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# TAINTING EVIDENCE

INSIDE THE  
SCANDALS AT THE  
**FBI**  
CRIME LAB



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*THE FREE PRESS (1998)*

## PROLOGUE:

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### EXAMINING THE EXAMINERS

The tall, graying legislator strode past the American flag onto the platform of Committee Room 226. With a quick adjustment of his black-and-white spotted tie, he seated himself at the center of a semicircular dais under the carved eagle on the hardwood-paneled wall. As the lights of six television cameras were switched on and photographers and cameramen began to jostle for position, Senator Charles Grassley of Iowa began to read slowly from three sheets of paper. It was his opening statement as chairman of the Senate Subcommittee on Administrative Oversight into the Courts at hearings entitled, "A Review of the FBI Laboratory: Beyond the Inspector General's Report."

His purpose, he explained, was to help restore public confidence in federal law enforcement in general and the Federal Bureau of Investigation in particular. But the facts the senator went on to outline hardly seemed likely to do that. The hearings had had to be postponed twice, he stated, because of the FBI's refusal to cooperate by supplying requested documentation and by making FBI employees available to testify without the bureau's lawyers present. This, Senator Grassley said, was despite FBI

director Louis Freeh's appeal for more oversight to another congressional subcommittee just four months earlier, when he had stated that the FBI could be the most dangerous agency in the country if "not scrutinized carefully."

Senator Grassley said the FBI was being hypocritical. "It is not the message that rings true. It's the actions. The Bureau's actions contradict the director's assertion that it is inviting oversight. And until the actions match the words, the ghosts of FBI past are still very much in the present." He went on to say that he expected the requested documentation to arrive the moment the hearings finished. In fact, within an hour, Senator Grassley had to apologize to the packed committee room for being "so cynical." The documents had arrived but were so heavily redacted as to be virtually useless, he said, holding up page after page of blacked-out FBI memos.

Senator Grassley's hearings took place in the wake of the release five months earlier of a damning 517-page report by the Inspector General's Office of the Department of Justice, the result of an eighteen-month investigation into the FBI laboratory. The investigators had included a panel of five internationally renowned forensic scientists, the first time in its sixty-five-year history that the FBI lab, considered by many—not least, by itself—the best in the world, had been subject to any form of external scientific scrutiny. The findings were alarming. FBI examiners had given scientifically flawed, inaccurate, and overstated testimony under oath in court; had altered the lab reports of examiners to give them a prosecutorial slant, and had failed to document tests and examinations from which they drew incriminating conclusions, thus ensuring that their work could never be properly checked.

FBI lab management, meanwhile, had failed to check examinations and lab reports; had overseen a woefully inadequate record retention system; and had not only failed to investigate serious and credible allegations of incompetence but had covered them up. Management had also resisted any form of external scrutiny of the lab and had failed to establish and enforce its own validated scientific procedures and protocols—the same ones that had been issued by managers themselves in an effort to combat the lab's known shortcomings in the first place.

But the IG's report, shocking as its conclusions were, was severely limited. It had looked at just three of seven units in the FBI lab's Scientific

Analysis Section, a fraction of the lab's total of twenty-seven units.\* The IG had been mandated to look into the specific allegations of just one man, Dr. Frederic Whitehurst, a Ph.D. chemist and FBI supervisory special agent who for eight years, until 1994, had worked solely on explosives-residue analysis—trace detection, and identification of the residue left behind by explosions in the lab's Materials Analysis Unit.

For nearly ten years, until he was suspended and put on "administrative leave" just weeks before the IG's report was published in April 1997, Whitehurst had reported his own observations and what others had told him. Underpinning his complaints and their persistence were three things: the unscientific nature of so much of what was being passed off as science in the FBI lab; the culture of pro-prosecution bias rather than scientific truth that pervaded the lab, including the possibly illegal withholding of exculpatory information; and the complete inability of the FBI lab or its management to investigate itself and correct these problems.

Not only had the IG report confined itself to Whitehurst's admittedly limited sphere of knowledge within the FBI lab, it had no mandate to look into the evidentiary matters raised, to ask how particular cases might have been affected, or to look at the possibility of charges against FBI lab employees heavily criticized by the report. Given the plentiful evidence of pro prosecution bias, false testimony, and inadequate forensic work, it was only logical to assume that cases had been affected. How many people might be in jail unjustly? How many might be on Death Row by mistake? If innocent people were in jail for crimes they did not commit, how many guilty ones were walking the streets?

Senator Grassley and others in Congress quickly realized that the inspector general's report had to be the beginning, not the end. The issues Whitehurst had raised, the inspector general had investigated, and now the hearings were examining further, went to the heart of the credibility of justice and the courts in the United States. In the end, the IG's report had raised more questions than it had answered, not least perhaps the

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\* Even a recent history of the FBI lab, as this book is, presents one accounting dilemma. The number of units and sections, and even their names, have changed continuously over the years. A case in point is the Hairs and Fibers Unit, later called the Microscopic Analysis Unit, now named the Trace Evidence Unit. Ultimately, the problems described here remain, regardless of the name.

most important of all: How had this happened in the first place and how might it be avoided in the future?

The task of assessing what exculpatory evidence had been withheld, how many cases had been affected, and who in the FBI lab, if anyone, should face charges for what had been uncovered had now fallen to a task force in the Criminal Division of the Justice Department. The task force had to identify the prosecutors in each case, then release forensic documentation to them in order to allow them to decide if anything crucial had been withheld. The floodgates, in other words, were controlled by the nation's prosecutors, whose records had been built on legal victories they were now supposed to question. "Is it cynical to question whether these prosecutors are virtually the worst officials to objectively evaluate tainted evidence in their own cases? Clearly the fox is guarding the henhouse," noted Congressman Robert Wexler at the hearings.

The Justice Department refuses to provide updates as to the progress of the task force or even to name its members. However, the scale of the potential fallout is clear: Just one of the numerous examiners heavily criticized by the IG's report handled more than six hundred cases in a decade of work at the FBI lab. Defense lawyers believe that thousands of cases will be affected. "The IG's report was a starting, not a finishing point," says one attorney. "I think we will be living with the ramifications of this for years, and not just in terms of the number of appeals you can expect. No defense lawyer in the country is going to take what the FBI lab says at face value any more. For years they were trusted on the basis of glossy advertising. Now the real product turns out to be a dud."

As Fred Whitehurst, a mustached Vietnam veteran sat, arms crossed, at the back of the room, Senator Grassley went on to recount that it was "the FBI's say-one-thing-do-another habit" that made him hesitant to simply accept assurances that everything was now in order at the FBI lab. "The subcommittee's investigation has revealed that systemic problems remain at the lab. . . . The problems exist and flourish because of a cultural disease within the FBI," Grassley continued. "The question is, how will these changes ensure the integrity of the scientific process within the lab, which seeks to discover the truth, when a culture exists within the FBI to apparently cut corners and slant lab reports in favor of the prosecution, which seeks to convict. The IG report did not reconcile

this dilemma. The FBI will not admit the problem exists. That is why we are here today.”

During the hearings, senators would hear Congressman Robert Wexler call for legislation to ensure the FBI’s “future integrity” and express outrage that Whitehurst, “the courageous whistle-blower, was out . . . while dozens of FBI agents who suppressed evidence, altered evidence, or testified falsely were still there.” Clearly angered by what he had heard at the previous hearings four months earlier, Wexler would now accuse the IG of failing to draw logical conclusions from its own findings. How could obvious lying on the witness stand not be considered perjury? How could the systematic alteration of lab reports to make them more incriminating not be considered intentional?

The committee would hear four past and current FBI lab employees all express support for Whitehurst and the general charges he had made. They would hear Dr. Drew Campbell Richardson, an adviser to the FBI lab’s deputy assistant director and a highly qualified scientist, say that the FBI lab ignored scientific evidence that did not suit its purposes. They would hear how Bill Tobin, the FBI’s metallurgist, and Jim Corby, Whitehurst’s former boss, had made repeated complaints about the same examiners Whitehurst had accused, only to have them ignored. And they would hear how one of those heavily criticized in the report had been promoted to head the FBI lab’s Explosives Unit, despite being under investigation at the time, passing over Ed Kelso, a widely respected firearms instructor and bomb expert with twenty-five years experience.

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This book seeks to explore how all this happened. It seeks to go beyond the inspector general’s informative but restricted investigation of the FBI lab and tell the story that the report did not. It seeks to go beyond Fred Whitehurst’s serious but limited allegations and show how what he charged applies to other parts of the FBI lab that were never investigated. We have done this with the help of hundreds of hours of interviews of current and former FBI lab staff and thousands of pages of documents, memos, lab reports, interviews, and audits, many of them only released under the Freedom of Information Act after months of stonewalling by the FBI and the IG’s office. Some of these documents were the raw material of the IG’s report, a number of them indicating problems with lab units and cases never investigated by the investigators.

There was, of course, no cooperation from the FBI in the writing of this book, although we were allowed to talk to Fred Whitehurst on the same terms as the rest of the media—essentially, without reference to specific cases. In August 1997, the authors submitted a request to interview twenty past and present lab staff; in September we were told our request had been lost; in October it was still pending. In November the authors received a letter thanking us for our interest in the FBI but turning down our request. One of the themes of this book is the FBI's obsession with how it appears rather than what it actually is. This book and its subject did not fit the Bureau's agenda.

In the Introduction and Chapter 1 we look at the state of forensic science in this country and the FBI lab in particular. We show that while claiming to have investigated Whitehurst's allegations and found no problems, management was fully aware that there were massive problems with the FBI lab, its science, its supervision, and its safety. We show that management knew that if it ever agreed to real external scrutiny, if it was ever forced to publish the research data on which its forensic tests were based, if it ever had to make public the results of its internal proficiency tests, the image of the FBI lab as the best forensic laboratory in the world would rapidly dissolve. For this, as Senator Grassley remarked at the Senate hearings, is a culture that rewards "public image-building over discovering the truth."

The extent of the lab's dysfunction becomes clear in Chapters 2 through 8, where we look at major cases the FBI lab has handled. In particular, we detail the failings of four key FBI staff members—Terry Rudolph, Tom Thurman, Roger Martz, and David Williams—whose practices in several high-profile cases demonstrate the dangers of the lab's modus operandi. Some of these are cases the IG looked at—the World Trade Center bombing, the Unabomber investigation, the VANPAC case, the O. J. Simpson trial. Others are cases the IG did not investigate or examined only partially—the lab's role in the Ruby Ridge investigation, the Jeffrey MacDonald case, the Oklahoma City bombing.

All of these are celebrated cases involving massive forensic and other investigative resources. The FBI lab's role in all of them raises a huge and still unanswered question: If this is what happens in these high-profile, well-scrutinized cases, what is happening in thousands of less publicized ones?

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In talking to dozens of forensic scientists and FBI lab personnel, one thing has become clear to us. Few were surprised at the revelations of the IG report. Many people, inside and out, have known for many years that there were serious problems at the FBI lab. Very few, however, inside or out, have chosen to speak out. With a few honorable exceptions, forensic scientists outside the FBI lab have been reluctant to take on the Bureau, which now wields enormous power throughout the profession, through training programs, research grants, and consultancy work. Many of those working inside the FBI lab seem to have been intimidated by the climate of fear that is a constant theme of Fred Whitehurst's 257 written complaints. In failing to come forward, or in some cases even to support Fred Whitehurst when he did, they have only themselves to blame for the broad-brush condemnation with which all at the FBI lab, good or bad, have now been tainted. They are in essence living testimony to what Senator Grassley describes as the FBI's "cultural problem."



## INTRODUCTION

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### FORENSIC SCIENCE THE PROMISE AND THE PRODUCT

Scientific crime-solving, or sci-crime—it is an image upon which much of the FBI's awesome reputation is based. Humans are fallible, are inclined to lie, and are often motivated by anything but the truth. The history of crime fighting in the United States is littered with eyewitnesses who misidentified a suspect, defense lawyers who persuaded juries to find reasonable doubt, and suspects who had credible alibis. The physical evidence, on the other hand, is the silent, definitive witness. The traces of explosives on Timothy McVeigh's clothes in Oklahoma City, the bloody shoe-prints left by the killer of Nicole Brown Simpson and Ron Goldman in Los Angeles, the saliva traces recovered from the sealed envelope of a letter claiming responsibility for the bombing of the World Trade Center . . . all these offer certainty. And certainty equals proof.

The means of making physical evidence proof is forensic science, the application of science to legal processes, the application of science to crime fighting. Together or apart, the words "forensic" and "scientific" are today commonly used as everyday adjectives that imply definitive, detailed, and comprehensively argued. It is an image burnished by popular

television detective series such as *Quincy* and the coverage of big cases by Court TV, an image epitomized by the source of the country's most famous forensic science: the FBI's crime lab.

Each year half a million people hear and see the case for forensic science when they take the public tour of the FBI headquarters in downtown Washington, D.C. The J. Edgar Hoover Building is a monstrous, sandy-brown structure that somehow exudes the brooding presence of the man whose name it bears. With an overhanging, slanting top floor—the seventh at the front, the eleventh at the back—the FBI's HQ looks as though it might topple onto the traffic in Washington's Pennsylvania Avenue at any moment. Passing the black-and-white photographic portraits of FBI directors and the rogues gallery of the Bureau's "Ten Most Wanted" fugitives, visitors take a narrow escalator to the only working part of the FBI they will see on their visit—the laboratory. 61 YEARS OF FORENSIC SCIENCE SERVICE, DNA: THE SILENT WITNESS proclaims the sign that greets them. It's the sort of public relations exercise of which J. Edgar Hoover, the FBI's former director—"The Boss" as he was known to agents for nearly fifty years—would wholeheartedly approve. **To Hoover, image was everything, a legacy that thrives at the FBI to this day.**

"The examiners you see are working on real cases," says the guide, as children press their faces to the panes of glass that are all that separate the watchers from the watched. "The FBI is the only place in the United States with a full forensic lab," she adds, spinning through DNA, Firearms-Toolmarks, Hairs and Fibers, Materials Analysis, Chemistry and Toxicology, and Questioned Documents—some of the visible components of the lab's seven-unit Scientific Analysis Section. Here the victims of serious crime—rape, murder, violent assault—are reduced to a piece of bloodstained clothing, a hair from the carpet, an invisible explosives residue on a nondescript piece of debris. Only if photos, tapes, or handwritten notes come in as part of the evidence do such people have the faces, voices, or hands that make them real.

What the tourists see is actually just a fraction of what makes up the FBI's Laboratory Division. The Scientific Analysis Section is one of just four lab sections located at FBI headquarters, all with a bewildering range of state-of-the-art expertise, technology, and capacity. Today's Investigative Operations and Support Section grew out of the Questioned Documents Unit, where examiners detected crime by chasing paper rec-

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ords. They look at everything from receipts to handwriting comparisons, targeting everyone from drug smugglers to kidnapers. Documents also handles all types of impressions—tire treads, shoe-prints, handwriting, or typing imprints. Today this section includes the specialist polygraph, or “lie detector,” unit, a computer analysis unit, a special photographic unit, and specialists in analyzing racketeering records—illegal gambling, prostitution, loan-sharking, and money-laundering records.

The Special Projects Section is even more diverse, with seven units that handle film, video, and photographs of suspects or victims; the famous artists “impressions” of witnesses’ descriptions of suspects; crime scene plans; and now computer art and design. The aging or reconstruction of faces of suspects or victims and the reconstruction of crime scenes are a specialty. This section also prepares all forms of graphics or film used as exhibits at trial and the false credentials or documentation needed by FBI agents or informants for undercover work. Here too is the Evidence Control Center, responsible for the receipt, assignment, and tracking of the thousands of lab samples that are subjected to hundreds of thousands of examinations every year.

Finally, practicing one of the oldest and best-known disciplines of forensic science, there is the FBI lab’s Latent Fingerprint Section. Here the main task is developing and comparing fingerprints, palm prints, footprints, and even lip prints with some of the estimated 200 million imprint records stored at the FBI’s National Crime Information Center in West Virginia. Under an automated fingerprint identification system now being developed, law enforcement officials anywhere in the country will soon be able to instantly match sample prints with those in the database by means of portable computer images.

Much of the work in all lab departments is clinical, routine, and tedious, even though the samples, which can range from soil to bullet casings, are often anything but. Yet this is by far America’s biggest, most important, best equipped, and most famous crime lab. As an examiner here you never know what you are going to get—it could be a rape one day, an explosion the next, and a product-tampering case the day after that. “Here you might start work on the case of a lifetime any day, anytime,” says one employee. And it could come from anywhere. As well as its own cases—federal crime or crime that involves more than one state—the FBI lab takes work from state, county, and municipal law

enforcement agencies across the nation. As a result, its 694 staff handled 136,629 pieces of evidence and performed nearly 700,000 examinations in 1996.<sup>1</sup>

In the past twenty-five years forensic science has been transformed, "growing up so fast that even the most sophisticated researchers cannot keep up," according to *Time* magazine.<sup>2</sup> Nowhere more so than in the heart of the FBI lab, the Scientific Analysis Section. Here the traditional scientific paraphernalia, the test tubes, gas tanks, and microscopes that recall school chemistry classes rub shoulders with infrared spectrometers, Apple and Compaq computers, and mass spectrometers. Forensic science is now genetics and microbiology in DNA typing, nuclear physics in neutron activation analysis, analytical chemistry in infrared, ultraviolet, or X-ray spectrometry, and statistics in computerized number crunching.

These new technologies have in many cases been grafted onto a profession that in many of its traditional subfields, such as fingerprints, questioned documents, ballistics, hairs and fibers, and explosives, is not actually based on science at all but on subjective comparisons by individual examiners. Yet either way, whether the "soft" science of the traditional visual comparisons of two hairs, bullets, or fingerprints or the "hard" science of neutron activation analysis or DNA typing, forensic science ultimately cannot avoid the human factor. The examiners who do the tests, run the machines, and make the comparisons are people. At the FBI lab and the nearly four hundred other crime labs in the United States, those people have turned out to be as flawed as the eyewitnesses, juries, or lawyers who make up the rest of the judicial process.

But if scientific crime-fighting is fallible and flawed, those problems rarely come to light. One exception was in July 1994, when *USA Today* and the Gannett News Service published a survey. Believing that the claim that the bloody glove found on O. J. Simpson's estate had been planted was far-fetched, the newspaper trawled legal and media databases for comparative cases. They found eighty-five instances since 1974 in which prosecutors had knowingly or unknowingly used tainted evidence that had convicted the innocent or freed the guilty. In the same period, forty-eight people sentenced to death were freed after convictions were found to be based on fabricated evidence or because exonerating or exculpatory evidence was withheld.<sup>3</sup> And these were just the known cases, cases which for one reason or another had come to light or made the

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news. "In the United States we take science as gospel," said Ray Taylor, a San Antonio, Texas, lawyer and forensic pathology expert, commenting on the survey. "The public perception is that faking science is rare. The truth is it happens all the time."<sup>4</sup>

The tip of this iceberg has been some shocking individual examples. Fred Salem Zain was a police forensic expert in West Virginia and Texas for nearly fifteen years. Hired as a chemist by West Virginia's police crime lab in 1979, he testified as an expert in dozens of rape and murder cases about tests he had never done and results he had never obtained. Despite complaints, nothing was done. Colleagues taped a magician's wand to one of Zain's lab machines in frustration. In 1989, Zain became head of serology at the Bexar County Medical Examiner's office in San Antonio, Texas. When asked to review Zain's work, a Dallas forensic specialist found rampant fraud and falsification. In one case, Zain had testified about blood evidence when no blood had even been found; in other cases he reported performing tests his lab was incapable of doing. Zain was fired. At the last count, five men jailed for rape and murder had had their convictions overturned as a result.

West Texas pathologist Ralph Erdmann, who worked as a contract medical examiner in forty counties, faked more than one hundred autopsies on unexamined bodies and falsified dozens of toxicology and blood reports. Dozens of other autopsies were botched. In one case, he lost a head. Then there was Louise Robbins, a college anthropology professor who claimed the ability to match a footprint on any surface to the person who made it. Robbins appeared as an expert witness for over a decade in more than twenty criminal cases throughout North America before her claims were seriously undermined. Her testimony helped put more than a dozen people behind bars, including an Ohio man who spent six years on Death Row before his conviction was overturned on appeal.

Michael West was a forensic dentist from Hattiesburg, Mississippi, who appeared as a scientific expert more than sixty times in ten states until 1996. At least twenty of these were capital murder cases. West became famous for his controversial use of long-wave ultraviolet light and yellow-lensed goggles to study wound patterns on a body. The equipment is standard: Ultraviolet light can enhance features on the skin. What West claimed he could see was not standard: No other forensic expert could pick up the lines and marks he claimed to see. Robert Kirschner, a

former deputy chief medical examiner who testified against West, says what he did was closer to voodoo or alchemy than science. "History is full of people who claimed they could see things, from ghosts to UFOs," says Kirschner. "But claiming it and proving it are two different things."<sup>5</sup>

The biggest and self-proclaimed best forensic lab in the world has not been immune to such rogues. In February 1975, an internal FBI investigation into the activities of Special Agent Thomas Curran, an examiner in the FBI lab's serology unit, revealed a record of perjury, incompetence, and falsification. At the trial of Thomas Doepel for rape and murder in Washington, D.C., in 1974, Curran testified under oath that he had a bachelor's and a master's degree in science; that both Doepel and the victim were blood type O; and that the defendant's shorts bore a single blood stain. In reality, Curran had no degree in anything; Doepel, on retesting, turned out to be blood type B; and the shorts evidenced two, not one, bloodstains.<sup>6</sup>

After further complaints, FBI special agent Jay Cochran was instructed to do a full review of Curran's work. Curran's aberrations, like Zain's, were common. Curran had issued reports of blood analyses when "no laboratory tests were done"; had relied on presumptive tests to draw up confirmatory results; and had written up inadequate and deceptive lab reports, ignoring or distorting test results. "The real issue is that he chose to ignore the virtue of integrity and to lie when asked if specific tests were conducted," Cochran's report to the then head of the FBI laboratory, Dr. Briggs White stated.<sup>7</sup> It was an early warning of what could happen at the FBI lab. Tom Curran turned out to have lied repeatedly under oath about his credentials, and his reports were persistently deceptive, yet no one—FBI lab management, defense lawyers, judges—had noticed. When they did, there was no prosecution for perjury.

Of course, every profession has its rotten apples. Forensic science is no different from the law, medicine, academia, law enforcement, or anything else. The issue is not the Zains or Currans per se, but the questions their conduct raises. How did they get into the profession? How did they get away with it for so long? Why are they not stopped and punished? Why do juries, judges, prosecutors, and even defense attorneys believe them?

Take a close look at forensic science and answers are not hard to come by. The first shock is that most forensic scientists are not in fact

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independent experts. About 80 percent of forensic scientists in North America are affiliated with police or prosecution agencies. Most of these work in police laboratories; many are themselves law enforcement officers, as are most of their superiors. Fred Zain was a state trooper, promoted to lieutenant; Tom Curran was an FBI special agent. The potential conflicts of loyalties and interests is obvious. Scientists are expected to retain a critical sense, to follow nothing but reason, to maintain an open mind. We expect the results, the science, to bear witness in court unencumbered by any other considerations. Complete impartiality may be an aspirational ideal, but what chance is there of coming anywhere near this ideal if the police or FBI pay your wages?

"It is quite common to find laboratory facilities and personnel who are, for all intents and purposes, an arm of the prosecution," notes James Starrs, a professor of law and forensic science at George Washington University in Washington, D.C. "They analyze material submitted, on all but rare occasions, solely by the prosecution. They testify almost exclusively on behalf of the prosecution. . . . As a result, their impartiality is replaced by a viewpoint colored brightly with prosecutorial bias."<sup>8</sup> William Thompson, a professor of criminalistics at the University of California, Irvine, agrees: "The culture of such places, run by police or agents, for police or agents, is often just inimical to good scientific practice. The reward system, promotion, incentives . . . in the end your pay check is based on successful prosecutions, not good science."<sup>9</sup>

Nowhere is this truer than at the FBI laboratory in Washington, the pinnacle of the forensic science mountain in the United States. Institutional bias here is enshrined in the limitation of the availability of the lab and its services to state and federal law enforcement agencies. The FBI lab works for the prosecution and no one else. It is reinforced by the FBI lab's reluctance to give or take second opinions. Generally, evidence submitted to the FBI laboratory cannot be taken elsewhere, or vice versa, even though that might be considered the peer review deemed essential by scientists. The FBI lab is happy to clear suspects and frequently does. However, defense teams need to get a court order and be prepared to share any findings with the prosecution if they want to use the government-funded facility. Indeed, the lab is even off-limits to defense experts who want to observe testing.

The prosecutorial attitude was made clear by one lab veteran now

working privately: "People say we're tainted for the prosecution. Hell, that's what we do! We get our evidence and present it for the prosecution."<sup>10</sup> In the FBI laboratory "getting results," the declared aim of FBI director Louis Freeh, means securing prosecutions. But that is only part of the story. Those on the public tour staring through the viewing windows of the Scientific Analysis Section of the FBI laboratory might be surprised to learn that many of the white-coated figures hunched over microscopes or spectrometers are FBI agents. Some have science degrees, but many, particularly, ironically, those in the most senior positions, do not. They are FBI men and women working for an FBI laboratory.

For more than twenty years the FBI resisted replacing its special agents who work in the laboratory with civilian scientists. Even now, after several years of replacing agents with such personnel, FBI agents continue to run the lab, occupying virtually all the senior management and examiner positions. FBI special agents bring an "extra dimension" to the analysis of physical evidence, the FBI insists. The ideal lab specialist "stands in the shoes of the investigator in the field, whom he is serving," as John McDermott, a senior FBI official, put it to a congressional subcommittee in 1981.

Serving the investigator or serving justice? Close liaison between examining agent and investigator, the core of the FBI's argument, can easily create bias that is often so subtle as to be unconscious. In the first place, there is simply the method of working. "Sometimes they're [the investigators are] pretty confused about what they want, so we'll call them up to find out what they're trying to prove," the then FBI Firearms-Toolmarks Unit (FTU) chief Jack Dillon told one author. "Often we can suggest some better ways of doing it."<sup>11</sup> By "doing it," of course, Dillon means trying to build a case for prosecution. "That is what I have come to call putting the cart before the horsing around," says Professor Starrs. "They're effectively running the investigation backward, starting with a hypothesis of guilt, then going out to try and prove it. That is not science. These people aren't scientists."<sup>12</sup>

Second, there is suggestive incrimination. Numerous studies have shown that advance warning of the results anticipated, even something as simple as looking for a match or positive identification, is significantly more likely to produce those results. In just one example, experiments in 1975 demonstrated that a witness told by police that a suspect was in an

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identification lineup was seven times more likely to pick out a suspect than those advised only that a suspect might be present. Expectations can be unconsciously passed on, verbally and nonverbally.

One good example of suggestive incrimination comes from Evan Hodge, a former FTU chief at the FBI laboratory. In an article entitled "Guarding Against Error" he tells the story of a police inspector who took a 1911.A1 model .45-caliber pistol to a lab for confirmation that it was a murder weapon. "We know this guy shot the victim and this is the gun he used," the examiner was told. "All we want you to do is confirm what we already know so we can get the scumbag off the street. We will wait. How quick can you do it?" The examiner gave them their instant identification. The suspect confessed and led the police to a second pistol, also a .45, also a 1911.A1 model, which lab tests demonstrated was the real murder weapon. "We all do this [give in to investigative pressure] to one extent or another," Evan Hodge admitted, arguing that the only solution is to remove the sources of it from the laboratory completely.<sup>13</sup>

Investigators in the field, and the close contact the FBI lab advocates with them, are one source of pressure. There are many more. Prosecutors are one. Politicians, another. The public, yet another. Few criminal cases today do not lean on forensic science, and as the search for the means to combat crime has intensified, so have the expectations. At the FBI, major cases like TRADBOM (the bomb attack on the World Trade Center in New York City) and OKBOM (the Oklahoma City bombing) get the sort of priority, as well as the public and political attention, that is, in itself, a source of pressure. These cases are too big to leave unsolved in the lab, too big to lose in court. The government will throw infinite investigative and legal resources at them. Lower down the crime lab chain, the stakes may be just as big locally. Careers may depend on results. "Don't expect to get re-elected as a district attorney in this country if a particularly heinous crime goes unsolved on your patch," notes one southern lawyer.<sup>14</sup>

Fred Whitehurst's complaints stemmed from such pressures, in particular the culture clash between the needs of science and the needs of law enforcement that are accentuated by the dominance of a law enforcement ethos rather than that of science in the FBI lab. Many accused him of being unable to make the distinction between pure and practical science. Yet Whitehurst is actually quick to acknowledge the uniqueness of

the forensic process within science. The forensic scientist seeks to link a sample to an individual, to a substance, to distinguish it from other specimens in a way no other scientist would even attempt. The forensic scientist's standard fare is the sort of degraded, soiled sample that a research scientist would trash if it ever came near his or her laboratory. The forensic scientist's goal is not pure knowledge but practical supposition.

Whitehurst's contention is simply that such ends have to be underpinned by scientific method, proven protocols, and validated procedures or they yield no proven truth, the ultimate aim of both law and science. Forensic science has to use procedures and processes that have withstood traditional scientific scrutiny—i.e., been subjected to publication and peer review, the sort of “institutional skepticism” that is the cornerstone of the scientific process. Forensic science examinations should be fully documented, subject to cross examination, and the results and process available to the defense. The reality is somewhat different. The openness, democratic debate, public dissemination, and protracted research that are the hallmarks of proper science contrast sharply with the secrecy, haste, and authoritarian hierarchy of the crime lab.

For years, some lawyers and many scientists have argued that forensic science is hardly a branch of science at all in its refusal and institutional inability to accept or conform to scientific norms. With relatively little research done in forensic science itself, there has been a propensity to adopt or adapt half-baked research done elsewhere. The result: Time after time definitive research in the field of forensic science has only been done after questions have been raised about the accuracy and reliability of its procedures, usually in court. The FBI lab, with the biggest forensic science research facility in the country—the Forensic Science Research and Training Center at Quantico, Virginia—has been at the center of many of the resulting disputes.

The forensic history of voiceprints—the claim that a spectrograph could be used to produce a unique pattern for any single individual's speech—is particularly instructive. With limited research concluded, a number of courts ruled voiceprints admissible. Only when scientists from other fields challenged the spectrograph research and a major scientific controversy erupted did the FBI ask the National Academy of Sciences (NAS) to review voiceprint technology. An NAS evaluation committee quickly concluded that the theory had not been validated.<sup>15</sup> Yet, incredi-

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bly, many courts continued to allow the admissibility of voiceprints long after the NAS study had been published.

Those that present science to the public at public expense are surely obliged to understand its basic precepts. Yet many in the FBI lab do not, as Chapters 2 through 8 of this book amply illustrate. Court records throughout the country are littered with examples. In a recent aggravated assault and burglary trial in Montana, FBI fingerprint expert Michael Wieners asserted that a fingerprint experiment he had done was "scientific" but not "completely scientific." It was not surprising he could not tell the difference. Challenged about his familiarity with peer-reviewed literature on fingerprints, Wieners replied: "Peer reviewed? Could you explain that?"<sup>16</sup>

Complaints about such ignorance preceded Fred Whitehurst's arrival at the FBI lab in 1986. In 1981, three prominent independent forensic scientists criticized FBI science and testimony, citing three cases in a paper delivered at the annual meeting of the American Academy of Forensic Sciences (AAFS) in Los Angeles.<sup>17</sup> The first was a bank robbery case in which the FBI examiner seemed to have been unable to distinguish between a class characteristic and an individual characteristic in identifying a canvas bag, despite having a master's degree in forensic science. In the second case, a rape and murder with semen, blood, saliva, and hair samples, the paper criticized the FBI's typing procedure. The critics also pointed out that two FBI hair examiners who had studied the same hair specimens had disagreed on such fundamentals as how many samples there were, whether they had been bleached, and whether they had pulled roots. The third case involved gun residue on a shooting victim's hands that could have exculpated his wife, the defendant, yet had not been mentioned by the FBI examiner.

The authors of the paper stressed that they did not consider these cases aberrations. These case studies were, they claimed, typical of the problems that occurred repeatedly in crime labs and courts. They noted that FBI lab practice was considered standard by many courts, but emphasized that they were not singling out the FBI laboratory. The Bureau did not see it that way. Shortly after the presentation, a former head of the FBI lab, Thomas Kelleher, Jr., charged that the authors, Peter Barnett, Ed Blake, and Robert Ogle, Jr., had violated the code of ethics of the AAFS in making the presentation. They had, Kelleher claimed, misrepresented

the role of the lab and the conclusions of FBI examiners. Thus, the actual leveling of the charges became the subject of an investigation by the AAFS's ethics committee.

Ultimately it was decided that there was not "sufficient evidence of misrepresentation of data" by the authors to support the FBI's allegation. "The FBI's allegations were preposterous. I think we made them look ridiculous," says Ed Blake, a longtime critic of the FBI's forensic science.<sup>18</sup> "We chose the FBI lab to show that crime labs could get it wrong because we thought they were big enough to take a little criticism," chuckles Robert Ogle, Jr. "Fortunately, there was someone with a scientific background on the ethics committee. They just said: 'Look, this is bullshit. You can't bring ethics charges against people for giving a scientific paper at a scientific meeting.'"<sup>19</sup>

Years later, Whitehurst's charges and his treatment would mirror those of these three, whose observations, along with Whitehurst's, would be vindicated by the inspector general's report. As the three critics pointed out in a letter to Professor Starrs's quarterly newsletter, *Scientific Sleuthing Review*, their paper cited "errors or insufficiencies on the part of the original examiner . . . management deficiency, . . . [and] a lack of knowledge." The IG report, sixteen years later, cited "failures by management" and "significant instances of testimonial errors, substandard analytical work and deficient practices."<sup>20</sup> The damage done to confidence in crime labs in general and the FBI lab in particular might have been avoided if the substance of their charges—not the fact that they had been made—had been addressed back in 1981, the three pointed out. But the FBI lab was incapable of addressing these issues or indeed of changing anything about the way it operated. Indeed, the very manner in which the FBI handled Whitehurst's complaints—dismissing them, burying them, then attacking the messenger rather than the message—illustrated how little the culture of the FBI lab had changed since 1981.

\* At the core of what the critical experts were alleging is the poor practice that riddles the FBI lab and much forensic science in the United States. Documentation is a case in point. Examiners have proven remarkably loath to write up their bench notes in any adequate scientific manner. No names, no chain of custody history, no testing chronology, no details of supervisory oversight, no confirmatory tests, no signatures—such omissions are quite normal in FBI lab reports. What the reports do contain is

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obfuscation and overstated conclusions written in an often incomprehensible style that some experts have termed “forensonics.” Undefined terms such as “match” or “identical to” are common; chronicled scientific procedures and protocols to justify them are not.

The motive seems to be to say as little as possible as unintelligibly as possible with what passes for scientific jargon and process. Numerous conversations with former FBI lab personnel and attorneys have left no doubt why. Since lab reports are “discoverable” and have to be handed to the defense, the FBI lab believes that as little as possible should be given away. The approach to research is no different. The publication of findings or methodologies might be used to undermine the prosecution of cases, so the rule that has evolved is to avoid dissemination. In short, the FBI’s interpretation of the adversarial approach on which the U.S. judicial system is based works to serve neither science nor truth.

As such, the FBI lab’s reports have shocked those outside the U.S. forensic science community. “If these are the ones [reports] to be presented to court as evidence then I am appalled by the structure and information content. . . . [T]he structure of the reports seems to be designed to confuse,” concluded Professor Brian Caddy, head of the forensic science unit at Strathclyde University in Scotland on being shown the FBI lab’s forensic reports in the Oklahoma City bombing case.<sup>21</sup>

Much the same goes for protocols or established procedures. Traditionally, many FBI forensic scientists have not used protocols—the recipes for analyses and the touchstones of scientific procedure—despite the fact that all scientists accept that not using them produces only experimental, not proven, outcomes. Indeed, in some crime labs, established protocols do not even exist. “Basically what we’ve got is a kind of oral tradition, like medieval English, the Venerable Bede, instead of a regular scientific protocol manual,” claimed Stephen Jones, Timothy McVeigh’s first defense lawyer in the Oklahoma City bombing case, who has looked into FBI lab procedures in some depth. “The advantage of the oral tradition, of course, is that no one knows what it is.”<sup>22</sup>

Such shortcomings are often accentuated in court. Here pressure from prosecutors is direct. All too often the important caveats that punctuate forensic science, phrases such as “including but not excluding,” “possible but not certain,” “compatible with but not incompatible with,” are forgotten. All too often “could” becomes “did,” an opinion becomes

a fact, tests that only suggest are said to prove. Even if the forensic scientist is sufficiently guarded, prosecutors or even judges are often less so.

“The expert may say something quite guarded like ‘was similar’ and within minutes you’ll hear the prosecutor reinterpret that as a definitive identification,” complains Professor Starrs. “How many times do you hear the word ‘match.’ What the heck does it mean? It must be the most overused word in forensic science.”<sup>23</sup> Indeed, surveys have demonstrated that there is no agreement on the definition of such key terms among forensic experts themselves.

In the cauldron of the courtroom, testifying beyond one’s expertise becomes common, especially under the FBI’s system, where auxiliary examiners, often civilian scientists, actually do the tests, but principal examiners, invariably FBI agents, have tended to do the testifying. All too often the fingerprint expert is invited to comment or even speculate on the bloodstains, the firearms expert on the nature of the bomb explosive, the documents examiner on the toolmarks. When only one expert is appearing in a multidiscipline case, it’s tempting for prosecutors or defense lawyers to go for an opinion; it’s also tempting for examiners to embellish, exaggerate, or even lie about their credentials. The case of the FBI’s Tom Curran, who was variously a zoologist, a biologist, and a psychologist for different court appearances, is exceptional only in degree.<sup>24</sup>

Incredibly, forensic scientists do not have to establish competence by obtaining a license or certification—even from their peers. There are no federal requirements and, to date, no state has demanded them. There are, to be sure, professional bodies. The American Board of Criminalists conducts very general proficiency tests, the American College of Forensic Examiners holds ethics exams, and perhaps the most highly regarded, the American Academy of Forensic Sciences, is a professional body whose members elect and promote each other on merit. But membership in none of these is a prerequisite to work. There is no certification or minimum standards for a very simple reason—the profession as a whole has opposed it. As long ago as 1976 certification boards were established in five areas of forensic science in an effort to establish peer-based bodies that would review credentials, run qualifying exams, agree on ethical

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standards, and certify practitioners in their particular fields. Guidelines were put to the nation's crime lab personnel in a referendum. They rejected them by a 2-1 vote.<sup>25</sup>

Some such as Ed Blake see the forensic science profession as a sort of medieval guild, with crime lab directors, led by the FBI lab and its management, acting as the police chiefs, employing, as they do, four-fifths of the profession. Certainly the failure of the professional associations to assert themselves has left a vacuum crime lab directors seemed to have filled, in deciding who will practice and on what terms. As David Stoney has remarked, in the absence of certification and thus effective sanction, there is, in many ways, no forensic science profession as such: "What are the entry requirements? Employment and function. One joins the profession when one is hired by a crime laboratory and one begins to write reports and testify in court."<sup>26</sup>

In the 1970s, the FBI lab began to flex its muscles to organize the crime labs of the country to fill this vacuum. In 1973, Duayne Dillon, a criminalist from California, stunned an audience at an AAFS meeting by stating that the greatest impediment to the widespread adoption of criminalistics in the U.S. judicial system was the existence of the FBI laboratory.<sup>27</sup> He was actually well intentioned; Dillon was referring to what he saw as the isolation and exclusivity of the FBI lab and its belief that there was no need for other crime labs in the United States. It was also well aimed; Dr. Briggs White, then the director of the FBI lab, was sitting in the audience. Furthermore, it was brilliantly timed; J. Edgar Hoover had died the previous year and Clarence Kelley, keen to shed a little light in the Bureau, took over the FBI in July of that year.

It made sense for the FBI to encourage the development of local crime labs; it reduced the Bureau's workload. It also made sense to link new crime labs to Washington, where there was expertise, information, and resources. That year, the FBI lab started training courses for non-FBI crime lab personnel. The following year, in 1974, Dr. Briggs White was appointed chairman of what was named the American Society of Crime Laboratory Directors (ASCLD), an organization designed to improve cooperation and communication among crime lab directors in the pursuit of "common objectives." A quarterly magazine, *Crime Lab Digest*, began publication shortly afterward. In 1976, the FBI proposed setting up the

Forensic Science Research and Training Center (FSRTC) in Quantico, Virginia, on the grounds of its training academy. By 1978, the thirty-nine-thousand-square-foot facility was under construction.

By the early 1980s, the FBI was the overwhelmingly dominant force in servicing the rapid expansion of forensic science facilities, training everyone from managers to technicians; developing new forensic science techniques, ranging from toxicology to hair identification; and funding research in academia and private industry across the country. Duayne Dillon could not have imagined the consequences of his criticism. "ASCLD and FSRTC gave huge power to a federal agency that had not been active in forensic science organizations," he said years later. "Suddenly the FBI lab's clout increased enormously."<sup>28</sup>

The FBI's new power and the enhanced status the country's crime lab directors enjoyed as a result of being more closely associated with the bureau was a fatal blow to the possibility of any agreed-on, enforceable ethical code in forensic science. Every two or three months, Professor Starrs, best known for the spotlight he sheds on the profession in his quarterly newsletter, *Scientific Sleuthing Review*, gets a phone call from someone in a crime lab. "They say, 'I know the defense attorney isn't going to ask the right questions and they're going to convict this guy. What should I do?' Or: 'They said the guy's on the brink of a confession and they want me to fabricate a fingerprint report,'" he reports.<sup>29</sup> Starrs has become a sort of confessor figure because as long ago as 1971 he started arguing publicly for the adoption of an ethical code.<sup>30</sup> What he proposed nearly thirty years ago could be as useful today. On personal issues, Starrs suggested:

1. No consideration or person should dissuade the forensic scientist from a full and fair investigation of the facts on which opinion is formulated.
2. The forensic scientist should maintain an attitude of independence, impartiality, and calm objectivity to avoid personal or professional involvement in the proceedings.
3. A forensic scientist should not tender testimony that is not within his/her competence as an expert, or conclusions or opinions within the competence of the jury, acting as laymen.

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On procedures, Starrs advocates:

4. Utmost care in the treatment of any samples or items of potential evidentiary value to avoid tampering, adulteration, loss, or other change of original state.
5. Full and complete disclosure of the entire case in a comprehensive and well-documented report, to include facts or opinions indicative of the accused's innocence and the shortcomings of his/her opinion that might invalidate it.
6. Forensic scientists should testify to the procedures undertaken and the results disclosed only when opinions can be stated in terms of reasonable scientific certainty.
7. That unless there are special circumstances of possible intimidation or falsification of evidence, a forensic scientist for the prosecution should permit the defense to interview him/her before the trial, an obligation that should not be contingent on the approval of the prosecutor.

Since they were first articulated in 1971 these principles have formed the core of other prospective ethical codes. In 1987, Dr. Joseph Peterson, from the Department of Criminal Justice at the University of Illinois, suggested a very similar six-point code to the American Academy of Forensic Sciences at their annual general meeting in San Diego. The American College of Forensic Examiners, incorporated under the motto "Science, Integrity, Justice," has, since 1993, based its ethics certification exam on the same principles.

Awareness and agreement is one thing, however, adherence another, and forensic science has none of these three. In court, the flaws resulting from the absence of an enforced set of ethical standards, qualifications, and certifying procedures tend to be magnified. The minimization of admissibility standards in recent years has made matters worse. For decades, courts applied a general acceptance standard for the admissibility of novel scientific evidence. Known as the *Frye* test, a ruling dating back to the prohibition of polygraph evidence in 1923, the criterion was simple: Evidence was acceptable in court if the technique or science it was based on had gained general acceptance in the scientific community. But in 1975, the *Federal Rules of Evidence* were adopted, with Rule 702 effec-

tively supplanting Frye. After 1975, all a scientific or technical expert had to do was satisfy the judge that he or she could provide mere assistance to the jury beyond the latter's competence.

It is this basement threshold more than anything else that has given rise to the growing concern about what has been termed "junk science" in U.S. courtrooms. Its apogee seems to be one of many examples cited in Peter Huber's book *Galileo's Revenge: Junk Science in the Courtroom*: a "soothsayer" who, with the help of "expert" testimony from a doctor and several police officials, was awarded \$1 million by a jury for the loss of her "psychic powers" following a medical scan. Although the emphasis was on civil cases, criminal cases were not immune to the contagion. Cases are now being settled on the type of evidence that the scientific community had rejected years before.

The inability of courts to tell the difference between real and junk science was partially responsible for what seems like downright laxity when faced with the shortcomings of forensic examiners. Ralph Erdmann, the medical examiner from Lubbock County, Texas, cited previously, pleaded no contest to seven specimen felonies involving faking autopsies, falsifying evidence, and brokering body parts, yet got only a ten-year probation order and community service. Fred Zain, the West Virginia and Texas serologist, was acquitted of a variety of criminal charges brought against him in West Virginia.

Part of the problem in Zain's case was illustrative—it was not even clear if he had broken the law. Zain just left the impression his tests showed more than they could, claims medical examiner Vincent DiMaio, Zain's former supervisor. "It's unethical, yes, but not illegal."<sup>31</sup> Even where there was clear illegality, as with FBI examiner Tom Curran's perjury, prosecutions were rare or nonexistent. And these were the prominent cases, the cases that were exposed. Most of the time the inadequacies in the way forensic science is practiced go far less noticed than in the Zain, Curran, or Erdmann cases.

There are several legal obstacles to rooting out bad forensic science. The first is lawyers themselves. Few are prepared to orchestrate a defense around a scientific subject or technology they know little about; even fewer are prepared to spend the hours or weeks it may take to prepare. The vast majority of law schools still offer no specific courses devoted to scientific opinion or expert witness testimony. "You can ignore high pro-

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file cases like O. J. Simpson. That is not typical. Forensics for lawyers has been a real blind spot," notes one defense lawyer.<sup>32</sup> The frequent failure to challenge forensic experts has preserved an often undeserved mystique. "You might as well be a high priest," says John Murdock, a crime lab director.<sup>33</sup>

Financing is another obstacle. Experts cost money, the vast majority of defendants do not have it, and the courts are often reluctant to spend it by authorizing the funds to pay for a defense expert. The result has been what some experts have termed "an economic presumption of guilt." Many courts have required defendants to cross near impossible thresholds of proof of need in order to secure the help of court-ordered experts. Ironically, proving an expert would make "a material difference" to the defense case or that doing without one would result in an unfair trial, as many courts demand, often in itself requires an expert.

The net result is obvious. The vast majority of defendants in criminal courts in the United States do not have access to forensic expertise, even though they will almost certainly face forensic evidence from the prosecution, according to Jack King, public affairs spokesman at the National Association of Criminal Defense Lawyers. The prosecution's access to crime laboratories, the latest technology, and an unlimited range of expertise in the most serious cases means that, of all the disparities between defense and prosecution in the criminal justice system in the United States, that in the forensic field may be the greatest. The impact on the outcome of a case, where a defendant's life or liberty is on the line, can be equally disproportionate.

Yet even having a defense expert may make little difference. Defendants have no right even to know if a forensic expert is going to testify against them in federal court, and they certainly have no right to confront the scientist who actually performed the tests that might incriminate them. These obstacles are only part of discovery and disclosure rules that are stacked against defendants. Rule 16 of the Federal Rules of Criminal Procedure makes all "results and reports" of scientific tests discoverable to the defense. But who says such a report has to be written? Even if a scientific test is performed, even if dozens of scientific tests are performed, no written report is required. And oral reports are not discoverable. That is a loophole the FBI and other crime labs have proven adept at exploiting.

Rule 16 says nothing about the bench notes, the findings, calculations, or records made during testing. There is no mention of the graphs or printouts that basic forensic tools such as chromatographs or spectrographs produce. Court after court has ruled that these are not discoverable, despite the fact that it is these, rather than the reports, which are often deliberately perfunctory and conclusory, that allow other experts to assess and check the scientific work carried out. "The crime lab controls everything—results, tests, samples," says Bill Thompson, a professor of criminology. "As a defense attorney you're lucky to get a two-page lab report saying it's your guy, he's guilty, thank you very much."<sup>34</sup>

One classic example came in the 1983 trial of Wayne Williams, charged with two of some thirty deaths of young African-Americans in and around Atlanta. Barry Gaudette, a hair and fiber expert working with the FBI's prosecution experts, testified about complex tests done over eleven days of examination, but solely from bench notes. They were ruled not subject to discovery, despite a defense appeal to the Georgia Supreme Court. Another expert testified about the graphs produced by a spectrophotometer, an instrument used to compare the color of fibers taken from the supposedly rare carpet in Williams's bedroom and from his car with those taken from clothes on the victims' bodies. The Georgia Supreme Court again denied discovery even though, paradoxically, it recognized that the interpretation of them formed the basis of the expert's testimony. Despite being highly relevant, even material, to a defense case, the graphs were not subject to discovery. As a result, the guilty verdict in the case stood.

This sort of tilting of the scales of justice has left some defendants obtaining more information, often enough to clear themselves or secure a new trial, under the Freedom of Information Act than under discovery provisions. In some cases what has subsequently been released seemed to be what lawyers call *Brady* material, after the landmark judgment in 1963 that determined that the suppression of evidence material to guilt or punishment, evidence that is favorable to an accused person, is a violation of due process.

An obligation to preserve evidence would seem to be at the heart of the *Brady* decision. If evidence, specimens, reports, or bench notes are destroyed or discarded, how can anyone determine what is exculpatory? But on two separate occasions the Supreme Court has declined to inter-

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pret the *Brady* ruling as including a duty to preserve evidence. Startling amounts of evidence—bullets, blood samples, hair—are routinely trashed at the FBI and other crime labs. Some of this, such as the ammonium nitrate crystals that implicated Timothy McVeigh in the Oklahoma City bombing (see Chapter 6), is absolutely crucial material. At the FBI lab, an even larger amount of paperwork—reports, bench notes, and charts—has been lost in a filing and record-retention system no one, including management, seems to be able to rely on (see Chapter 2).

With no duty to preserve evidence, the right of a defendant to test or retest evidence becomes even more crucial. Yet there is no such right written into Rule 16, and the FBI lab and most crime labs in the country grant no such right. Those seeking the right are routinely told they will have to get a court order. Photographing or otherwise chronicling testing procedures has been resisted for years by crime labs. All kinds of excuses, ranging from security to space, have been offered as to why the FBI lab cannot allow defense experts to witness tests on its publicly funded premises.

Under the circumstances, the necessity for regulation of crime laboratories is obvious. Yet they remain unregulated. What inspection and accreditation there is is voluntary and subjective. This makes crime labs an anomaly even within the laboratory field. In 1967, the Clinical Laboratory Improvement Act set minimum standards and regulations for some clinical laboratories after proficiency testing had revealed widespread deficiencies. Following further testing that showed a marked improvement in standards, in 1988 the law was strengthened and extended to cover all clinical labs.

The new legislation introduced mandatory standards for technical and supervisory staff, licensing requirements, and uniform quality assurance procedures. Forensic laboratories were excluded from the legislation in both 1967 and 1988. The result? “Clinical laboratories must meet higher standards to be allowed to diagnose strep throat than forensic laboratories must meet to put a defendant on death row,” in the words of Eric Lander, a molecular biologist.<sup>35</sup>

Crime labs were considered too good to need regulation. In reality they were anything but, as the first and to date only national examination of forensic science labs revealed in a series of tests done between 1974 and 1977. More than two hundred forensic laboratories, all of which

participated voluntarily, carried out all or some of twenty-one proficiency tests across a broad range of "evidence" types. The FBI joined the program late and dropped out early, performing eighteen of twenty-one tests and acting as the "referee" for other labs in five of these. Although the FBI claimed its examiners came to no "improper conclusions," the overall results were absolutely shocking. Seventy-one percent of those labs participating were found to have reported faulty results in a blood test, 51.4 percent made errors in matching paint samples, and nearly 68 percent failed a hair test. Some 35.5 percent of crime labs failed in soil examinations and 28.2 percent made mistakes in firearms identification—a mainstay of forensic science work.<sup>36</sup>

The errors stretched from handwriting comparisons to hair examination, and the causes were just as broad, according to the examiners. The Forensic Sciences Foundation, which carried out the study, blamed misinterpretation of the test results by careless or untrained examiners, mislabeled or contaminated samples, inadequate databases, and perhaps most serious of all, faulty testing procedures. They made a string of recommendations: more resources; better education and training; accreditation and certification programs; and ongoing proficiency and quality assurance systems.

The results alarmed Don Edwards, a former FBI agent who as a California congressman had some responsibility for oversight of the FBI in his capacity as chairman of the House of Representatives Subcommittee on Civil and Constitutional Rights. In 1979, he began raising questions about practices at the FBI lab, specifically the lack of accountability. Two years later, Don Edwards began trying to pressure the FBI into accepting outside proficiency testing, but got little support from his colleagues and outright opposition from the Bureau. "[He] tried to use the bully pulpit of his chairmanship to embarrass/cajole the FBI to do the right thing. . . . The Bureau consistently rejected his efforts," says longtime assistant counsel to the subcommittee James Dempsey.<sup>37</sup> Based on years of trying to oversee the FBI lab, Don Edwards himself has no doubts: "The FBI lab should be independent of the FBI. It has a basic conflict of interest in working for the prosecution."<sup>38</sup>

The pressure did force the FBI lab to adopt internal proficiency testing in 1981. The industry as a whole decided to react by establishing

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an accreditation arm of the American Society of Crime Laboratory Directors (ASCLD), known rather clumsily as the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB). Application for accreditation was voluntary, and the inspectors, who were other crime lab personnel, were trained by the FBI lab at its training facility at Quantico. As such, ASCLD/LAB's description of itself as "independent, impartial, and objective" was debatable. An offshoot of ASCLD, the system was voluntary and internal, secretive and anonymous, in effect a self-regulatory response to growing external criticism.

By December 1996, more than fifteen years after ASCLD/LAB's inception, only 138 of the nearly 400 crime labs in the United States had earned accreditation.<sup>37</sup> ASCLD/LAB refuses to say how many crime labs have tried and failed to get accredited, and no other information on their proficiency tests has been made public. Today, forensic scientists disagree on what form proficiency testing should take: whether it should be "blind," where the examiner does not know they are being tested, or "open," where it's known to be a test; whether it should be administered externally or internally, and whether the results should be made public or kept private. However, almost all forensic scientists agree on the importance of proficiency testing, most on the advantages of external scrutiny. "It's very easy to just get into a habit of doing things a certain way without seeing that there might be problems," says Richard Tanton, a crime lab director in Palm Beach and a former president of ASCLD. "It happened in our lab. ASCLD/LAB inspectors came in, made suggestions, and we made changes."<sup>38</sup>

The best indication of how crime labs have been performing since the 1970s comes from a fee-based voluntary proficiency testing program run by the Forensic Sciences Foundation and Collaborative Testing Services. Results of testing between 1978 and 1991 have now been published, and although direct comparisons with the previous testing are almost impossible, they remain alarming. Dr. Joseph Peterson, who categorized the results, concludes that "there were some areas of improvement and some areas that hadn't changed much."<sup>39</sup> Forensic identification of blood and drugs had improved but still showed errors. Comparative identifications of fibers, paint chips, glass, and body fluid mixtures such as semen all showed improper comparison rates of more than 10 percent, some

substantially more. They were, in Dr. Peterson's words, "categories of serious concern." The new and growing area of explosives identification also seemed to be a problem.<sup>42</sup>

But improvement or not, was any error rate acceptable in a country that throughout the 1980s was resorting increasingly to capital punishment? And if the results of a lab's proficiency tests are not published, how can juries base their verdicts on results whose reliability is unverifiable? "It's one thing to argue about the acceptability of the science used, but what about the actual practice of that science? If they aren't doing it right—and all the evidence is that crime labs are not—what's the point of arguing about whether they should be doing it in the first place?" asks Professor Thompson. "If the lab results are wrong, they've no relevance to anyone's guilt or innocence."<sup>43</sup>

Occasionally, proficiency testing in one specialist area of forensic science exposes widespread incompetence. In 1995, Collaborative Testing Services tested 156 U.S. fingerprint examiners—the cornerstone of forensic science—in a proficiency test sponsored by their professional body, the International Association for Identification. Only 44 percent (68) of those tested identified all seven latent fingerprints correctly. Some 56 percent (88) got at least one wrong, 4 percent (6) of these failing to identify any.<sup>44</sup> In all, incorrect identifications made up 22 percent of the total attempted.

In other words, in more than one in five instances "damning evidence would have been presented against the wrong person," noted David Grieve, editor of the fingerprinters' magazine, the *Journal of Forensic Identification*. Worse still, examiners knew they were being tested and were thus presumably more careful and freer from law enforcement pressures. Calling for immediate action, Grieve concluded: "If one in five latent fingerprint examiners truly possesses knowledge, skill or ability at a level below an acceptable and understood baseline, then the entire profession is in jeopardy."<sup>45</sup> The same must be true of every suspect in the country, the vast majority of whom never get a fingerprint expert onto their defense team or any chance of a reexamination. Many crime laboratories routinely destroy fingerprint evidence.

It is clear that forensic science is massively error-ridden, while the flaws in the sole laboratory accreditation program designed to improve performance are obvious. ASCLD/LAB has no powers to regulate or

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inspect a crime lab or to stop a lab that has failed inspection from doing examinations in criminal justice cases. Many U.S. crime labs have never even risked inspection and the possibility of failing, most notable among them the one that bills itself the premier forensic science laboratory in the world—the FBI lab in Washington.

The FBI's reasoning for not applying for accreditation is much the same as that it gives for opting out of the national proficiency testing program after 1977: cost, pressure of work, and relevance. More recent variations on these themes have included casting aspersions on ASCLD/LAB's ability to undertake an accreditation process for a forensic laboratory as large and diverse as the FBI's, or even insisting that since the FBI lab would secure accreditation easily there was no point in spending the time and money going through the process. In fact, as demonstrated in Chapter 1, internal memos have shown that managers at the FBI lab have known for years that the FBI lab could not meet ASCLD/LAB accreditation criteria. Practice, procedures, and even the plant at the world's premier forensic lab have been judged totally inadequate by the FBI itself.

The FBI lab could not publish its proficiency results for the same reason. Yet that has not stopped FBI lab managers from pretending otherwise, maintaining the image at the cost of the reality. In April 1981, the then head of the FBI lab, Thomas Kelleher, told a congressional subcommittee that the FBI's participation in the testing program of 1974–75 had been “to see that we didn't appear to say, ‘This is for everyone else but not for you.’”<sup>46</sup> He went on to imply that the tests were beneath the FBI's examiners. “The level of proficiency offered was far below that of the FBI examiners that were working in the particular areas of our laboratory.”<sup>47</sup>

That was the official line. Most managers seemed to have known that the reality was rather different. More than sixteen years later and long since retired, Kelleher talked to the authors about the need for ASCLD/LAB accreditation or some other form of external oversight. “The FBI lab was always going to need the sobering influence of an impartial organization that says ‘You might be big, but you're not great,’ an organization that says, ‘You'll only be big, if . . .’” He concludes, “After all, how do you challenge people to do better if everyone's always telling them they are the best?”<sup>48</sup>

It was a million-dollar question, not least because Tom Kelleher's successors at the FBI lab would spend years avoiding such external scrutiny. The FBI lab now does its own internal proficiency tests, the results and methods of which it has bitterly resisted releasing to the courts or the public, sometimes dropping cases rather than releasing data when ordered to do so by the courts. The following chapters illustrate why. A number of FBI lab examiners are incompetent and negligent and inclined to slant their results and testimony to ensure the most incriminating results, even if that means trampling the demands of natural justice. For years FBI lab examiners have worked in a lab highly vulnerable to contamination, and many have followed scientific protocols, if indeed they had them, only if they chose.

FBI lab managers have not only known all this for years but have also known the real significance of breaking some of the most fundamental rules of scientific practice. They have connived with both the incompetence of examiners, to prevent any possible embarrassment to the bureau, and with the bias in examination, because it ensured "results"—successful prosecutions that reflect well on themselves. A key part of this, maintaining the myth that this was the best forensic lab in the world, has always been blocking external scrutiny by ASCLD/LAB inspectors or anyone else who would expose that myth. For years, the emperor has indeed had no clothes. However, he could never be seen to be naked if the image of the FBI's crackerjack technosleuths, resolving every case presented, was to be upheld.

As the FBI lab came to dominate the crime lab profession and, by extension, forensic science in the United States during the 1980s and 1990s, the fatal flaw at the heart of the FBI would become more and more incongruous. As the FBI's research and training facility came to dominate forensic science research in this country during the 1980s, the laboratory division continued to employ and promote researchers and examiners who patently ignored the most basic scientific procedures and fixed results. As its own staff patently ignored ASCLD/LAB guidelines on documentation, record retention, and report writing, the FBI lab would exhort others to follow the guidelines in the pages of its periodical, *Crime Lab Digest*. Thousands of personnel from other crime labs would be trained by an institution that failed to train or supervise its own staff. Hundreds of crime lab managers from around the country would be trained by an FBI

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Laboratory Division run by managers who failed to check examiner's work, ignored repeated complaints about sloppy or negligent work, and even promoted some of the worst offenders.

It was a scandal that kept on growing, affecting hundreds, maybe thousands, of lives. A scandal of atrocious forensic science that not only threatened to punish the innocent but to free the guilty. A scandal that demonstrated that J. Edgar Hoover lived on, that the FBI lab was unaccountable even to the rest of the FBI, let alone to Congress, the scientific community, or the general public. It was a scandal that when it finally broke would be all the more devastating as a result of years of pretense, denial, and face-saving, years of putting image before reality.