

THE WATCH

# Opinion Incredibly, prosecutors are still defending bite mark evidence



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As of today, bite mark evidence has led to more than two dozen wrongful arrests or convictions. Two men sentenced to death on bite mark evidence were later exonerated by DNA testing. Multiple proficiency tests have shown that bite mark analysts can't even agree on whether marks on human skin were made by human teeth or teeth at all, much less agreement on which set of teeth made them. There are two underlying assumptions that need to be true in order for bite mark evidence to be valid — that the marks we make when we bite are unique to us and that human skin is capable of recording those marks in a way that allows analysts to distinguish them. So far, there is no scientific research to support either assumption, and the research that *has* been done suggests both claims are false. Bite mark evidence has been strongly criticized by several scientific bodies, including the National Academy of Sciences (NAS) and, most recently, by the President's Council of Advisors on Science and Technology (PCAST). The Texas Forensic Science Commission, a body convened specifically to review the validity of questionable fields of forensics, recommended a moratorium on the use of bite mark analysis in court.

And yet to date, not a single court in the United States has upheld a challenge to bite mark evidence. Every time a defendant has challenged it, the court has ruled the evidence admissible. The PCAST report provided one of the harshest criticisms yet, finding that not only is there no scientific research to support the idea that bite marks can be matched to one person to the exclusion of others, but also it isn't really even worth investing resources in further research. The field is that flawed. Unfortunately, as I noted here a few weeks ago, then-Attorney General Loretta Lynch dismissed the report and refused to implement its recommendations at the Justice Department.

Pennsylvania defendant Aaron Ross is among the first to challenge bite mark evidence since the PCAST report was published. Last year, Ross's attorneys with the Innocence Project requested what is known as a *Frye* hearing to determine if bite mark evidence is scientifically reliable enough to be used in court. Pennsylvania is one of just a handful of states that uses the *Frye* standard, which posits that expert testimony may be admitted if it is "generally accepted as reliable in the relevant scientific community."

Oddly, the brief from the prosecutors in the case borrows heavily from the state's brief in a 2015 murder trial in New York. In 2015, the Manhattan district attorneys office sought to admit bite mark evidence in the murder trial of Clarence Dean. As I noted at *The Watch* at the time, the brief submitted by Manhattan assistant district attorney Melissa Mourges was full of misstatements, personal attacks and general deception. In one section, she selectively quoted a passage about bite marks from the NAS report that she claimed supported the admission of bite mark evidence. But she left out a clause from the same passage that clearly and explicitly refuted her point. She buried that clause in an ellipsis. It didn't matter much. Mourges won anyway. The judge ruled the evidence admissible. He didn't even bother to write an opinion. Interestingly, Mourges still voluntarily withdrew the bite mark evidence early last year, although not without first lashing out at critics.

In his brief in the Ross case, Blair County District Attorney Richard Consiglio doesn't just rely on Mourges's brief, he cut-and-pastes entire passages from it. Portions of the two briefs are the same, word-for-word. This isn't uncommon in court documents. Unlike academia or journalism, where such plagiarism is a cardinal sin, legal writing involves a lot of boilerplate language, so the practice isn't as frowned upon. But it is still unusual to see in a case such as this one. (Amusingly, Mourges has also disparaged *The Watch*. Consiglio does too, referring to "dubious" articles in the "Washington Post.")

Consiglio's two main arguments are the same arguments Mourges used and that the state deploys in nearly every bite mark case. The first is pretty straightforward, and noted above. To date, no court in the country has ruled bite mark evidence inadmissible. That this is such a strong argument in the courts demonstrates about as emphatically as anything just how ill-equipped the courts are when it comes to assessing science. The fact that no court has yet to rule against "scientific evidence" that nearly every scientist in the country agrees *isn't* scientific at all is a damning indictment of the courts and their inability to self-correct. Instead, it's used as an argument to let yet *more* unscientific evidence into *more* cases — and it's an argument that has yet to be defeated.

Under *Frye*, for expert testimony to be admissible, it must be generally accepted within the relevant scientific community. Here's the question at issue: When it comes to bite mark evidence, what is the relevant scientific community? For prosecutors such as Mourges and Consiglio, it is *other bite mark analysts*. That is, the relevant community of "scientists" whose opinion judges should consider when evaluating the scientific validity of bite mark analysis should be people who already believe that bite mark analysis is scientific. You almost have to admire the brazenness of this argument. It's like saying that if a judge is evaluating the scientific merit of palm readers, he should only consider the opinions of other palm readers. And yet so far, the argument has worked every time it has been tried.

Ross's attorneys argue that the "relevant scientific community" should include actual scientists — that is, people who actually abide by the principles of scientific inquiry. Most bite mark analysts don't operate under double blind conditions. There's very little peer review. (Indeed, when analysts review one another's work, there is often disagreement. This is why bite mark cases often feature two or more analysts giving the jury opinions that are diametrically opposed.)

Understandably, Consiglio doesn't want the judge to consider the opinions of real scientists. So in his brief defending the scientific validity of bite mark analysis, he attacks science itself.

Of the NAS report, he writes, “No forensic odontologists were on the committee who authored the report.” Instead, it was composed merely of “numerous academics and statisticians.” The first part is true, and for good reason. Again, if you’re evaluating the scientific validity of an entire field, you don’t stack the evaluating committee with members of that field. The second part is a callous dismissal of the NAS committee’s considerable credentials. Of the 17 committee members, seven had extensive experience in fields of forensics. As Ross’s attorneys point out in their reply, 11 members are trained scientists. Of the 17, 10 are PhDs, two are doctors, five are lawyers and one has a masters in chemistry. This wasn’t a committee of activists and defense attorneys.

Coniglio also accuses the NAS report of “cherry picking” studies to support its pre-conceived conclusions about bite mark analysis. His work here is sloppy. One report he cites as an example of such cherry-picking was a test administered by the American Board of Forensic Odontology (ABFO) itself. The problem? The NAS study didn’t consider that report. It couldn’t have. The NAS report came out in 2009. The ABFO study was in 2014.

Consiglio then attacks the authors of the 2016 PCAST report. He writes that “the very composition of PCAST speaks of its bias and lack of independent opinions” and “the lack of any working forensic scientists with real-world experience is evident throughout the report.” He singles out S. James Gates, Jr., whom Consiglio accuses of “no familiarity with, or even interest in, areas of forensic science.” Gates is a physicist at MIT, a member of the National Academies of Science and a recipient of the National Medal of Science. He’s a member of the National Commission on Forensic Science and the Forensic Science Standards Board, two federal bodies tasked with improving the use of forensics. If Gates isn’t qualified to evaluate the scientific validity of a field of forensics, no one is.

In an astounding bit of circular argument, Consiglio then criticizes the PCAST report for being *too* thorough. “[T]he fact that PCAST attacks so many forensic disciplines is further evidence of the PCAST’s lack of credibility.” He then provides a long list of the fields that the report found to be flawed.

This isn’t really an argument. The report was critical of a particular set of forensic disciplines that involve pattern matching. These are the fields in which an analyst looks at a pattern in a piece of evidence connected to the crime and attempts to match it to a pattern that implicates a suspect. The problem with these fields is that they are entirely subjective. Analysts “eyeball” their results. They can’t calculate error rates. And there is wide disagreement among them. That there are so many fields of forensics that consist of little more than pattern matching is yet again an indictment of the criminal justice system that has allowed these fields to flourish. The courts’ inability to say no to expert witnesses, particularly those proffered by prosecutors, has created a market for charlatans willing to say just about anything. The PCAST report criticized so many of these specialties because there were so many to criticize.

Consiglio also accuses PCAST of only interviewing partisans and critics of bite mark analysis. This isn’t true. In fact, the group interviewed David Senn, a bite mark analyst whom Consiglio quotes throughout his report, and Mourges.

Consiglio has more difficulty dismissing the Texas Forensic Science Committee. Nearly everyone on that committee had extensive forensic experience. So instead, he again attacks this committee for “interviewing partisans” during its bite mark investigation and “failing to interview” advocates of bite mark analysis. But the committee *did* interview several advocates and practitioners of bite mark analysis, which Consiglio concedes in his very next sentence. So he hedges, and instead faults the committee for “fail[ing] . . . to give proper weight” to the advocates’ testimony, and “giving improper weight” to critics. This isn’t a criticism with the process, but with the result. The committee’s final report simply gave more weight to the witnesses its members found most credible. Consiglio’s argument here basically boils down to: “They aren’t credible because they don’t agree with me.”

Consiglio also attacks the research of Mary and Peter Bush, two scientists who have actually looked into the claims of bite mark experts about the uniqueness of human bites and the ability of human skin to record that uniqueness — and found both lacking. His analysis — passages of which match Mourges’s brief word for word — makes the same mistakes Mourges did. Her main criticism of the Bush research is that their method of producing bites — stone teeth compressed with vice grips into the skin of cadavers — was too far removed from the way bites are inflicted in real life. It’s true that it isn’t a perfect replication. But to the extent that the Bush’s method differed, it differed in ways that should have *benefited* the claims of bite mark analysts. For example, Mourges writes:

Living skin is a complex organ system, with blood flowing through a vast vascular network, pumped by the human heart, all of which gives the skin resiliency, flexibility and strength. Skin is rich in pain receptors, which cause a living person to react to the pain of biting and to quickly move away from the source of that pain, even if that movement inflicts further injury. When blood vessels are broken, say by being bitten, blood flows into surrounding tissue. And when skin is damaged, the body tries to protect itself by releasing chemicals called prostaglandins and histamines, which cause inflammation. This is the body’s attempt to minimize bleeding and minimize tissue damage. And then, the body starts to heal, sending out cells to repair skin by scarring or regeneration.

All true. But this all also makes it *more difficult* to accurately preserve a bite inflicted on a live person. All of these processes in a live body begin to alter the mark immediately. They don’t happen in a dead body. If the Bushes found no evidence that cadaver skin can preserve a bite in any meaningful way, it’s even less likely that the skin of live people would.

Similarly, Consiglio notes that while the Bushes used vice clamps that provided direct, one-way pressure, during a bite administered during a rape or murder, the attacker might bite from any number of angles. His teeth might move from side to side, or he might drag them across the skin. Moreover, the victim might pull away, further distorting the mark. Again, this is all true. And again, it’s information that cuts *against* the claims of bite mark analysts. If the Bushes found no evidence that human skin could preserve bite marks in measurable way using direct, one-way pressure on cadavers from vice clamps, it is even less likely that the skin of a live person could record a usable mark with twisting, dragging, a victim pulling away and the all the other variables.

Like Mourges, Consiglio also badly misleads the court with assertions that simply aren’t true. For example, he writes that Harry T. Edwards, a federal judge with the U.S. Court of Appeals for the D.C. Circuit and co-chair of the NAS committee that authored the report, told Congress that the NAS report doesn’t state or imply that bite mark evidence is not admissible in court. That testimony has often been cited by prosecutors in cases where forensic evidence has been challenged. It is a misstatement of what Edwards said, and he has publicly chastised prosecutors for it. Here’s Edwards speaking at Yale University in 2010.

I recently had an opportunity to read several briefs filed by various U.S. Attorneys’ offices in which my name has been invoked in support of the Government’s assertion that the Committee’s findings should not be taken into account in judicial assessments of the admissibility of certain forensic evidence . . .

This is a blatant misstatement of the truth. I have never said that the Committee’s Report is “not intended to affect the admissibility of forensic evidence . . . To the degree that I have commented on the effect of the Report on admissibility determinations, I have said something quite close to the opposite of what these briefs assert.

That was six years ago. Yet prosecutors such as Mourges and Consiglio continue to mischaracterize Edwards to courts. And they continue to get away with it.

Like Mourges, even as he trashes the NAS report and its authors, Consiglio then selectively paraphrases from the report to imply that it actually endorses bite mark analysis. He notes that the report “acknowledges that forensic odontologists have well-established guidelines for the collection of evidence, including various forms of photography, taking dental casts, using transparent overlays, and computer enhancement techniques” and that the report “also notes the significance of bite mark analysis . . . in homicide, sexual assault, and child abuse cases.”

Here’s what the report actually says:

Bite marks are seen most often in cases of homicide, sexual assault, and child abuse.

It does *not* say that this is recommended. It merely acknowledges that it is happening. In fact, the entire section on bite mark analysis is an extended argument explaining why it *isn’t* recommended. As for the field’s methods of collecting and recording bite marks, it’s true that the NAS report notes them and says they’re relatively uncontroversial. But Consiglio left out what the report says next.

Although the methods of collection of bite mark evidence are relatively noncontroversial, there is considerable dispute about the value and reliability of the collected data for interpretation. Some of the key areas of dispute include the accuracy of human skin as a reliable registration material for bite marks, the uniqueness of human dentition, the techniques used for analysis, and the role of examiner bias. The ABFO has developed guidelines for the analysis of bite marks in an effort to standardize analysis, but there is still no general agreement among practicing forensic odontologists about national or international standards for comparison . . . The committee received no evidence of an existing scientific basis for identifying an individual to the exclusion of all others.

Consiglio also cites a number of court cases in which the courts have dismissed challenges to forensic evidence based on, or in part on, the NAS report. Unfortunately, while this argument *shouldn’t* be persuasive (the entire point here is that the courts have consistently done a poor job of policing for bad forensics) it often is, because the legal system puts so much emphasis on precedent and finality. Yet even here, Consiglio misquotes court opinions. For example, he cites *Pettus v. U.S.*, in which a federal court rejected a challenge to handwriting analysis. The NAS report was found that while handwriting analysts sometimes overstated their claims, and that more scientific research was needed, it does have some scientific merit. Thus, the court rejected the challenge. But here is how the court discussed forensic evidence more generally:

At one end of the spectrum (almost by itself) is DNA analysis, but “[t]he goal is not to hold other disciplines to DNA’s high standards,” since “it is unlikely that most other current forensic methods will ever produce evidence as discriminating as DNA.” Closer to the other end (and discussed under the heading “Questionable or Questioned Science”) may be disciplines such as toolmark or bitemark identification, which “have never been exposed to stringent scientific inquiry” and thus “have yet to establish either the validity of their approach or the accuracy of their conclusions.”

Understandably, Consiglio left this passage out of his brief, too.

Consiglio nearly suggests some sort of conspiracy among scientists, defense attorneys and the Innocence Project to discredit bite mark analysts. In truth, as I've documented here, there actually *is* a pattern of bite mark analysts and their supporters filing ethics complaints, harassing and even leveling petty personal attacks on their detractors.

Consiglio also includes a raw appeal to emotion, urging the court to look at a series of photos of bite marks on murder victims, including babies. He argues that any reasonable person would be able to identify the marks as human bites. But no one disputes that there are cases in which assailants leave clear evidence of biting on their victims. (Though plenty of people have been convicted due to marks over which there was pointed disagreement over whether they were bites at all.) The argument is over the contention that those bites can be definitively matched to one person, to the exclusion of all others. Every scientific study to examine this question has found no evidence to support that claim.

As Ross's attorneys point out in their own brief, Consiglio includes a number of other misstatements in his brief. In an arguing that the court should dismiss the findings of the Texas Forensic Science Commission, for example, he points out that "No Texas court has placed a blanket prohibition on the use of bite mark evidence as the Commission recommended." But that's because there has yet to be a challenge to bite mark evidence since the commission's report. He also urges the court to reject the NAS report because it was "commissioned by President Obama." Why that should have any impact on the validity of report isn't exactly clear, but it also isn't true. It was commissioned by Congress in 2005, years before Obama took office.

Consiglio concludes his brief with an attack on the Innocence Project and its attorneys, whom he implies have a "financial incentive" to call bite mark evidence into question. He points to the group's "fundraisers" and "government grants" as well as the possibility of civil lawsuits, which he says raise "millions." For the record, expert witnesses are protected from civil lawsuits by qualified immunity. I don't know of a single case in which someone wrongly convicted was able to successfully sue an expert witness. There is currently such a case pending before the U.S. Court of Appeals for the 5th Circuit involving Michael West, one of the most notoriously awful bite mark analysts to ever take the witness stand. By the tone of the oral arguments in the case, the two men West helped to wrongly convict aren't likely to prevail. Notably, while the Innocence Project helped win the men's exonerations, the organization is *not* representing them in their civil suit.

The argument that takes up the bulk of Consiglio's brief is the same argument prosecutors typically make when challenged about forensic science: that it has already been accepted by the courts on dozens, hundreds or thousands of prior cases. He adds in this case that when the PCAST report was released last fall, it was immediately dismissed by Lynch (here at The Watch, I warned that this would happen), the National District Attorneys Association, and various forensics and law enforcement groups.

This again is all entirely beside the point. That the groups who have most benefited from bad forensic practices would object to criticism of those practices should be of no surprise to anyone, and says nothing about the merits of those criticisms. That the courts that have continually failed to keep bad forensics out of criminal trials now continue to do so by rejecting scientific criticism of said forensics also isn't at all surprising. That this argument itself is often so successful is an indictment of a system that values process over justice. It, too, says little about the merits of the scientific criticism of forensics.

It's important to distill what Consiglio and countless prosecutors before are *really* arguing in these cases. They're arguing that the *only* opinions that should matter in these cases are those of prior courts, prosecutors, law enforcement and the small community of forensic analysts in the very field being challenged. The Ross case hasn't even reached the point of a *Frye* hearing. The briefs discussed in this post are about whether or not such a hearing *is even necessary*. (In several states, courts have ruled that bite mark evidence is so widely accepted, admissibility hearings aren't needed.) Even here, Consiglio tried to get the judge to bar the Innocence Project attorneys who specialize in bite mark evidence from assisting in Ross's defense. He argued that they weren't qualified. These attorneys specialize in bite mark cases. They argue them all over the country. Consiglio isn't just arguing that they're wrong, he wanted their expertise purged from the courtroom.

In other words, the only people we should listen to are the same people who have gotten it wrong, over and over again. Prosecutors want to present evidence like this to juries as if it were science, but when challenged, they say the opinions of actual scientists — people who adhere to the principles of scientific inquiry — are irrelevant. They advocate a dangerously insular system in which bad information is validated by the mere fact that it has previously been validated.

Even after DNA testing exposed the flaws in this system, and revealed the mass injustice those flaws have effected, they continue to make the same arguments.

In a just world driven by true merit, prosecutors such as Mourges and Consiglio would be sanctioned or even lose their jobs for such brazen attempts to mislead the courts. In *our* world, they're not only permitted to keep making these arguments, they continue to win.