not all the cases involving hair involve pubic hair, but I would guess it's probably close to 500 cases, most of the time it does, and I have had the experience where only three times pubic hair standards from two individuals submitted in the case could not be distinguished.

On pages 237 and 238 of the transcript are the following question and answer:

Q. So each one would be one in a hundred, what would the two together be. In other words if the pubic hair and head hair are both matching up, what are the odds of that being a mistake?

A. Well there are actually two mutually exclusive events because they come from different areas of the body, and their characteristics are not necessarily the same. So if you find both head and pubic hair there you have one chance in a hundred for the head hair matching a particular individual and one chance in a hundred for the pubic hair. If you find both it's a multiplying effect, it would be one chance in 10,000, it's the same as two dice, if you throw one dice with a one, one chance out of six; if you throw another dice with a one, it's one chance out of six, you multiply the odds together. You do the same in this case, so it's one times one hundred, times one, times one hundred, and you get one in 10,000.

The following exchange is found on page 238 of the transcript:

Q. Consequently, so that I understand it correctly and the jury understands it correctly, is it your opinion that there is less than one in ten thousand chance that this was not actually Jimmy Bromgard's hair?

A. Yes.

We have reached the following conclusions:

1. The witness's testimony on pages 237-238 contains egregious misstatements not only of the science of forensic hair examinations but also of genetics and statistics. These statements reveal a fundamental lack of understanding of what can be said about human hair comparisons and about the difference between casework and empirical research. His testimony is completely contrary to generally accepted scientific principles.
2. The witness's use of probabilities is contrary to the fact that there is not – and never was – a well established probability theory for hair comparison.
3. The witness's testimony is contrary to the consensus practice – as it existed in 1987 – for forensic hair comparisons and testimony regarding such comparisons.

4. In the Bromgard case, Mr. Melnikoff matched both head and pubic hairs of the accused to questioned hairs from the crime scene. Based on the postconviction DNA testing carried out in this case, we now know that none of the questioned hairs could have come from Mr. Bromgard. While an experienced hair examiner might erroneously associate a single head or pubic hair, it is highly unlikely that a competent hair examiner would incorrectly associate both head and pubic hairs.
5. If this witness has evaluated hair in over 700 cases as he claims in his testimony, then it is reasonable to assume that he has made many other misattributions.

Good laboratory practice and all quality assurance/quality control programs require an investigation in a case such as this. However, the fact that the examiner was also the Laboratory Manager for the Montana Laboratory of Criminalistics would suggest that an internal investigation by that laboratory would be inappropriate. We understand that the laboratory is ultimately under the control of the Montana Attorney General.

ACCORDINGLY, we urge the Montana Attorney General to create an audit committee comprised of experts from outside the state laboratory. The committee should be authorized to examine the following:

1. Transcripts of the testimony of Arnold Melnikoff in every case in which he testified.
2. The evidential hairs in this case. These should be re-examined to determine if the witness's conclusions that the head hairs and pubic hairs exhibited the same microscopic characteristics as the known head and pubic hairs of Mr. Bromgard are correct.
3. Evidential hairs in all other hair cases in which Mr. Melnikoff conducted the examinations. This re-

examination should be undertaken if one, or both, of the questioned hairs in the Bromgard case is found to be microscopically dissimilar to known hairs from Mr. Bromgard.

4. The testimony of anyone who was trained by Mr. Melnikoff. The capabilities of anyone trained by Mr. Melnikoff as a hair examiner must be regarded at this point as highly suspect.

At the conclusion of the audit, the committee should submit a written report detailing its findings. We are confident that you share the importance of this investigation and audit since the human consequences of a forensic scientist's misstatements can be extraordinary.

Respectfully submitted, *

Richard E. Bisbing
McCrone Associates, Inc.

Harold Deadman
George Washington University

Max M. Houck
West Virginia University

Skip Palenik
Microtrace

Walter F. Rowe
George Washington University

* The individual signature pages, faxed to us, follow this page.