

**UNITED STATES COURT OF APPEALS
FOR THE ARMED FORCES**

UNITED STATES

Appellee

v.

Antiwan M. HENNING, Major

United States Army, Appellant

No. 16-0026

Crim. App. No. 20150410

Argued January 12, 2016—Decided March 21, 2016

Military Judges: Jeffrey P. Nance and Charles L. Pritchard Jr.

For Appellant: *Captain Jennifer K. Beerman* (argued);
Lieutenant Colonel Jonathan F. Potter, *Major Christopher
D. Coleman*, and *Captain Heather L. Tregle*.

For Appellee: *Captain Jihan Walker* (argued); *Major
Daniel D. Derner*.

Chief Judge ERDMANN delivered the opinion of the
court, in which Judges STUCKY, RYAN, and OHLSON,
and Senior Judge SENTELLE, joined.

Chief Judge ERDMANN delivered the opinion of the
court.¹

Major Antiwan M. Henning is currently charged with
several violations of Article 120, Uniform Code of Military
Justice (UCMJ). 10 U.S.C. § 920 (2012). After an Article
39(a), UCMJ, hearing conducted pursuant to Military Rule
of Evidence (M.R.E.) 702, *United States v. Houser*,² and
Daubert v. Merrell Dow Pharm., Inc.,³ the military judge
determined that the government's proffered

¹ Senior Judge David B. Sentelle, of the United States Court
of Appeals for the District of Columbia Circuit, sat by
designation, pursuant to Article 142(f), Uniform Code of
Military Justice (UCMJ), 10 U.S.C. § 942(f) (2012).

² 36 M.J. 392 (C.M.A. 1993), *cert. denied*, 510 U.S. 864
(1993).

³ 509 U.S. 579 (1993).

deoxyribonucleic acid (DNA) testimony and evidence was unreliable and granted the defense's motion to exclude it. The government appealed the ruling pursuant to Article 62, UCMJ. The United States Army Court of Criminal Appeals (CCA) reversed the military judge, finding that he had exceeded his discretion as gatekeeper and that he had made several erroneous findings of fact and conclusions of law. *United States v. Henning*, No. ARMY MISC 20150410, slip op. at 7–11 (A. Ct. Crim. App. Sept. 3, 2015). This court stayed the trial proceedings and granted review to determine whether the military judge had abused his discretion.⁴ We have determined that the military judge's findings of fact are not clearly erroneous, that his conclusions of law are not incorrect, and that he properly applied the *Daubert* framework. Accordingly, we hold that he did not abuse his discretion in excluding the DNA testimony and evidence. We therefore reverse the decision of the CCA and affirm the ruling of the military judge.

BACKGROUND

Henning is accused of waking the alleged victim by touching her breast, then wrongfully penetrating her vagina with his tongue before moving her to the floor and allegedly raping her. During the investigation of this case, the Kansas City Police Crime Laboratory (KCPCL) obtained a DNA sample from the underwear the alleged victim was wearing the night of the charged offenses and compared it to a DNA sample provided by Henning. The KCPCL determined that Henning was a "possible contributor" to a minor profile of DNA found in the underwear and determined that "[t]he expected frequency of potential contributors to the alleles present in [the DNA sample taken from the underwear] is one in 220 unrelated individuals." The defense moved to exclude the evidence on the grounds that the formula used

⁴ We granted review of the following issue:

Whether the Army court applied the wrong standard of review to this Article 62, UCMJ, appeal when it found the military judge made erroneous findings of fact and conclusions of law.

United States v. Henning, 75 M.J. 118 (C.A.A.F. 2015) (order granting petition for review).

by the KCPCL to interpret the DNA results was unreliable under the criteria of M.R.E. 702 and *Daubert*, 509 U.S. at 589.⁵ The defense also argued that even if the evidence was admissible under M.R.E. 702, it could not survive the M.R.E. 403 balancing test.

At the *Daubert* hearing, the defense called the government's DNA expert witness, Ms. Jessica Hanna,⁶ the Forensic Specialist at the KCPCL who processed the sample at issue in this case. Ms. Hanna testified that the KCPCL used the Scientific Working Group on DNA Analysis Methods (SWGDM)⁷ as a guideline, but that the calculation they used in this case was a "modified version of things that are listed in the guidelines," which the KCPCL termed "an alleles present statistic." The modified formula was based on the assumption that the number of contributors was unknown and that there was allelic dropout.⁸ Ms. Hanna further testified that the formula was consistent with prevailing scientific standards, was accepted in the scientific community, and was reviewable. Ms. Hanna also testified that the KCPCL laboratory was externally audited every two years and that the formula used in this case was reviewed as part of those audits.

⁵ The defense does not challenge the DNA extraction or the data that was generated.

⁶ Ms. Hanna has a bachelor's degree in genetics and a master's degree in forensic science and had been employed by the KCPCL for ten years at the time of trial. She is certified by the American Board of Criminalistics as a molecular biology fellow and is a member of the American Academy of Forensic Science and the Midwestern Association of Forensic Scientists. She also has testified in state and federal courts.

⁷ The parties agree that the SWGDM guidelines are the definitive authority on reliable procedures and methods for forensic DNA testing analysis.

⁸ "Allelic dropout" is defined as "the failure to detect an allele within a sample or [a] failure to amplify an allele during [polymerase chain reactions]. Scientific Working Group on DNA Analysis Methods, SWGDM Interpretation Guidelines for Autosomal STR Typing by Forensic DNA Testing Laboratories 26 (2010) [hereinafter SWGDM guidelines]."

The defense next called its expert, Dr. Dan E. Krane,⁹ who testified as to the “alleles present statistic” formula utilized by the KCPCL. Dr. Krane testified that, while the general formulas contained in the KCPCL’s DNA Analytical Procedure Manual were consistent with the SWGDAM guidelines, those formulas were “not being applied appropriately” in this case. Dr. Krane explained that the SWGDAM guidelines provide for two different statistical approaches: “one set of approaches for a mixed sample with an unknown number of contributors where allelic dropout has not occurred, and another set for a sample with a known number of contributors where allelic dropout may have occurred.” Dr. Krane testified that, because the sample tested by the KCPCL was a mixed sample with an unknown number of contributors where allelic dropout may have occurred, it did not fall within either of the SWGDAM approaches. Dr. Krane further testified that “[t]here is nothing within the SWGDAM guidelines that provides suggestions or guidance regarding reliable or useful approaches for a sample with an unknown number of contributors where dropout may have occurred.”

Dr. Krane raised additional concerns regarding the KCPCL’s analysis, including the “exceedingly small quantity of starting material” that the KCPCL analyzed. According to Dr. Krane, the slight amount of DNA analyzed was about one-fiftieth the amount recommended for a reliable result. Dr. Krane also noted that the KCPCL’s ultimate calculation of 1 in 223 was “very weak by — DNA profiling standards.” Because of his concerns regarding the KCPCL’s procedures, Dr. Krane concluded that “we are in no better position to say if Major Henning’s DNA is present with this sample after

⁹ Dr. Krane is a professor of biological sciences and computer science at Wright State University in Dayton, Ohio, and is a fellow of the American Council on Education. He first testified as a DNA profiling expert in January 1991, and has testified as an expert witness in over twenty states, several courts-martial, five federal courts and courts in a number of foreign countries. He also served on Virginia’s Scientific Advisory Committee which oversees the policies and practices of the Virginia Department of Forensic Science.

we've seen the test results than we were before the tests were performed.”

The government then called Mr. Scott Hummel, the Chief Criminologist of the DNA biology section at the KCPCL. Mr. Hummel described his role as administrative, including managing staff and personnel issues. Mr. Hummel testified that, while he was ultimately responsible for the quality assurance and technical aspects of the section, another person was assigned to act as the section's technical leader. Mr. Hummel largely reiterated Ms. Hanna's testimony, stating that the formula used in this case was not in conflict with the SWGDAM guidelines and that the KCPCL's policies and procedures, including the modified formula, were externally audited. Mr. Hummel also disagreed with Dr. Krane's assertion that an insufficient amount of “total” DNA was used in the testing but concluded that “the hope is of course we'll have enough ... in that minor contributor to make useful interpretations.”

After the conclusion of the *Daubert* hearing, the military judge issued written findings of fact and conclusions of law. The military judge found that: (1) “SWGDAM is the definitive authority on reliable procedures and methods for forensic DNA testing and analysis”; (2) the guidelines delineate three different statistical calculations for analyzing DNA, including the Random Match Probability (RMP), Likelihood Ratio (LR), and Combined Probability of Exclusion or Inclusion (CPE/I); (3) under the guidelines, the RMP calculation is only appropriate for a known number of contributors and can account for allele dropout, while the CPE/I calculation is utilized where no assumption is made regarding the number of contributors and there is no allelic dropout; (4) the SWGDAM guidelines state that the RMP and CPE/I analyses cannot be combined into a single calculation because they rely on fundamentally different assumptions regarding the contributors; (5) the formula used by the KCPCL was a combination of RMP and CPE/I calculations, despite being impermissible under the SWGDAM guidelines; and (6) the sample size used in this case was the equivalent to three or four human cells, which was an “exceedingly small quantity” according to Dr. Krane.

The military judge then recognized and discussed his “gatekeeping” responsibilities and noted that, “[t]he focus of the inquiry into reliability is on the principles and methodology employed by the expert, without regard to the conclusions reached thereby,” citing *Daubert*, 509 U.S. at 595. He also considered and analyzed the requirements of M.R.E. 702, *Daubert*, and *Houser*. In doing so, the military judge concluded that: (1) the first four *Houser* factors¹⁰ were met by the government and that the only issue before the court was the reliability of the formula used by the KCPCL in interpreting the DNA results; (2) the KCPCL’s general testing procedures were subject to peer review, were governed by known standards and were widely accepted in the scientific community; (3) the government, however, had failed to demonstrate by a preponderance of the evidence that the “modified” formula utilized by the KCPCL in this case was widely accepted in the field of forensic DNA testing, despite Mr. Hummel’s testimony; (4) the SWGDAM guidelines preclude the combination of the two statistical calculations “in a given sample because they rely on fundamentally different underlying assumptions”; (5) while the KCPCL indicated that the formula has been in use for at least fifteen years, it appears nowhere in the SWGDAM guidelines; (6) a preponderance of the evidence did not indicate that the KCPCL’s modified formula used in this case was reliable.¹¹ The military judge also concluded that, even if the KCPCL’s modified formula was reliable, it would nevertheless fail the required M.R.E. 403 balancing test.¹²

¹⁰ The six factors established in *Houser* are: (1) the qualifications of the expert; (2) the subject matter of the expert testimony; (3) the basis for the expert testimony; (4) the legal relevance of the evidence; (5) the reliability of evidence; and (6) whether the probative value of the testimony outweighs other considerations. 36 M.J. at 397.

¹¹ The military judge correctly questioned the reliability of the methodology, which goes to admissibility, and not the reliability of the application of the methodology, which goes to the weight of the evidence. See *United States v. Beasley*, 102 F.3d 1440, 1448 (8th Cir. 1996).

¹² As we hold that the military judge did not abuse his discretion in excluding the evidence under M.R.E. 702, there is no need to address the M.R.E. 403 balancing test.

Based on these findings and conclusions, the military judge granted the defense's motion to exclude the evidence. The government timely notified the military judge of its intent to appeal pursuant to Article 62, UCMJ. Before the CCA, the government asserted that the military judge had abused his discretion in excluding the DNA evidence and expert testimony. Specifically, the government argued that the DNA evidence at issue was reliable under the *Daubert* standard, the military judge had made clearly erroneous findings of fact, that he had usurped the role of the factfinder, and that his analysis under M.R.E. 403 was erroneous. The CCA largely agreed with the government and set aside military judge's ruling. *Henning*, No. ARMY MISC 20150410, slip op. at 11. Henning subsequently appealed to this court.

STANDARDS OF REVIEW

"In an Article 62, UCMJ, appeal, this Court reviews the military judge's decision directly and reviews the evidence in the light most favorable to the party which prevailed" at trial.¹³ *United States v. Buford*, 74 M.J. 98, 100 (C.A.A.F. 2015).

"We review a military judge's ruling on a motion to suppress for abuse of discretion." *United States v. Rodriguez*, 60 M.J. 239, 246 (C.A.A.F. 2004) (citing *United States v. Monroe*, 52 M.J. 326, 330 (C.A.A.F. 2000)). "In reviewing a military judge's ruling on a motion to suppress, we review factfinding under the clearly-erroneous standard and conclusions of law under the de novo standard." *United States v. Ayala*, 43 M.J. 296, 298 (C.A.A.F. 1995). "Thus on a mixed question of law and fact ... a military judge abuses his discretion if his findings of fact are clearly erroneous or his conclusions of law are incorrect." *Id.* The abuse of discretion standard calls "for more than a mere difference of opinion. The challenged action must be 'arbitrary, fanciful,

¹³ While both parties agree that we review the military judge's decision directly, both parties argued the relative merits of the CCA's decision in their briefs. As the CCA's decision and analysis is not relevant to our review, we proceed directly to considering whether the military judge abused his discretion.

clearly unreasonable, or clearly erroneous.” *United States v. White*, 69 M.J. 236, 239 (C.A.A.F. 2010) (quoting *United States v. Lloyd*, 69 M.J. 95, 99 (C.A.A.F. 2010)).

United States v. Baker, 70 M.J. 283, 287 (C.A.A.F. 2011).

The court reviews de novo whether the *Daubert* framework was correctly followed. *United States v. Flesher*, 73 M.J. 303, 311 (C.A.A.F. 2014). As long as the *Daubert* framework is properly followed, this court “will not overturn the ruling unless it is manifestly erroneous.” *United States v. Griffin*, 50 M.J. 278, 284 (C.A.A.F. 1999) (internal quotation marks omitted). “Under *Daubert* [t]he proponent of evidence has the burden of showing that it is admissible.” *United States v. Billings*, 61 M.J. 163, 168 (C.A.A.F. 2005) (internal quotation marks omitted). “[T]he trial judge enjoys a great deal of flexibility in his or her gatekeeping role: the law grants a district court the same broad latitude when it decides *how* to determine reliability as it enjoys in respect to its ultimate reliability determination.” *Id.* at 167 (internal quotation marks omitted). As such:

nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.¹⁴

General Electric Co. v. Joiner, 522 U.S. 136, 146 (1997) (emphasis added); *see also Billings*, 61 M.J. at 168.

DISCUSSION

M.R.E. 702 governs the admissibility of expert testimony and provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise if (1)

¹⁴ “Ipse dixit” means: “[s]omething asserted but not proved.” *Black’s Law Dictionary* 956 (10th ed. 2014).

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the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the fact of the case.

Both the *Houser* and *Daubert* decisions provide expanded factors to consider in admitting expert testimony and evidence. “Although *Houser* was decided before *Daubert*, the two decisions are consistent, with *Daubert* providing more detailed guidance on the fourth and fifth *Houser* prongs pertaining to relevance and reliability.”¹⁵ *Griffin*, 50 M.J. at 284.

Before this court, the government makes many of the same arguments it made before the CCA. *See supra* p. 7 Henning counters that the military judge’s findings of fact are supported by the record and were not clearly erroneous. He further argues that the military judge relied on the correct legal principles from M.R.E. 702, *Houser* and *Daubert*, and his application of those principles to the facts was not clearly unreasonable or manifestly erroneous.

Both parties agreed at trial that the SWGDAM guidelines are the definitive authority on reliable procedures and methods for forensic DNA testing and analysis. The record also establishes that the SWGDAM guidelines delineate three different statistical calculations, including the RMP, LR, and CPE/I. *See* SWGDAM Guidelines at 12–14. Further, the record does not contradict that the RMP and CPE/I rely on fundamentally different assumptions

¹⁵ Under *Daubert*, the military judge must determine:

- (1) Whether the theory or technique can be (and has been) tested;
- (2) Whether the theory or technique has been subjected to peer review and publication;
- (3) The known or potential error rate;
- (4) The existence and maintenance of standards controlling the technique’s operation;
- (5) The degree of acceptance within the relevant scientific community; and
- (6) Whether the probative value of the evidence is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury.

Griffin, 50 M.J. at 284 (internal quotation marks omitted).

regarding the contributors and that the two methods of analysis cannot be combined into a single calculation. *Id.* at 22. The record also fails to contradict the military judge's finding that the modified formula used by the KCPCL was a combination of RMP and CPE/I, despite being impermissible under the SWGDAM guidelines.

While the military judge found that the general SWGDAM formulas contained in the KCPCL procedures were widely accepted and peer reviewed, the preponderance of evidence did not establish that the KCPCL modified formula utilized in this case was widely accepted or peer reviewed. Indeed, with the exception of the assertion made by the laboratory employees who use the formula, there is nothing in the record to show it is employed anywhere outside of the KCPCL. As case law makes clear, the military judge is not required "to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert." *Joiner*, 522 U.S. at 146.

The government asserts in response that one of the formulas contained in the SWGDAM guidelines is similar to the modified formula employed by the KCPCL and, thus, is accepted by the scientific community. However, a review of the testimony regarding the KCPCL modified formula and the SWGDAM formula referenced by the government demonstrates that they utilize fundamentally different assumptions in their respective analyses.

Moreover, the military judge's conclusions of law were not incorrect and he properly applied the *Daubert* framework. Specifically, the military judge set forth the facts he found, articulated the correct and relevant legal principles under M.R.E. 702, *Houser*, and *Daubert*, and then explained how he applied those legal principles to the facts. "[W]here the military judge places on the record his analysis and application of the law to the facts, deference is clearly warranted." *Flesher*, 73 M.J. at 312. If the military judge properly follows the *Daubert* framework, "we will not overturn the ruling unless it is 'manifestly erroneous.'" *Griffin*, 50 M.J. at 284. Under this record, it was not an abuse of discretion for the military judge to find that the

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government failed to carry its burden of showing the KCPCL formula was reliable.¹⁶

DECISION

The decision of the United States Army Court of Criminal Appeals is reversed and the military judge's ruling is reinstated. The stay of proceedings issued by this court on November 24, 2015, is hereby lifted. The record is returned to the Judge Advocate General of the Army for transmission to the convening authority for further proceedings.

¹⁶ We do not hold that the KCPCL's modified formula is unreliable. We only hold it was not an abuse of discretion for the military judge to find the government had not met its burden of showing the formula was reliable in this case.