

**No. 08-15943**

**UNITED STATES COURT OF APPEALS  
FOR THE NINTH CIRCUIT**

GEORGE A. SOULIOTES,

*Petitioner-Appellant,*

versus

ANTHONY HEDGPETH, Warden, *et al.*,

*Respondents-Appellees.*

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On Appeal From the United States District Court  
for the Eastern District of California  
Case No. 06-CV-0667 OWW WMW HC  
The Honorable Oliver W. Wanger

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**BRIEF OF THE INNOCENCE NETWORK AND BOB BARR  
AS *AMICI CURIAE* IN SUPPORT OF PETITIONER-APPELLANT**

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## INTRODUCTION AND STATEMENT OF INTEREST

The Innocence Network (the “Network”) is an association of organizations dedicated to providing *pro bono* legal counsel to indigent prisoners whose actual innocence may be established in post-conviction proceedings.<sup>1</sup> Its members operate in every state and the District of Columbia, and have helped exonerate over 220 individuals nationwide.<sup>2</sup> Through this work, the Network has gained extensive knowledge of the key factors that contribute to wrongful convictions, two of which directly led to George Souliotes’s conviction for murder by arson: faulty science and eyewitness error.

Souliotes is not alone. Half of the exonerations overseen by the Network involved the misapplication of scientific disciplines to evidence while nearly three-quarters involved eyewitness mistakes. *See* Innocence Project, *Facts on Post-Conviction DNA Exonerations*, at <http://www.innocenceproject.org/Content/351.php>. The Network has accordingly placed much of its focus on both championing technological

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<sup>1</sup> All parties in this case consent to the filing of this *amicus curiae* brief. *See* Fed. R. App. P. 29(a).

<sup>2</sup> A list of the Network’s member organizations appears in the Appendix attached hereto.

breakthroughs (such as DNA testing) to shed new light on old evidence as well as highlighting psychological research to identify factors that can result in mistaken or unreliable eyewitness testimony. Thus, the Network has a vital interest in ensuring that those wrongfully convicted can establish their innocence in post-conviction proceedings, especially where, as here, errors in forensic evidence or eyewitness testimony are at issue.

Bob Barr joins the Innocence Network as *amicus curiae* on behalf of Mr. Souliotes. Mr. Barr served in the U.S. House of Representatives from 1995 to 2003, where he served as a member of the House Judiciary Committee and helped author the Anti-Terrorism and Effective Death Penalty Act of 1996 (AEDPA). Mr. Barr remains a proponent of curbing the abuse of the statutory writ of habeas corpus in federal court, but is also an equally firm believer in the rights and protections guaranteed by the Constitution. Since 1996, Mr. Barr has witnessed the federal courts' interpretation and implementation of AEDPA's one-year statute of limitations in innocence cases. As an author of the statute in question, Mr. Barr respectfully submits that barring a first-time petitioner from having his claim of innocence heard in federal court would conflict with Congress's intent in creating the one-year statute of limitations. To imprison an individual for life without having a

federal court hear the evidence of his innocence would be unconscionable and unconstitutional.

This Court has granted a certificate of appealability to resolve important questions that implicate the *amici*'s interests, including (1) whether Souliotes can make a sufficient showing of actual innocence to justify untimely filing under *Schlup v. Delo*, 513 U.S. 298 (1995), and (2) whether Souliotes is entitled to a later triggering date under 28 U.S.C. § 2244(d)(1)(D). (ER 0885.)

**Actual Innocence.** Souliotes has a compelling claim of actual innocence, supported by recent scientific studies and methods. First, there is no reliable evidence tying Souliotes to the scene of the fire. The prosecution's main evidence purporting to tie Souliotes to the scene was that residues of a certain class of ignitable liquids—called medium petroleum distillates (“MPDs”)—were found both on samples of carpet and carpet foam from the scene and on a pair of Souliotes's shoes. But since the trial, using recent scientific advances that allow scientists to make intra-class distinctions among MPDs, a nationally renowned fire investigator and scientist, John Lentini, has now re-tested these items and definitively concluded that the mixture of chemical compounds on Souliotes's shoes is different from the

mixture of chemical compounds found at the fire scene. In other words, there is *no chemical match* to connect Souliotes to the fire. The only other evidence purportedly tying Souliotes to the scene was the testimony of a highly unreliable eyewitness, Monica Sandoval, who allegedly viewed Souliotes from 100 yards away through foliage in the middle of the night and who only first identified him *six months after* the fire—and then only in the highly suggestive setting of a preliminary hearing in court, under troubling circumstances. Sandoval’s story seesawed through the course of her contact with law enforcement, and ultimately she testified for the prosecution in exchange for having serious, unrelated criminal charges against her dropped.

Second, the State’s evidence of arson was itself fundamentally flawed. The local fire investigators based their conclusion of arson on rules of thumb that have been widely discredited. Indeed, at Souliotes’s first trial, in which the jury hung, a defense expert, Dr. Donald Myronuk, rebutted the prosecution’s arson theory and explained in great detail his opinion that the fire was accidental rather than intentional, caused by a natural gas leak in the vicinity of the kitchen stove. (Trial Tr. 3479-80.) Thus, not only is there no sound basis for tying Souliotes to the scene of the fire, there are also serious questions as to whether this fire was intentionally set at all.

**Statutory Tolling on Basis of New Evidence.** In finding Souliotes's petition time-barred for failure to exercise "due diligence" in uncovering new evidence, the district court simply ignored the timing and development of the chemical testing technique allowing for distinctions among residues within the broad class of MPDs. This recent scientific advance permitted Lentini to re-analyze old evidence and to conclude several years after the trial that the prosecution's forensic evidence purportedly connecting Souliotes to the fire did *not*, in fact, connect him to the fire. The district court should have factored into its limitations analysis under § 2244(d)(1)(D) when the scientific advance giving rise to the factual predicate of Souliotes's *habeas* claim gained widespread acknowledgment or publicity, and also whether an individual in prison would reasonably be able to learn about such a scientific development. Here, under a proper reading and application of the statute, the limitations period would begin running at the earliest on September 21, 2005.

## **ARGUMENT**

### **I. SCIENTIFIC RESEARCH AND METHODOLOGY SUPPORT SOULIOTES'S CLAIM OF ACTUAL INNOCENCE**

At trial, the State relied on three pieces of evidence to argue that Souliotes had been at the scene of the fire and that the fire was deliberately set. In the prosecution's view, "[t]he most conclusive scientific evidence" was that a residue found at the scene of the fire came from the same class of chemicals (MPDs) as a residue found on shoes Souliotes had worn on the day of the fire. (ER 0847-48, 0863-64.) The prosecution used this forensic determination to buttress the testimony of Monica Sandoval, who stated that she had seen Souliotes enter and exit the scene of the fire in the middle of the night shortly before the fire started. The prosecution also relied on local fire investigators who testified that their observations revealed indicia of arson.

All three pieces of evidence have been totally invalidated or irreparably undermined by scientific research and methodology.

**A. There Is No Reliable Evidence Tying Souliotes to the Scene of the Fire**

**1. Advances in MPD Testing Invalidate the Centerpiece of the Prosecution’s Case Purportedly Linking Souliotes to the Scene of the Fire**

The prosecution’s case against Souliotes centered on establishing a link between MPD residues found both at the scene of the fire and on shoes he had worn the day of the fire. The prosecution argued that the “shoes tell the tale” of who started the fire. (ER 0864.) But tested under the standards and methodology prevailing in 1997, this evidence proved only that the residues found in these two places were part of the same broad class of ignitable liquids—MPDs. Notably, at that time, the standard methodology did not provide for determining whether the two samples came from the same or different sources within the class. In 2005, Lentini re-analyzed the MPDs at the scene and on Souliotes’s shoes employing recent scientific advances in differentiating residues within the same class (as discussed in greater detail below, *infra* Part II). Lentini’s conclusion wholly upended this key piece of the prosecution’s case:

As a result of my re-analysis of the items of evidence, I can now conclusively state that the [MPDs] found on the defendant’s shoes (Items 16 and 17) are chemically distinguishable from the [MPDs] found at the scene of the fire (Items 3 and 5). The residues on the shoes are naturally occurring, of the type used in

their manufacture. They can be distinguished from the residue in the carpet by virtue of the higher average molecular weight of the compounds in the MPD from the shoes. [¶] . . . [T]he residue on the shoes and the residue in the scene could not have had a common origin. There is thus no chemical “match” between the ignitable liquid found at the scene of the fire and the residue in defendant’s shoes.

(ER 0299 (emphasis added).)<sup>3</sup> The prosecution’s “most conclusive scientific evidence” does not prove what the prosecution said it proved at trial. The presence of the MPD residue on Souliotes’s shoes cannot in any way link him to the scene of the fire.

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<sup>3</sup> Lentini also noted a distinct point bearing on innocence: “many kinds of shoes contain [MPDs] and other hydrocarbons as part of their makeup,” and “[i]n all likelihood, finding . . . [MPD] on the shoes has no bearing on the identity of the person who may have set the fire, if in fact it was set.” (ER 0302.) Scientists have conducted testing for the presence of petroleum products in a wide range of materials and products in which there is otherwise no foreign ignitable liquid. *See, e.g.,* Lentini, Dolan, & Cherry, *The Petroleum-Laced Background*, 45(5) *Journal of Forensic Sci.* 968 (2000). The testing has demonstrated that shoes, shoe polishes, and shoe adhesives can contain MPDs even though no ignitable liquid has been added. *Id.* at 969, 980, 989 & table 1. Indeed, “[w]ith the exception of adhesives [which themselves are typically used in shoes], no substrate tested presented more potential problems in interpretation than shoes.” *Id.* at 969.

**2. The Only Other Evidence Purporting to Tie Souliotes to the Scene of the Fire, the Testimony of the Sole Eyewitness for the Prosecution, Is Highly Unreliable and Suspect**

The MPD evidence that the prosecution claimed tied Souliotes to the fire scene—which has now been conclusively and empirically demonstrated to be wrong—not only misled the jury about the scientific proof against Souliotes, but it also buttressed the otherwise unreliable account of Monica Sandoval, who claimed to have seen him enter and exit the house shortly before it erupted into flames. Sandoval allegedly witnessed this incident from her balcony, partially obscured by trees, at a distance of 100 yards in the middle of the night. She could not identify Souliotes on the day after the fire nor did she ever identify him until fully *six months later* at Souliotes’s preliminary hearing.

Eyewitness testimony carries particular dangers in criminal trials because juries “believe eyewitnesses, even when they are wrong, and find [their] testimony so persuasive that it may well color their view of all of the other evidence in the case.” O’Toole & Shay, *Manson v. Brathwaite Revisited: Towards a New Rule of Decision for Due Process Challenges to Eyewitness Identification Procedures*, 41 Val. U. L. Rev. 109, 134-35 (Fall 2006). Given this potential, researchers have undertaken countless studies of

the reliability of eyewitness accounts to identify key factors that contribute to eyewitness error. Several of these factors substantially undermine Sandoval's testimony.

**Poor Observation Conditions.** Studies demonstrate that poor or distracting observation conditions—including bad lighting or an obscured view—can adversely affect the reliability of an eyewitness identification. Woocher, *Did Your Eyes Deceive You? Expert Psychological Testimony on the Unreliability of Eyewitness Identification*, 29 Stan. L. Rev. 969, 978 (1977).

Sandoval testified that she observed Souliotes entering and exiting the fire scene at a distance of at least 100 yards in the middle of the night. (Retrial Tr. 5903.) She further admitted that a big leafy tree directly in front of her balcony partially obscured the view from her apartment. (*Id.* at 5902.) These poor viewing conditions greatly diminish the reliability of Sandoval's identification, especially considering the distance at which she viewed a complete stranger. Loftus & Harley, *Why is it easier to identify someone close than far away?*, *Psychonomic Bull. & Rev.* 1, 20-23 (2004).

Furthermore, Sandoval testified that from her balcony, in the dark of night, she caught a glimpse of Souliotes's face through the windshield of a

vehicle as he drove past her. In those few seconds, she could discern only the “[s]hape of his chin, his nose and . . . his glasses, his frames, the bottom” and nothing else. (Retrial Tr. 5936.) She never observed the driver’s face unobscured at any distance, and as research has proven, covering even small portions of the face or head can markedly reduce eyewitnesses reliability. In one study, half of the participants were shown a videotaped reenactment of a robbery in which the perpetrator was wearing a hat; the other half watched a similar reenactment in which the robber wore no hat. “In data from over 1300 eyewitnesses, the percentage of correct judgments on identification tests was lower among eyewitnesses who viewed perpetrators wearing hats (44%) than among [those] who viewed perpetrators whose hair . . . w[as] visible (57%).” Cutler, *A Sample of Witness, Crime, and Perpetrator Characteristics Affecting Eye-Witness Identification Accuracy*, 4 *Cardozo Pub. L. Pol’y & Ethics J.* 327, 332 (April 2006). Thus, Sandoval’s fleeting observations of Souliotes in such poor conditions are highly suspect.

**Passage of Time.** Recent research has conclusively determined that memory fades over time. In one psychological study, 85 convenience store clerks were asked to identify (from target-present and target-absent photo arrays) a previously encountered customer either two hours or 24 hours after

the encounter. False identifications from target-absent photo arrays occurred far more frequently after 24 hours (52.4%) than after two (15%). Cutler, *supra*, at 336.

Sandoval could not identify Souliotes at a lineup conducted the afternoon following the alleged arson, and only identified him *six months later* at the preliminary hearing after having seen his photograph numerous times in the news. (ER 0618-19, 0634-38.)

**Own-Race Bias and Cross-Racial Misidentification.** Sandoval and Souliotes are of different races. This fact can lead to two related types of eyewitness error: own-race bias and cross-racial misidentification. People generally are poorer at identifying members of another race than of their own. Woocher, *supra*, at 980-81. An analysis of several studies suggested that witnesses were 1.56 times more likely to mistakenly identify someone of another race than their own, Cutler, *supra*, at 329-30, particularly when the interaction is brief. *See* Meissner and Brigham, *Thirty Years of Investigating the Own-Race Bias in Memory for Faces*, 7(1) Psychol., Pub. Pol’y, & L. 3, 24 (2001). Conversely, people are much better at correctly recognizing another person of their same race. In one study, Black, White, and Hispanic convenience store employees interacted with Black, White, and Hispanic

customers. “Two to three hours after each visit, an investigator asked the clerk to attempt an identification from photo arrays containing the customers. . . . Hispanic [clerks] were more likely to correctly recognize Hispanic (53.6%) than White (35.7%) or Black (25%) customers.” Cutler, at 330. A similar own-race bias was found among each racial group. *Id.*

**Self-Interest and Motive to Lie.** Sandoval also had a strong personal motivation to color or alter her testimony to fit the prosecution’s theory of the case—namely, to ensure that criminal charges against her in an unrelated stabbing were dropped after she testified for the prosecution at Souliotes’s trial. (ER 0620 -21.) Indeed, it is curious that, at the preliminary hearing, she initially could not identify Souliotes, just as she could not identify him the afternoon after the incident in a line-up. (Retrial Tr. 5954.) At the preliminary hearing, after she was unable to make the in-court identification, the prosecution indicated it had no further questions for her. A recess was taken, after which Sandoval conveniently recalled the perpetrator’s facial features and then identified Souliotes for the first time—six months after the fire. (ER 0634-39.) Moreover, this was not the first time Sandoval’s story changed to correspond to the prosecution’s case. (Pet. Br. at 54-55.) Accordingly, the reliability of her testimony is in even further doubt.

\* \* \* \* \*

Advances in science have demonstrated unequivocally that the “centerpiece” of the prosecution’s case—that chemicals found at the fire scene and on Souliotes’s shoes link him to the fire—lacks any scientific validity. Moreover, the poor and fleeting circumstances under which Sandoval allegedly saw Souliotes, and her own personal gain in testifying for the prosecution, cast significant doubt on her reliability. Quite simply, there is no compelling evidence connecting Souliotes to the fire.

**B. The Prosecution’s Evidence of Arson Is Not Scientifically Sound**

The prosecution’s case suffers from another fatal defect: the conviction relies on antiquated and discredited principles that supposedly proved the fire was deliberately set, not accidental.

**Evolution of Fire Science.** Before 1992, there was not much “science” in fire science. As the Department of Justice observed in 1977, no scientific evidence supported the widely accepted “rules of thumb” that fire investigators used as “indicators” of arson. Custer, *Considerations for Arson Investigations in NFPA 921 – Guide for Fire and Explosion Investigations*, in Proc. of the Int’l Symp. on the Forensic Aspects of Arson Investigations, 31, 32-33 (1995). Yet fire investigators continued for many years to apply and

expound these rules of thumb, most of which have now been scientifically discredited. *Id.* Recognizing the need for scientific validation of fire investigatory principles, the National Fire Protection Association's Technical Committee on Fire Investigations released a manual in 1992, NFPA 921, which provided guidance to investigators based on scientific principles. Nat'l Fire Protection Ass'n, *NFPA 921: Guide for Fire & Explosion Investigations* (1992). NFPA 921 explained that the widespread beliefs regarding the infallibility of burn indicators were wrong.

With the introduction of NFPA 921, the post-1992 era of fire investigation shifted away from the "tea-leaf reading" of the past and toward establishing a more scientific model of fire investigation. However, the fire investigation community as a whole has been slow to adopt the new guidelines. Wolf, *Habeas Relief From Bad Science: Does Federal Habeas Corpus Provide Relief for Prisoners Possibly Convicted on Misunderstood Fire Science?*, 10(1) Minn. J. L. Sci. & Tech. 213, 218-19 (2009). Fire investigators receive little, if any, formalized training and, in most cases, acquire their knowledge through apprentice-like transmittal of principles and practices. In fact, most investigators do not have any serious training in scientific methodology. (ER 0128; *see also*, Retrial Tr. 6757 (State's fire

investigator had no degree in fire science and had not studied thermodynamics, chemistry, or physics).) This informal training presents significant problems in the fire investigation arena because older fire investigators, who have based their careers on scientifically invalid fire science principles, continue to pass their flawed knowledge on to new generations of investigators. (*Id.*) As the National Academy of Sciences (“NAS”) has recognized:

Legitimization of practices in forensic disciplines must be based on established scientific knowledge, principles, and practices, which are best learned through formal education. Apprenticeship has a secondary role, and *under no circumstances* can it supplant the need for the scientific basis of education in and the practice of forensic science.

Nat’l Research Council of the Nat’l Academies, *Strengthening Forensic Science In The United States: A Path Forward* S-20 (2009 forthcoming) (“NAS Report”) (emphasis added).

Despite the NFPA’s attempts to institute the use of more scientifically rigorous principles, problems still plague fire science 17 years later. Indeed, in 2006, Congress authorized the NAS to study the current state and reliability of forensic science. H.R. Rep. No. 109-272, at 121 (2005) (Conf. Rep.). Congress recognized the need for significant improvements in forensic science to ensure the reliability of the discipline, establish enforceable

standards, and promote best practices and their consistent application. NAS Report, *supra*, at P-1. In 2009, the NAS published a report of findings and recommendations, which revealed significant deficiencies in forensic science as a whole and fire science specifically. The NAS Report stated that “substantive information and testimony based on faulty forensic science analyses may have contributed to wrongful convictions of innocent people. This fact has demonstrated the potential danger of giving undue weight to evidence and testimony derived from imperfect testing and analysis.” *Id.* at

S-3. With respect to fire science, the NAS Report stated:

[M]uch more research is needed on the natural variability of burn patterns and damage characteristics and how they are affected by the presence of various accelerants. Despite the paucity of research, some arson investigators continue to make determinations about whether or not a particular fire was set. However . . . many of the rules of thumb that are typically assumed to indicate that an accelerant was used . . . have been shown not to be true. Experiments should be designed to put arson investigators on a more solid scientific footing.

*Id.* at 5–34-35. Thus, even today, fire investigators continue to rely on scientifically disproven theories when formulating their opinions of whether a fire resulted from arson.

**Scientifically Disproven Indicators of Arson.** With the increased emphasis on hard science, the fire investigation field has seen a number of

scientific advancements that, if understood and applied, provide a greater understanding of the physical evidence surrounding arson. Historically, fire investigators had interpreted a fast-growing fire, and any evidentiary indicators of a fast-growing fire, as indicative of arson. Wolf, *supra*, at 220-21. Investigators assumed that a rapidly spreading fire and extreme temperatures could not result from normal fire behavior but instead must mean that an “accelerant” was used to start the fire. *Id.* at 221. However, in the 1970s scientists began to study methods to control the ignition, spread, and growth of fires in buildings. Custer, *supra*, at 32. From this research developed the concept of “flashover,” which describes how an accidental “compartment” fire can spread at the same rate and produce the same extreme temperatures that fire investigators once attributed only to arson. Wolf, *supra*, at 221.

When a fire starts “in a compartment,” such as a room or building, the smoke rises to the ceiling above the fire and spreads outward, forming a layer. Custer, *supra*, at 32. As the fire continues to burn, the smoke grows thicker and the temperature within that smoke layer skyrockets. *Id.* When the temperature of the upper smoke layer reaches approximately 1,100°F to 1,200°F, the fire reaches a “flashover” point, where there is sufficient thermal

radiation within the compartment to ignite every exposed combustible surface in the room, such as couches, tables, and rugs. (ER 0098, 0147-48.) Thus, post-flashover burning, where items catch fire from the sheer heat of the room and not from an ignitable fluid, can produce burn patterns similar to those resulting from an intentionally set fire. Custer, *supra*, at 32. NFPA 921 plainly disavows the use of burn patterns alone to conclude that an accelerant was used in setting a fire. Despite the scientific standard set forth in NFPA 921, the fire investigators in Souliotes's case ignored all evidence of flashover and relied on four indicators—"pour patterns," low burning, deep charring, and extreme temperatures—to improperly conclude that the fire resulted from arson.<sup>4</sup>

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<sup>4</sup> Numerous samples of debris were collected from throughout the burned house and tested for the presence of ignitable liquids by the California Department of Justice's Bureau of Forensic Services. All samples were negative or inconclusive with the exception of two samples from the living room, which contained MPDs. (ER 0823-25.) The laboratory technician could say only that the substance was an MPD; she could not say where the MPD came from. (Retrial Tr. 8922-23.) MPDs are found in a wide range of materials and products, including (in addition to shoes, *see supra* at 8 n.3) household products, floor coatings, insecticides, newspapers, charcoal starters, paint thinners, lamp oils, mineral spirits, and adhesives. *See* Lentini, *Scientific Protocols for Fire Investigation* 172 (2006); Lentini, Dolan, & Cherry, *supra*, at 969-89; (Retrial Tr. 8885-87). Thus, the evidence of MPD residue in two samples from the living room does not provide a scientifically sound basis for concluding that an accelerant was used to start this fire. *See* ASTM E-1618-01, Standard Test Method for Ignitable Liquid Residues in

1. **“Pour Patterns.”** In the past, the presence of “irregular” burn patterns was considered conclusive evidence of arson. Captain Reuscher, the lead fire investigator in Souliotes’s case, testified that the presence of a “pour pattern” provided “classic” evidence that an ignitable liquid accelerant had been used to start the fire. (Retrial Tr. 6633-34.) However, NFPA 921 plainly states that observation of so-called “pour patterns” “cannot always be reliably identified as resulting from ignitable liquids on the basis of observation alone.” Nat’l Fire Protection Ass’n, *NFPA 921: Guide for Fire & Explosion Investigations* § 4-17.7.2 (1995). NFPA 921 notes that these patterns are common in post-flashover situations and therefore instructs the investigator to eliminate the possibility of flashover before concluding that an ignitable liquid was present. *Id.* § 4-17.7.2. Here, Captain Reuscher failed to eliminate flashover (Retrial Tr. 6619) and, therefore, his conclusion that the fire was intentional based on burn patterns perceived to be “irregular” was not scientifically sound. Indeed, David Smith, one of the country’s leading fire

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Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry § 12.3.1 (2001) (“In the case of a positive report, it may be appropriate to add a disclaimer to the effect that the identification of an ignitable liquid residue in a fire scene does not necessarily lead to the conclusion that a fire was incendiary in nature. Further investigation may reveal a legitimate reason for the presence of ignitable liquid residues.”).

science experts, concludes that this fire reached a flashover point and the burn patterns are consistent with post-flashover burning. (ER 0150-51.)

**2. Low Burning.** Some fire investigators still erroneously believe that a fire will never burn downward without artificial assistance, i.e., an ignitable liquid. These investigators will contend that the presence of burning on or near the floor indicates the use of an accelerant. This is precisely what Captain Evers, the second fire investigator for the prosecution, told the jury, testifying that the presence of low burning throughout the residence was “a red flag” that there was an accelerant used. (ER 0799.) But again, NFPA 921 plainly states that these patterns “can result with no liquids involved at all.” NFPA 921 § 4-16.1.4. In a fully flashed-over fire, evidence of low burning is entirely expected and therefore an unreliable indicator of an intentional fire. *Id.* §§ 4-16.1.4, 4-3.3; (ER 0153).

Further, Captain Evers testified that the walls and ceiling were comprised of gypsum wallboard. (Trial Tr. 1966.) Gypsum wallboard is one of the more reliable materials used in the construction of fire-resistant barriers and can withstand post-flashover conditions for a significant amount of time before failure occurs. (ER 0104.) Carpet, padding, floor tile, and wood, on the other hand, are easily ignitable when exposed to post-flashover

conditions. (*Id.*) Once a room reaches flashover, one would expect that the flooring materials would exhibit more damage and char from the extreme heat than the less combustible gypsum walls and ceilings, which would absorb and withstand the heat for a longer amount of time. (*Id.*) In that situation, an investigator will understandably observe deeper charring on the floor as compared to the gypsum walls and ceiling. (*Id.*)

Thus, evidence of low burning at the scene should not have been used by the investigators to conclude that the fire was intentionally set. Low burning in a flashover setting is simply not indicative of arson. (ER 0153.)

**3. Deep Charring.** Nor can the depth of charring be used as an indicator of arson. Captain Reuscher testified that the roof charring was unusually thick, indicating it was “obvious that an unusually hot fire had occurred” and citing this deep roof charring as an indicator of arson. (Retrial Tr. 6580; ER 0173.) While many fire investigators had come to believe, as Captain Reuscher had, that the presence of these burn patterns indicated an unusually hot, and therefore intentionally set, fire, NFPA 921 soundly rejected them as proper indicators because too many variables can affect the depth of char. NFPA 921 §§ 4-5.2, 4-5.5. Char rates can vary with the type of wood, orientation of the grain, moisture content, velocity of hot gases, and

ventilation conditions. *Id.* § 4-5.2. Because charring can vary for reasons wholly unrelated to whether an ignitable fluid was present, it cannot support the conclusion that an arson took place. (ER 0154-55.)

**4. Extreme Temperatures.** Similarly, scientific investigation has shown that extreme flame temperatures are not a reliable indicator of arson. For example, “[w]ood and gasoline burn at essentially the same flame temperature.” NFPA 921 § 4-8.1. Upholstered furniture that incorporates polyurethane foam is capable of bringing a residential room to flashover in less than five minutes. (ER 0123-24.) Despite these scientific facts, Captain Reuscher repeatedly told the jury that the fire burned hotter than a “normal fire” and that this indicated an intentionally set fire. Captain Reuscher’s report also noted his observation that aluminum around the family room window had completely melted away, further indicating that the fire burned abnormally hot and a liquid accelerant may have been used. (ER 0173.) However, as Smith explains, unintentional fires that reach flashover can often reach average temperatures in the range of 1,400°F to 2,000°F, easily melting aluminum, which has a melting point of approximately 1,200°F. (ER 0156.)

Thus, Captain Reuscher's reliance on extreme temperatures as an indicator of an intentional fire was incorrect.

The "indicators" upon which the investigators relied simply do not indicate that the fire was set intentionally by Souliotes or anyone else. (*See* ER 0157 ("Based on [fire expert David Smith's] thorough review of the materials . . . no valid evidence of arson exists.")) These investigatory errors are particularly troubling because jurors rely heavily on what purports to be scientific testimony as providing objective and irrefutable proof of a defendant's guilt. Put simply, what purported scientific experts say matters and their words and opinions have tremendous sway on a jury, especially where the defense called no rebuttal experts. Yet here, what the fire investigators proffered were, in reality, nothing more than unscientific and antiquated fire investigation theories and unsound conclusions of arson.<sup>5</sup>

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<sup>5</sup> This is precisely the type of specialized testimony whose reliability should be scrutinized under the standards set forth in *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993), and its progeny. *Cf., e.g., United States v. Cordoba*, 194 F.3d 1053 (9th Cir. 1999) (affirming exclusion of polygraph as inadmissible under *Daubert*). The scientifically invalid fire science principles relied upon by the fire investigators and presented to the jury at Souliotes's trial fall well short of the standards set forth in these cases.

As with the supposed evidence linking Souliotes to the fire, the prosecution's attempt to establish that the fire was deliberately set founders on poor science and unreliable conclusions. Accordingly, Souliotes presents a compelling claim of actual innocence.

## **II. SOULIOTES EXERCISED DUE DILIGENCE UNDER 28 U.S.C. § 2244(d)(1)(D)**

Given what we now know are the serious infirmities in the prosecution's case against Souliotes, there is compelling evidence of his actual innocence. As Souliotes cogently argues in his brief, such evidence should be sufficient to meet the *Schlup* threshold, but even were this Court to determine otherwise, Souliotes may still obtain relief under 28 U.S.C. § 2244(d)(1)(D), which provides that the limitations period for a *habeas* petition does not begin running until "the date on which the factual predicate of the claim or claims presented could have been discovered through the exercise of due diligence." 28 U.S.C. § 2244(d)(1)(D).

The district court, in finding the petition time-barred for failure to exercise due diligence in uncovering new evidence, did not examine whether it was even remotely plausible for Souliotes to have undertaken re-examination of the MPDs at a point earlier than he did. Indeed, the theory and methodology underpinning Lentini's new understanding of MPDs in

2005—which gave rise to the retesting of the evidence—were not widely disseminated or even widely recognized among fire scientists themselves. Given this, it would have been virtually impossible for Souliotes, who is not a scientist and is in prison, to know of these advances until at least September 2005 when his sister’s inquiries convinced Lentini to review the evidence again.

At the time of Souliotes’s trial in 1997, defense expert Dr. Donald Myronuk asked Lentini to analyze twenty-one samples of physical evidence from the fire investigation, both from the scene of the fire and from Souliotes’s belongings. (ER 0296-97.) Of these twenty-one samples, Lentini found that items 3, 5, 16, and 17 showed traces of a substance belonging to the general class of ignitable liquid residues known as MPDs. Items 3 and 5 were carpet and carpet foam from the living room of the burned house, and Items 16 and 17 were a pair of Souliotes’s shoes. (ER 0297.) Lentini’s testing followed the standard in effect at that time for the use of gas chromatography-mass spectrometry (“GC-MS”). (*Id.*) This method could only identify a substance as being within a general class chemicals; the method was unable to discriminate between different compounds within the same class. (*Id.*) Put another way, the standard in effect in 1997 allowed one

to determine what class of residue was present in a given sample, but did not allow one to make a comparison between samples to determine whether the residues on each sample were from the same or a different source. Based on this methodology and analysis, Lentini concluded in 1997 that the MPD found on Souliotes's shoes could not be excluded as having come from the same source as the MPD found in the living room at the scene. (*Id.*) The fact that MPDs were found both on the samples from the scene and on Souliotes's shoes was central to the prosecutor's argument that Souliotes was present at the scene of the fire. (ER 0863-64, 0847-48.)

In September 2005, Souliotes's sister, Alexandra Pantazis, contacted Lentini regarding his test results from her brother's trial and asked him about the development of forensic techniques in chemical analysis since that time. (ER 0298.) Based on his improved scientific understanding as of 2005, Lentini was able to do something he was unable to do in 1997—namely, *to make distinctions among the separate residues* in the samples within the more general class of MPDs. (*Id.*) Indeed, “[s]ince 1997, [Lentini] [had] spent a considerable amount of time studying and researching methods by which distinctions can be made within chemical compound classes, such as medium

petroleum distillates,” though this methodology had not been widely recognized or disseminated. (*Id.*)

Using this new scientific knowledge, Lentini reviewed his conclusions and underlying GC-MS data from 1997. Lentini “found that there were, in fact, chemical differences between the MPDs found on items 3 and 5 (from the fire scene) and items 16 and 17 (the defendant’s shoes).” (*Id.*) He concluded “that the material found on the shoes is different from the material found at the fire scene on Items 3 and 5 [the carpet and carpet foam]”; indeed, he concluded that “Items 16 and 17 [the shoes] “contain a [MPD] which is different in character from any of the [MPDs] from the fire scene.” (ER 0301-02.) Lentini explained that “[he] was unable to make such distinctions in 1997, but [was] able to make them now.” Lentini conveyed these new findings to Souliotes’s sister on September 21, 2005. (ER 0298, 0301.)

Next, in November 2005, at the request of the Northern California Innocence Project, which had become aware of Lentini’s communications with Souliotes’s sister, Lentini located the extracts of the four samples and re-tested them. (ER 0298-99.) The results of Lentini’s re-testing of the original samples confirmed what he had concluded from his re-analysis of the 1997 test results: that there was no chemical “match” between the MPDs found at

the scene of the fire and on Souliotes's shoes. (ER 0299.) *See supra* at 7-8. Lentini detailed these new test methods and results in a Chemical Analysis Report dated December 2, 2005. (ER 0298-99, 0304-08.)

This newly discovered MPD evidence—flatly contradicting the State's trial evidence and theory of the case—satisfies the tolling provision of § 2244(d)(1)(D). *See* 28 U.S.C. § 2244(d)(1)(D) (the limitations period for a habeas petition does not begin running until “the date on which the factual predicate of the claim or claims presented could have been discovered through the exercise of due diligence”). Here, the limitations period would begin running at the earliest on September 21, 2005, when Lentini informed Souliotes's sister that he had re-analyzed his 1997 data and conclusions and reached a different conclusion on the basis of scientific advances regarding the testing and differentiation of MPDs.

The scientific theory and methodology necessary to uncovering the new factual predicate for Souliotes's *habeas* petition had not gained widespread acceptance or public dissemination at the time Souliotes's sister sought out Lentini. Indeed, as of 2005, when Lentini re-examined his earlier findings, the ASTM technical testing standard for MPDs used by Lentini for the 1997 trial had not changed in relevant part, making Lentini's re-testing of the

samples for intra-class distinctions a true innovation. *Compare* ASTM E-1618-97, Standard Guide for Identification of Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry § 10.1.1 (1997), *with* ASTM E-1618-01, Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry § 10.1.1 (2001) (standard applicable in 2005). Due diligence cannot require a *habeas* petitioner to seek out that which does not exist or that which he or she has no reason to believe will provide a factual predicate to a new *habeas* claim.

The Seventh Circuit's opinion in *Moore v. Knight*, 368 F.3d 936 (7th Cir. 2004), is instructive on this point. In *Moore*, the petitioner found out during his trial that the presiding judge had conducted an *ex parte* conversation with the jury. But the judge told Moore that she had declined to answer the jury's questions. 368 F.3d at 938-39. Moore was convicted, and did not inquire further about the *ex parte* communication. *Id.* at 938. Several years later, one of Moore's friends overheard conversations suggesting that the judge had not disclosed that her communication had conveyed improper commentary on the jurors' questions. *Id.* When apprised of the situation, Moore asked his friend to investigate further. Over a year later, Moore's

friend wrote a report, replete with juror affidavits demonstrating that the judge had in fact not been truthful with petitioner or trial counsel about the *ex parte* conversations. *Id.* The appellate court found that the § 2244(d)(1)(D) triggering date for filing a *habeas* petition did not begin until Moore's friend reported back with the juror affidavits. As Judge Wood explained:

It was not until Moore discussed the matter with Storms that he had reason to suspect the content of Judge Smith's communications to the jury was different than she had represented, and it wasn't until Moore obtained the jurors' affidavits that he had specific, concrete information regarding what had transpired, upon which he could base his claim.

*Id.* at 939. Tellingly, Moore never polled the jurors to ensure that the judge had not had any improper *ex parte* conversations with the jury; he had, as the Seventh Circuit explained, no reason to suspect otherwise. Yet, despite this several year gap between the trial and his *habeas* petition, the appellate court in *Moore* found that the petitioner had exercised due diligence because not only was he a prisoner "limited by [his] physical confinement" but because he had acted reasonably once informed of the possibility of improper behavior by the trial judge. *Id.* at 940.

The same can be said for Souliotes, who had no reason to believe that a relatively obscure area of fire science had, years after his conviction, advanced enough in its understanding and differentiation of MPDs that re-

testing would result in a “factual predicate” for a *habeas* claim. Like Moore, Souliotes, once he learned of these developments, acted with deliberate speed to investigate the matter further and file his claim shortly thereafter. If anything, Souliotes’s case presents an easier case than Moore’s. Moore could have polled the jurors immediately after trial; here, the scientific advances that gave rise to Souliotes’s *habeas* petition had not yet occurred at the time of trial. As such, this Court should find that Souliotes exercised due diligence and toll his claims accordingly.

## CONCLUSION

As the prosecution urged the jury, “[t]he shoes tell the tale.” (ER 0864.) The shoes do tell the tale—they tell the tale of an innocent man who has been wrongly convicted based on bad science. Souliotes’s shoes and the MPDs found on them were, according to the prosecution, “the most conclusive scientific evidence” of Souliotes’s guilt. This “conclusive” piece of evidence, when viewed in light of newly discovered analytical techniques, does not link Souliotes to the scene of the fire. Furthermore, other evidence relied upon by the prosecution to convict Souliotes was based on wholly unreliable eyewitness identification placing him at the scene and the application of scientifically invalid principles of fire investigation that cast doubt on whether an arson occurred at all.

Dated: June 4, 2009

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**CERTIFICATE OF COMPLIANCE**

The undersigned, one of the attorneys for *amicus curiae* The Innocence Network, hereby certifies that pursuant to Fed. R. App. P. 29(d) and 9th Cir. R. 32-1, the attached *amicus* brief is proportionally spaced, has a typeface of 14 points or more, and contains 7000 words or less.

s/ Matthew D. Brown

## APPENDIX

The Innocence Network's member organizations include the Alaska Innocence Project, Arizona Justice Project, Association in the Defence of the Wrongly Convicted (Canada), California & Hawaii Innocence Project, Center on Wrongful Convictions, Connecticut Innocence Project, Cooley Innocence Project (Michigan), Delaware Office of the Public Defender, Downstate Illinois Innocence Project, Georgia Innocence Project, Griffith University Innocence Project (Australia), Idaho Innocence Project (Idaho, Montana, Eastern Washington), Indiana University School of Law Wrongful Convictions Component, Innocence Network UK, The Innocence Project, Innocence Project at UVA School of Law, Innocence Project Arkansas, Innocence Project New Orleans (Louisiana and Mississippi), Innocence Project New Zealand, Innocence Project Northwest Clinic (Washington), Innocence Project of Florida, Innocence Project of Iowa, Innocence Project of Minnesota, Innocence Project of South Dakota, Innocence Project of Texas, Kentucky Innocence Project, Maryland Office of the Public Defender, Medill Innocence Project (all states), Michigan Innocence Clinic, Mid-Atlantic Innocence Project (Washington, D.C., Maryland, Virginia), Midwestern Innocence Project (Missouri, Kansas, Iowa), Mississippi Innocence Project, Montana Innocence Project, Nebraska Innocence Project, New England Innocence Project (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), North Carolina Center on Actual Innocence, Northern Arizona Justice Project, Northern California Innocence Project, Office of the Public Defender, State of Delaware, Ohio Innocence Project, Pace Post Conviction Project (New York), Pennsylvania Innocence Project, Rocky Mountain Innocence Project, Schuster Institute for Investigative Journalism at Brandeis University, Justice Brandeis Innocence Project (Massachusetts), The Sellenger Centre (Australia), Texas Center for Actual Innocence, Texas Innocence Network, The Reinvestigation Project of the New York Office of the Appellate Defender, University of British Columbia Law Innocence Project (Canada), University of Leeds Innocence Project (Great Britain), the Wesleyan Innocence Project, and the Wisconsin Innocence Project.

**CERTIFICATE OF SERVICE**

I hereby certify that on June 4, 2009, I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system.

I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/ECF system.

s/ Cynthia Cornell