



chapter one

Tainting Evidence

TAINTING EVIDENCE**Inside the Scandals at the FBI Crime Lab**

By John F. Kelly and Phillip K. Wearne

The Free Press

[← BACK TO BOOKS](#)

Prologue: 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 pro-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 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.

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?

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 237 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."

*Even a recent history of the FBI lab, as this book is, presents one accounting dilemma. The number of units and actions, 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.

Introduction

Introduction: 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 records. They look at everything from receipts to handwriting comparisons, targeting everyone from drug smugglers to kidnappers. 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.

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. 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. And these were just the known cases, cases which for one reason or another had come to light or made the 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."

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."

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.

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. 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 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 Starts, 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." 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."

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." 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." 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 Starts. "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."

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 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 1911A1 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 1911A1 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."

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.

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. Yet, incredibly, 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?"

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. 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. "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.'"

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 Starts'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." 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 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."

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."

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." 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."

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 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.

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.

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. 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."

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. 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. 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.

On procedures, Starts 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 effectively 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." 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 profile cases like O. J. Simpson. That is not typical. Forensics for lawyers has been a real blind spot," notes one defense lawyer. 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.

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."

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' 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 interpret 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.

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.

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. 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."

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

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." 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.

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."

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. 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." 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 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.'" 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."

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?"

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 techno sleuths, 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 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.

Chapter One

Chapter One: The Whistleblower Versus the Friends of Louie

"You must be Dr. Snyder. I'm Fred Whitehurst and this is my colleague, Terry Rudolph," said the brawny six-foot-two-inch FBI agent, stretching out a hand. "We're from the FBI lab in Washington. If we'd known we were going to be testifying against you we'd have brought a copy of your book for you to sign," Whitehurst joked. Dr. Lloyd Snyder, one of the country's leading experts on the identification of chemical substances and coauthor of a basic text on the uses of liquid chromatography, thought how unlike the normal FBI agent Fred Whitehurst, chemist and explosives-residues expert, seemed.

Indeed, the whole thing seemed a little bizarre. Here he was in May 1989 waiting to testify for the defense in the trial of Steve Psinakis, a man the U.S. government was accusing of plotting to ship explosives to the Philippines as part of efforts to topple the government of Ferdinand Marcos eight years before. Since the alleged offenses, Marcos had fallen, the opposition had become the government, and Psinakis, a Greek-born American citizen, had returned to Manila and been acclaimed as a Philippine Lafayette. However, on setting foot back in the United States, Psinakis had been arrested and indicted.

Now a subplot to this curious prosecution was about to emerge. For nearly three years, since shortly after being assigned to Terry Rudolph as a trainee in June 1986, Fred Whitehurst had been complaining with increasing bitterness to the FBI lab's management about Rudolph's sloppy work. Rudolph was the sole explosives-residue analyst at the FBI laboratory -- examining the trace evidence left on debris after explosions. Yet Fred Whitehurst claimed Rudolph rarely did confirmatory tests, only occasionally ran standard tests for comparison purposes on the lab machinery, and never seemed to clean his workbench. Whitehurst was convinced that Rudolph drew conclusions that were not justified scientifically by the data from his examinations and seemed to relish having a work area that resembled a pigsty.

Rudolph's work in the Steve Psinakis case crystallized Whitehurst's worst fears. Although Rudolph had assured prosecutors that his explosives-residue examinations in the case were sufficient, and that his conclusions would stand up under cross-examination, Assistant U.S. Attorney Charles "Ben" Burch had doubts. Facing Lloyd Snyder as a defense expert, Burch tried to guard himself against potential disaster by retrieving the key evidence, including a knife and a pair of pliers, and asking Whitehurst, as the FBI lab's current explosives-residue examiner, to take another look.

Whitehurst found what he had come to expect from Rudolph. The lab report showed that a white powder recovered from the tools had been identified as pentaerythritol tetranitrate (PETN), a powerful, brisant explosive, by means of liquid chromatography. However, there was no mention of possible sources of PETN residue other than explosives, and no mass spectrometry or X-ray diffraction testing that would have confirmed the initial identification. Rudolph seemed to have reached a definite conclusion about the presence of PETN that was not scientifically justified by the tests conducted. He had also been incredibly vague about what he had done. His laboratory report dated February 18, 1982, stated that the tools had been "instrumentally examined." Whitehurst suspected the vagueness was deliberate. As Rudolph had told him while he was still a trainee: "The more cryptic the [lab] notes, the less chance the defense counsel has to question the results."

Until you face a real defense challenge, that is. Although Whitehurst confirmed Rudolph's main result -- tiny amounts of PETN had been found, picograms, one millionth of one millionth of a gram -- Whitehurst was troubled. In Whitehurst's view, Rudolph was careless with evidence; traces of explosives were probably everywhere in his work area. With no background-contamination test against which to judge the result, such tiny amounts could have come from anywhere. Despite Whitehurst's repeated complaints, there seemed to have been no check or monitoring for background contamination since he arrived at the FBI laboratory three years earlier.

Whitehurst had been pondering all this on the flight to San Francisco. If, under oath on the witness stand, he was asked about it, he knew he would have to reveal his reservations. And briefed by Lloyd Snyder, the defense lawyers were sure to ask the critical questions. But as he mulled it all over, his dilemma deepened. Learning that the prosecutor had called for Whitehurst's tests and now intended to introduce them without consulting the court, judge Robert Schnacke dismissed the jury for the afternoon to determine the admissibility of the new evidence. He was miffed and ruled against; Whitehurst would not testify.

Rudolph, meanwhile, was exposed at the evidentiary hearing, as Whitehurst had imagined he would be. Asked why certain tests he was describing were not in his notes, Rudolph replied: "When I examine a case I put in my notes things that are important to me when I...give testimony. I don't write my notes for the United States Attorney. I don't write my notes for the defense. I write my notes for myself." Questioned further, Rudolph went on to say that he had done thousands of tests since 1982 and could not possibly remember them all. This prompted judge Schnacke to ask the obvious: "Isn't that one of the reasons you keep notes?"

The judge found some of Rudolph's assertions so absurd that he seemed to hesitate about the admissibility of the testimony as a whole. Rudolph insisted that he had relied on factors other than just his liquid chromatography test in making his PETN identification. One of these was his eyesight. The white powder from the knife and a known sample

of PETN "compared essentially identically" under a microscope. He implied that confirmatory testing took too long. Liquid chromatography took a few minutes, whereas something like X-ray powder defraction, a confirmatory test, would take forty-five minutes. In the end the judge allowed his testimony, insisting that if Rudolph persisted in being so positive about his confirmation he might have to intervene. "Even with the FBI, completion of all necessary processes in investigations is an awfully good idea," Judge Schnacke concluded.

When the defense moved to exclude Rudolph's testimony because it offered an investigative rather than scientific opinion, Psinakis's lawyer raised a key issue: was Rudolph primarily an FBI agent or a scientist? Rudolph seemed to bolster his forensic certainty by citing his training as an FBI agent, a training that he implied gave him some special investigative insight, the defense claimed. It seemed to fall to the judge to make it clear. "He is entitled to tell the jury what he based his conclusion on," he announced dismissing the defense motion. "Some of these things may be a little strange for a scientist, but he will be testifying as a scientist, not an FBI agent." Years later, following its own investigation, the inspector general's office was to agree. "Rudolph's approach represents a fundamental misunderstanding of the role of a forensic scientist," the report concluded. "At best, Rudolph's explanation for his opinion in Psinakis represents incompetence."

Faced with all this, Whitehurst left the courthouse and went for a walk. It was a long one -- nearly twelve hours. He had a lot to think about as he walked through Chinatown, down to the harbor, through the tourists thronging San Francisco's famous quays. An innocent man might get a long jail term on the basis of flawed science, faulty procedures, and possibly contaminated evidence. Should he, could he, would he, let it happen? Standing back was against Fred Whitehurst's nature. At seventeen years of age he had dived into a frozen lake to save the passenger of a car that had skidded off the road. In Vietnam, where he had distinguished himself by winning four Bronze Stars, he had once stopped a group of GIs raping a Vietnamese woman with a rifle muzzle. As he walked, he remembered the exhortation of John Burke, one his trainers at the FBI academy, back in 1982: "As an FBI agent you can't just stand there...you have to do something."

Fred Whitehurst had always tried to do something, beginning a one-man effort to improve the FBI lab from the moment he arrived. Working weekends and evenings, he had set about calibrating machines, cleaning work areas, and even buying equipment essential to a modern forensic laboratory, often from government surplus. A gas chromatograph, hydrogen generators, a high-performance liquid chromatograph, fume hoods, Whitehurst installed them, repaired them, cleaned them.

The truth was that, starved of funds and scientists, isolated from the forensic science community, and convinced of its own infallibility, the FBI lab had fallen dangerously behind scientifically during the 1970s and 1980s. And not only in terms of machinery and manpower. As international protocols, policies, and standards emerged in both new

and old fields of forensic science, the FBI found itself stranded on the sandbanks of its own presumption and arrogance. If you were the best, what could you learn from anyone else, even in a field moving so fast that the best could not keep up?

Pedantic, methodical, straight as an arrow, Whitehurst had quickly established himself at the FBI lab as a man who took the memos from the FBI's top brass exhorting employees to report all instances of "waste, fraud, and abuse" literally. But although he banged out complaints about racism, abuse of travel vouchers, and unauthorized leave on his desktop computer at home at night, his major grouse was always the science and state of the FBI lab. To him this was a black-and-white issue, not one of the dubious shades of gray law enforcement seemed to demand: "I just could not see why it was so hard to do it right, to bring the lab up to standard. Morally, it was just wrong not to try."

A finicky scientist who took everything far too literally in the eyes of many of his colleagues, Fred Whitehurst was perhaps just the sort of man you would want handling your forensic tests if it was your life or liberty on the line. It was this conscience, this drive to do the right thing as he saw it, that drove Fred Whitehurst to seek out Lloyd Snyder again, the day after his long walk in San Francisco. Snyder was a chemist, a scientist, someone who would understand the significance of his reservations. Snyder, Whitehurst believed, would take action. He did -- going straight to the defense team.

"I was really startled by what he said," Snyder recalls. "Your first thought really is, 'Why is someone in this position doing this? Is he some sort of weirdo?'" In an adversarial judicial system, where opinions are formulated and positions adhered to sometimes in spite of the scientific evidence, most defense experts would have asked the same question. In the eyes of both the prosecution and the FBI, Whitehurst had committed the ultimate sin -- disclosing what he viewed as exculpatory evidence to the defense without even consulting the bureau or the prosecution.

The government's case against Steve Psinakis quickly fell apart. To loud cheers from the crowded courtroom, he was cleared of all the charges. The prosecutors, Joseph Russoniello -- himself a former FBI agent -- and his colleague Charles Burch, felt let down. Within days, they had fired off an angry four-page letter to John Hicks, acting head of the tab. The acquittal raised "serious questions" about "the FBI laboratory's procedures," they complained.

Building on Whitehurst's quite limited reservations, they pointed out that at both the scene of the crime and in the laboratory, agents had used the same set of cotton gloves to handle all the evidence seized at Psinakis's home, risking cross contamination. They pointed out that Terry Rudolph had relied on hearsay evidence from the case agent to help form an opinion as to what chemical residue was on the tools. "The FBI chemist is being asked to independently ascertain the existence of a substance, not just regurgitate information he has

received from the field," they pointed out. Burch and Russoniello noted that liquid chromatography was nothing more than a presumptive test that was scientifically inadequate to draw the definitive conclusions Rudolph had reported. Given this, why, they asked, had Rudolph's work not been reviewed by a peer or superior before it was deemed adequate to go to court? Why was there no protocol specifying what analytical-instrumental tests should have been performed to identify such trace elements?

The letter refused to criticize Whitehurst for drawing attention to the inadequacies of the laboratory's forensic science. Indeed, Burch praised Whitehurst: "He seemed to me to be a person who was sincerely concerned about the integrity of the judicial process and the FBI lab's role." It was an extraordinary thing for prosecutors in this position to say. Whitehurst was an obvious scapegoat, yet Burch and Russoniello refused to shoot the messenger and deflect blame from themselves. Not so the FBI lab. If the prosecutors refused to blame Whitehurst, the Bureau did not.

Knowing that what he had done was a serious breach of FBI protocol, on returning to Washington Whitehurst made an immediate appointment with the head of the lab, Roger Castonguay, and told him what happened. An internal investigation by the Administrative Services Division into a self-confessed "improper engagement with members of the defense team" moved into gear. The ASD report acknowledged that Whitehurst's concerns were legitimate, but concluded that "the manner in which he articulated those concerns constituted an egregious display of poor judgment." He should have raised his concerns with the case agent, the prosecutor, and laboratory management, not the defense, the ASD concluded, citing the FBI's rule book, the *Manual of Administrative Operations and Procedures*, specifically a section entitled the "Confidential Nature of the FBI's Operations."

Ignoring Rudolph's inadequacies and the lab's own management shortcomings, the issues Whitehurst had tried to focus on, James Greenleaf, the FBI's associate deputy director of administration, duly informed Whitehurst in October 1990 that he would be suspended from duty without pay for seven days and placed on probation for six months. Today Whitehurst displays the letter of censure as a sardonic badge of honor. Framed, it hangs alongside his Bronze Star citations from Vietnam in his modest wood-framed house in La Plata, Maryland.

An FBI gagging order still prevents Fred Whitehurst from discussing his actions in the Psinakis case. On the face of it, it was a strange case for which to break all the rules and risk his career. After all, Whitehurst had actually confirmed Rudolph's PETN results. His concern about possible contamination was just that, a concern. It was, in essence, speculation, something scientists are not supposed to engage in. Although he had helped highlight the other inadequacies of Rudolph's work in the case, in Lloyd Snyder the defense probably had the means to expose those inadequacies even without Whitehurst's help. Finally, Whitehurst had made similar complaints about Rudolph many times

before, sometimes in cases in which he seemed to have much stronger evidence of wrongdoing.

But it was undoubtedly these previous complaints -- and management's failure to address them -- that were the key to Whitehurst's actions in the *Psinakis* case. By May 1989, when he testified, Terry Rudolph had left the lab, leaving what seemed to Whitehurst to be a ticking time bomb of inadequate casework -- of which the *Psinakis* case was just one example. If nothing had been done while Rudolph was in harness, what chance was there that going through the proper channels -- the lab, the prosecution, the case agents -- would yield any results now?

Exposing what was going on in the FBI lab to real scrutiny was his aim, and Fred Whitehurst, over time, succeeded brilliantly as a result of his actions in the *Psinakis* case. First, in coming under a microscope in the San Francisco courtroom, Rudolph made some stunning admissions about his own work and, by extension, the whole culture of the FBI lab: laziness, broken machinery, working backward from the evidence as presented by case agents, unscientific conclusions, overstating results, failing to keep adequate notes, lack of protocols, inadequate supervision. Directly or indirectly, Rudolph admitted all these failings - - all of which were now on the record. Worse, throughout his testimony Rudolph implied he was simply adhering to standard FBI lab policy in acting the way he had.

Second, in taking such dramatic action, Whitehurst set off a chain reaction of five audits over the next six years by FBI lab management of Rudolph's work. Each successive investigation being a reflection of the inadequacy of the last, the audits would ultimately not only vindicate Whitehurst's complaints but prove one of his main contentions -- nothing would improve until the FBI lab was submitted to some form of external, independent scrutiny.

Convinced that it was the best, without any objective proof, certain that it made no mistakes, while refusing to publish the results of its own proficiency tests, the FBI lab was incapable of investigating itself. This was the Hooveresque world that allowed no room for errors or agent misconduct. Worse still, this was the Hooveresque world that had internal investigation systems dedicated to achieving precisely that -- systems designed to ensure no significant wrongdoing was ever uncovered. That way no one, staff or management, was seen to commit the cardinal sin of embarrassing the Bureau.

By 1989, having watched the tour-guided visitors stream past his window for three years, having worked to the constant backdrop of the FBI's image building, Fred Whitehurst had begun to piece together this other picture, this other reality at the lab. In the contrast between the public face and the private reality, the lab was undoubtedly one of the last redoubts of undiluted Hooverism in the FBI. No accountability, no monitoring, managed by agents, not scientists -- it was the sort of environment where abuses could thrive and no one told tales.

The lab always had been a secretive backwater, run like a "private

Club," according to Don Edwards, the former congressman and ex-FBI agent. From the moment Hoover had established the lab in 1932, housed in a converted lounge chosen because it had a sink, a succession of directors, including Hoover himself, had taken little personal interest, beyond the public relations value of the odd VIP tour. As a result, an all-powerful management had run its own show here for decades. Cloaked in the mystique of the science they practiced, buttressed by their steadily growing importance to crime fighters throughout America, the lab became unaccountable even within the FBI. "There was never a squeaky wheel at the lab. No one ever even came to me with a complaint, let alone an allegation of skewing results. Of the five FBI divisions I handled, the lab was the only one that never had problems," recalls Oliver "Buck" Revell, associate deputy director of the FBI from 1989 to 1991.

This secrecy, unaccountability, and club atmosphere had long made the lab a perfect place for some of Hoover's personal operations and obsessions. It was in the FBI lab that Hoover had stored his obscene files, a mixture of pornography and intelligence or gossip concerning the sexual misconduct of public figures that would become the basis of his legendary ability to blackmail politicians and opponents. It was here in the laboratory that technicians compiled and copied excerpts from the electronic surveillance tapes of Martin Luther King's hotel bedrooms before they were sent to King's wife, Coretta, with an anonymous threatening letter addressed to the civil rights leader himself. It was here in the laboratory that Hoover stored the huge stonecutter he had ordered to help examine rock and shale samples, an anonymous source told the authors. The boss had wanted his vaunted scientists to tell him if he should make some speculative investments in companies tendering for oil prospecting rights out West.

But at some point it was inevitable that the gap between image and reality would start to close. Whitehurst's few words with Lloyd Snyder were a start; a snowball had started rolling. With Burch's letter in July 1989 it landed right on then acting FBI lab chief John Hicks's desk. "I share your concerns," Hicks replied to Burch. "And as a result of this matter, I have instituted an internal audit of the protocols used in the identification of explosives residues." That did not actually happen, something that would come back to haunt the FBI lab in upcoming cases such as that of Roy Moody in the VANPAC investigation and the World Trade Center bombing. What actually did begin was a rather halfhearted audit, or rather, a series of halfhearted audits, of Rudolph's work that continued over the next six years.

In fact, the Terry Rudolph affair, Whitehurst's complaints, and Burch's letter were not the only indication that things were badly wrong at the FBI lab. Management knew it; their own inspectors were telling them so. Internal documents, memos, reports, and letters released under the Freedom of Information Act demonstrate that the kind of abuse Terry Rudolph was being exposed for at the Psinakis trial was quite common at the FBI lab. Much of what Rudolph was doing was, as he had implied on the witness stand, actually standard practice, not individual abuse.

About the time Whitehurst was suspended in November 1990, a study committee was set up to look at how practice in the FBI lab compared to that necessary for accreditation by ASCLD/LAB. It was part of the FBI's Total Quality Management program, a pet project of FBI director William Sessions, a private sector concept designed to eliminate wasted time and resources by getting employees to do things right the first time around. The committee looked at both the Laboratory Division as a whole and the individual units separately, and from March 1991 onward started to report back to lab director John Hicks. The findings did not make pleasant reading. On protocols, peer review, evidence handling, the checking of techniques or tests, the monitoring of expert testimony, error rectification, contamination prevention, safety, complaints procedure, proficiency testing, you name it, the FBI lab was woefully below par.

One memo, dated March 27, 1991, that was dispatched to John Hicks, his deputy, Matt Perez, and every unit chief summarizes the situation succinctly. The problem, it states, is twofold. In some units, policies and procedures have become "diluted, unofficially altered or ignored." In others, policies and procedures were not even in place. Evidence handling was just one example. "If the Laboratory intends to improve its services and quality while truly insuring the integrity of the evidence submitted, it will be necessary to restate existing or implement new policies dealing with certain basic and critical procedures," stated the memo. "Believing that all Laboratory examiners were trained to follow the same standardized and court-accepted procedures, we were shocked to learn of the variety of ways in which evidence was logged, marked, or in some cases, not marked at all."

The committee told John Hicks and the unit chiefs that some examiners ignore "some of the basic tenets of handling evidence....[M]ore often than not work space is left completely unattended and unlocked with evidence spread all over the tables and desk tops. Under the ASCLD guidelines, this practice is unacceptable." The memo cited other issues of concern, such as access to the evidence, the trail of evidence through the lab, protection of evidence from loss, cross transfer and contamination, and proper storage. These were all issues that Fred Whitehurst had complained about for almost five years. The scale of the problem was reflected in the policies the committee had to propose to satisfy specific provisions of ASCLD/LAB standards, seven basic procedures on marking, sealing, and preventing contamination.

On technical procedures, the committee's basic findings were no better. In particular, the committee had problems with ASCLD provision 14211, which asked any lab seeking accreditation one of the most basic questions in forensic science: Whether new technical procedures were thoroughly tested to prove their efficacy in examining evidence before being implemented in casework? "The committee is of the opinion that this is not always accomplished in the Laboratory Division....Frequently we believe that decisions are made to follow a procedure due to the lack of time and/or resources which might be required to properly evaluate the process. It is not until the examiner or the process comes under attack in the court that we recognize the

problem created by our own failure to substantiate the work."

The committee proposed that each lab section establish a peer review Council, to which new ideas and methodologies should be subjected. They also addressed the basics by proposing that "every examiner and technician be made fully aware of their appropriate protocol manuals. One trouble was, as a later memo, dated September 9, concluded, some units did not even have one. "After completion of the inspection phase of our internal study, it became clear that there was no consistency of manuals, from unit to unit. Some units have an 'administrative' manual, some have a 'protocol manual,' some have both as well as other manuals," the study group wrote, adding, "Manuals are a key element in establishing and maintaining quality control within the laboratory." The committee proposed five manuals covering administration, protocol, safety, quality control, and training as a minimum for each unit. For those who did not even know what a protocol manual looked like they attached a helpful outline for the contents of protocol manuals prepared by the National Committee for Clinical Laboratory Standards.

The committee also had problems with the FBI lab's blind proficiency-testing program, which it termed "weak and too infrequent." Some units and specialties did no proficiency testing at all, it discovered. ASCLD/LAB rated its numbered provisions important, desirable, and essential, with labs having to score 50 percent, 70 percent and 100 percent in each category, respectively. With external proficiency testing anathema to the FBI lab, and likely soon to be upgraded from desirable to essential, the FBI lab had to address the issue, the committee warned. Another problem was the monitoring of examiners' testimonies, already an "essential" item under ASCLD/LABs accreditation terms. The memos make it clear that some FBI lab managers had proposed seeking a "waiver" of this provision, something the committee opposed.

Despite these findings, the committee somehow concluded in September 1991 that the FBI lab as a whole could secure ASCLD/LAB accreditation if the issue of blind proficiency testing and the monitoring of testimony were resolved. Yet within days of stating this, the study committee sent John Hicks an apparently contradictory memo detailing how seven individual units had failed to implement protocol and evidence-handling policies the lab chief had approved as recently as May of that year. Indeed, the whole process seemed flawed. The committee makes it clear that their assessment that the FBI could secure ASCLD/ LAB accreditation was based on what unit chiefs had told them and the assumption that the policies, effectively corrective actions, approved by Hicks were in fact being implemented. "We did not attempt to...verify compliance," the committee noted.

If that seemed like a whitewash, some in the FBI lab seemed to agree. In December 1991, James Mudd, an FBI ASCLD study committee member, observed an ASCLD/LAB inspection of another lab. He quickly realized it was far more thorough than anything the FBI had undergone. He told his boss, James Kearney, who memoed Hicks. What the study committee had done "lacked sufficient depth," he said.

"A more thorough and in-depth self-evaluation, based on ASCLD/LAB criteria, should be undertaken by the Laboratory Division."

The truth was that the lab was incapable of inspecting itself, not least because management did not appear to agree on the actual purpose of the inspection. Some seem to have seen it as a means of bringing the lab up to ASCLD/LAB standards and securing accreditation, while others seem to have seen it as a means of avoiding external scrutiny by being able to proclaim that the FBI lab now met those standards. Hicks told the IG that the lab had not sought accreditation during his tenure because of the costs and time required, that it was not essential, and because of "doubts by management whether the Laboratory needed to be formally accredited."

Yet the main reason the FBI lab had done anything at all during this period was that external pressure was growing. Galvanized by the advent of DNA, the courts, Congress, and even a new quality assurance program, the FBI began to subject the FBI lab to increased scrutiny from 1989 on. The possibility of identifying individuals genetically heralded a revolution as significant as that brought about by fingerprinting a century earlier. Yet DNA typing was science -- microbiology, genetics, and statistics -- adapted from diagnostic and clinical laboratories, with their rigorous protocols, procedures, and research. When the forensic world started to use it without any such platforms or precautions, other scientists started to alert lawyers and legislators to the inadequacies of the crime labs' methods.

On June 26, 1989, Judge Douglas Keddie of the Yuma County Superior Court in Arizona ordered the FBI to release its open proficiency-test data, including all the raw material on which the results were based, for its DNA typing procedures. Judge Keddie decided that defense experts Drs. Simon Ford and Randall Libby needed them to prepare adequately for a *Frye* admissibility hearing. ¹² On September 15, James Kearney, the laboratory division's section chief at the Forensic Science Research and Training Center, wrote to Ford to tell him the FBI was preparing to release the data as ordered, but six days later he had changed his mind. Kearney furnished the results but none of the background material that would have allowed Ford and Libby to assess the subjective criteria on which the actual decisions had been made. The price was high: to avoid being held in contempt of court, the prosecution was obliged to withdraw all DNA evidence in the case.

This was not an isolated example. In several instances, when ordered to release the data underpinning its methodology the FBI refused. When it did release such data, particularly in the DNA sphere from 1989 onward, it was frequently found to be unscientific, flawed, and even downright false by a number of critical geneticists and microbiologists. Kearney himself seemed to know there were problems. In his letter to Simon Ford, he cited the self-critical analysis privilege, a provision of tort law that allows companies exemption from the legal threat of having to release potentially damaging information. The theory is that the exemption will encourage companies or institutions to investigate safety problems or faults more thoroughly if exempt. The FBI seemed

to be using it to protect rather than correct.

It was a fact Kearney seemed to admit when appearing personally before a court in Iowa in December 1989. In another effort to prevent the release of proficiency-test data he seemed to say that the defense might use the results of proficiency tests to "pistol-whip" laboratories. One potential solution was simply to destroy proficiency-test records. On April 20, 1990, the FBI's legal counsel responded to an inquiry by John Hicks for "legal advice on the destruction of DNA proficiency-test records." 16 The nine-page memo recommended against this action on a variety of legal grounds: "Destruction at this point will foreseeably invite speculation that the destroyed proficiency test data contained damaging information which discredits at least an examiner, or at worst, the process itself."

In hearings beginning in 1989, Congress was being alerted to all this by a series of witnesses. One letter to Congressman Edwards cited the Arizona case and another in San Diego Superior Court, where the FBI had refused to turn over the raw data that formed the basis of the testimony of its testifying research chemist, Bruce Budowle. The author, Jeff Brown, a public defender from California, contrasted this attitude to that propounded in a recent guest editorial by FBI director William Sessions in the *Journal of Forensic Sciences*. Sessions had emphasized the need for scientific information to be carried from place to place, "passing it around at the speed of light," and had reminded his readers that science was a search for the truth.

"Judge Sessions might as well be heading up an entity different from the FBI, for the FBI's actual practices not only do not conform to its Director's principles, but are contrary to them," Brown wrote. Why did the FBI have such problems submitting to external regulation or publishing its proficiency tests if it was adhering to its own quality assurance guidelines for DNA analysis, laid out earlier that year by James Mudd in the FBI's own *Crime Lab Digest*, Brown asked? Mudd had prescribed proficiency testing, independent external audits, and a strict adherence to federal, state, and local health and safety regulations as the means of quality control in crime tabs, Brown noted.

In fact it was not until 1992, after years of advocating it for others, that the FBI lab even adopted a formal quality-assurance implementation program. Run by James Mudd, it was based primarily on the ASCLD/LAB standards for accreditation. Stuck down in Quantico at the FBI's research and training center, the program was for many a suitable distance away from the day-to-day activities it was supposed to monitor. Indeed, the whole thing was a ponderously slow business. It was 1993 before quality control coordinators for each unit in the FBI lab were appointed; it was November 1993 before they were all trained. Finally, as the program began to audit quality assurance in the lab by means of more internal inspections, it soon became clear that much of what had been recommended, endorsed, and dictated in 1991 had yet even to be implemented by the separate lab units.

In January 1994 John Hicks was forced to reissue a September 1991

memo to all unit chiefs ordering the establishment of the manuals covering protocols, safety, training, administration, and quality control. By mid-1994, full implementation of a formal quality-assurance plan had been pushed back to December 1995 -- more than three years after Mudd had begun work on it. The truth was that management was either actively resistant or passively indifferent to any change at the lab, something that would become even more obvious under a new FBI director who seemed intent on an overhaul of the whole Bureau.

It was a dream come true. The U.S. flags rippled in the breeze, the band played good military marching music, and the crowd, mostly well-turned-out FBI agents, applauded on cue in the summer sunshine. It was September 1, 1993, and Louis Joseph Freeh, progressively FBI agent, prosecutor, and judge, the boy who had pretended to be J. Edgar Hoover when playing cops and gangsters in North Bergen, New Jersey, was taking the oath of office as director of the FBI. Now he could be the Boss for real; now he could be "J. Edgar Freeh," as his mother, Bernice, still kidded him.

The insularity and abuses of power that had marked Hoover's reign were presumably what Freeh had in mind when he referred obliquely in his speech to "the failings of our past." In fact, the failings were hardly distant. In April that year the botched storming of the Branch Davidians' compound in Waco, Texas, by the Bureau of Alcohol, Tobacco, and Firearms (ATF) and the FBI had left eighty-three people, including seventeen children, dead. In July, an Idaho jury had acquitted the two men targeted by the FBI siege at Ruby Ridge, Idaho -- "one of the worst law enforcement debacles of recent years" according to *The Washington Post*. Then, throughout the spring and summer of 1993, FBI director William Sessions had refused to resign, despite being found transgressing a number of ethical precepts by the Justice Department.

If Freeh wanted the job, President Bill Clinton and Attorney General Janet Reno wanted a white knight. Freeh had made his name as an FBI street agent infiltrating the mob in New York, fighting the organized crime Hoover had always denied existed. As a special prosecutor, hand-picked by the attorney general, he had gone on to put away Walter Leroy Moody, a serial bomber whose victims had included a judge in Alabama in 1989. Freeh's reputation, track record, religious belief, and lifestyle all sounding, at times, too good to be true, brought instant credibility to the floundering Clinton White House.

But the assembled agents were no less delighted than their political masters. For the first time since the appointment of Clarence Kelley in 1973, a former agent was being trusted to run the Bureau. As a detached judge, an outsider, William Sessions, "the Director" as he had insisted on being addressed, had never really seemed to understand the Bureau. He had ended up a victim of what one FBI insider called a "palace puzzle coup." "Louie," as Freeh now insisted on being called, was, by contrast, coming home. "They [the agents] thought they had

died and gone to heaven," recalled one congressional aide later. "They thought, 'Finally we've got one of our own. It'll be, like the golden era when the Bureau ran the world.'"

In his speech, Freeh emphasized the importance of going back to basics, catching crooks, putting more shoe leather on the streets. Mahogany row, the offices of the FBI's most senior officials on the seventh floor of headquarters, was the first to feel the impact. Most were called in to justify their jobs. Many did not manage it. Within weeks, the position of associate deputy director was abolished, top officials lost their special assistants, and the post of assistant section chief was liquidated. A major restructuring began with the ousting of Assistant Director G. Norman Christensen, the man who headed Sessions's Total Quality Management program, a scheme that had eventually included the new quality assurance program for the lab.

Within days, Freeh began to fulfill his pledge to slim the headquarters bureaucracy and beef up the field. One hundred and fifty agents were reassigned to local field offices in Baltimore and Washington in phase one; the same number in phase two. The shake-up did not ignore the laboratory. At least, it was not intended to. Louis Freeh's commitment to getting more agents back into the field dovetailed neatly with the GAO's thirteen-year-old recommendation to Congress that the FBI laboratory employ fewer of its expensive agents as examiners and more civilian scientists. At the end of 1993, Freeh proposed a radical plan to do just that. "He wanted to slash the number of agents in the lab from one hundred and twenty to fifty. Virtually all of them were senior people, the ones with responsibility for the examination of evidence or the supervision of the examination of evidence," recalls John Hicks. "I proposed a plan to do it with one unit, Questioned Documents, as a sort of prototype. He wrote a note on the proposal asking why we didn't do it with all units and much faster."

Having spent nearly twenty years fighting off external efforts to get agents out of the lab, management now found itself fighting one of its own. All the old arguments about the special qualities agents brought to forensic science were wheeled out, along with some of the Bureau's biggest guns. FBI staff had to act as both agents and examiners when they went out into the field; it took years to train new examiners and there was already a huge backlog of work at the lab; successive internal studies had proved the value of agent-examiners. "It was all so presumptuous. He moved far too fast and no one thought it through," insists Buck Revell, special agent in charge of the Dallas field office at the time and a former FBI associate deputy director with responsibility for the lab.

With management objecting and dragging its feet, the program limped along. Some lab agents were happy to go, but others were not and could not be replaced overnight. But Freeh knew that successive directors' efforts at reform of the Bureau had been stymied by midlevel managers, career bureaucrats. Nowhere were they more entrenched than in the lab. Showing all his old streetwise wiles, Freeh did what he had begun to do on his endless trips to FBI field offices -- appealed

directly to the grunts over the heads of their officers. When he came to the lab, he eschewed much of the official tour to talk to some of the nearly six hundred employees directly, asking them to call him if they had any problems or suggestions. At least one agent did, wanting to discuss the reassignment program. Freeh asked for a memo on the issue, which was generally supportive of the new line. Freeh then called the agent at home to thank him.

Ironically, management's forebodings proved justified. With recruitment to replace those reassigned slow and the average time served in some units, such as Questioned Documents, dropping from around fourteen years to three, the backlog of work at the lab, already considerable, soared. So did the complaints. In July 1994, in an effort to slow the evergrowing flow of casework, the FBI lab ceased to take evidence in property-crime cases from state and local law enforcement agencies. "Within months of Freeh's decision to reassign agents, things were just grinding to a halt," one former lab examiner says.

Replacing the old hierarchy was a new one, fourteen Freeh assistants, at least ten of whom were personal appointees. The new inner circle was headed by Chief of Staff Robert Bucknam, a former prosecutor with Freeh in the Southern District of New York. Bucknam's brother James came in to take responsibility for the sensitive issue of interagency relations. The new palace guard bypassed and replaced the "old boys network" as it had been known, earning a new epithet inside headquarters -- "Friends of Louie." Lower down the hierarchy, Freeh followed the same principle, bypassing the normal channels and often ignoring the recommendations of the FBI's promotions board to bring in those he knew personally. Charges of cronyism were inevitable.

No one benefited more than two key players in the Moody case Freeh had prosecuted back in 1991. The first was Howard Shapiro, Freeh's number two in the Moody trial, who left Cornell University Law School to take up the newly created post of general counsel. Young, sharp, and ambitious, Shapiro became a sort of legal bodyguard and general sounding board on everything from the ongoing investigations of Fred Whitehurst's complaints to dealing with the Bureau's political bosses in the White House and Justice Department. The second major beneficiary was Larry Potts, the FBI inspector in overall charge of the Moody investigation. Affable, direct, and very popular, Potts had been rewarded for his success against Moody with the position of assistant director, Criminal Investigation Division, in 1991. Despite coming under intense investigation for the Ruby Ridge debacle, Potts would become acting deputy director of the Bureau within fifteen months of Freeh's arrival.

Other Friends of Louie were entrenched lower down the hierarchy. Freeh's tour of the lab brought him back into contact with more than a few with whom he had worked closely in the past. Top of the list was Special Supervisory Agent James "Tom" Thurman, a bomb expert and principal examiner who within a year of Freeh's appointment as director would be promoted to head the fourteen-strong team that made up the Explosives Unit. Thurman's testimony on pipe bombs and

explosions had been crucial to Freeh's successful prosecution of Roy Moody. A mustachioed, avuncular type, Tom Thurman looked the army officer he had been for most of the 1970s.

Thurman's interest in bombs -- or improvised explosive devices, IEDs in military jargon -- had begun as an officer commanding an ammunition company in Korea. He had joined the FBI in 1977 and worked in the FBI lab since 1981, with the investigation of the downing of Pan Am Flight 103 over Lockerbie, Scotland, in December 1988 and the Moody case being the highlights of his career. His work on both incidents had brought him minor star status and not just in the quasi-military world of bomb buffs. In 1991, he had been profiled as the "Person of the Week" in the regular Friday night slot on *ABC World News*. "I love putting the bad guys away," he told the television crew, as he recounted in detail how he had traced the Lockerbie bomb back to two Libyan intelligence officers.

The "bombers," as the Explosives Unit staff were known, were a race apart even within the rarefied atmosphere of the FBI lab. In the first place, the Explosives Unit was relatively new, carved out of the Firearms-Toolmarks Unit in 1972, as terrorism and anti-Vietnam War bombings had increased. Second, the unit was small, seven agent-examiners and seven technicians. Third and most significant, the physical explosives examinations, crime scene investigations and bomb data identification that the "bombers" did were not scientific. The bomb unit made no pretense about this: "It's a dirty, sometimes dangerous job, and is based on learning from others," says Denny Kline, a former FBI explosives examiner. Much of the job was based on test models, working out what damage any particular blast might do by reconstructing the bomb and the crime scene down at the range at Quantico, Virginia. "You learn by trial and error," says Chris Ronay, the unit chief Tom Thurman succeeded. "Although hopefully not too much error."

The FBI's Explosives Unit handed all scientific analysis over to chemists, metallurgists, or technicians in the Materials Analysis and Chemistry and Toxicology units or even the Latent Fingerprint Section. However, it was the principal examiners among the "bombers" who made the decision as to what explosives evidence should go where and what the results meant in the context of the overall investigation. As such they would often interpret the results of others. It was a recipe for a culture clash -- and more: The objective science of the chemist versus the subjective art of the bomb technician. The oral tradition of the "bombers" versus the written protocols of the scientist. The practical world of the explosives expert dealing with pounds of explosives and blast pressures in the debris of the crime scene versus the theoretical finesse of the trace analyst dealing with millionths of a gram of residue back in the clinical environment of the laboratory.

The nature of the job meant that pseudomilitary, nonscientific attitudes were entrenched in the Explosives Unit. Many were suffering from what one forensic scientist termed "testosterone poisoning." Dave Williams, the principal examiner for the World Trade Center bombing

throughout 1993, the year Louis Freeh took over the reins at the FBI, was typical. A zoology graduate, he joined the Explosives Unit as a technician for five years before spending another five years in an FBI field office and returning to the lab in 1987. "I knew within two hours of entering the World Trade Center what type of bomb we had and how big it was," Williams asserted with the sort of arrogance and certainty that riled forensic science colleagues.

The prominence and attention focused on the Explosives Unit and its staff was partially a reflection of the increased workload and importance of the cases they were handling. The World Trade Center bombing, Lockerbie, the ongoing Unabomber attacks -- these were just the tip of a rapidly growing iceberg. Between 1985 and 1994 the number of bombings or attempted bombings in the United States nearly tripled to 3,163. The crude efforts of white segregationists in the South in the 1960s and the anti-Vietnam War protesters of the 1970s had, it seemed, planted seeds in both the criminal underworld and the suburban mainstream. Bombs were easy to make, especially with instructions from readily available manuals such as the *Terrorists' Handbook* and the *Anarchists' Cookbook*. Power source, detonator, explosive -- all these were everyday items in hardware stores, grocery shops, and farm supply outlets. Radio Shack was known as "the bombers' store" by the examiners in the FBI Explosives Unit. Everything you needed, bar the explosive, was on the shelf.

The Explosives Unit worked closely with the Chemistry and Toxicology Unit (CTU), the place where specimens were identified as one or some of the tens of millions of organic chemicals that literally make up the world. In some ways this was the core of the lab's Scientific Analysis Section. Virtually every piece of evidence involved chemical analysis, or what might be termed "molecular fingerprinting," at some point. Most of what CTU did was pure science, not just chemistry and toxicology, but biology, bacteriology, and even a bit of physics.

Drug analysis, poison identification, arson evidence, explosive composition -- all such requests from the Evidence Control Center or other units found their way to CTU. As a result the unit had some of the lab's most sophisticated equipment -- mass spectrometers, liquid chromatographs, gas spectrometers, electron microscopes. The escalating war on drugs and the proliferation of product-tampering cases in the 1980s had raised the profile of the CTU unit, bringing it national attention in celebrated cases.

The chemists and toxicologists had been led since 1989 by Roger Martz. Martz had spent virtually all his FBI career in the lab, having graduated from the University of Cincinnati in 1974 with a degree in biology. In the forensic science world, Martz was best known for his adaption of mass spectrometry to identify drug residues in human hair, a technique used in the prosecution of Washington, D.C., mayor Marion Barry for cocaine use. Energetic, trim, and ambitious, Martz was a confirmed, self-proclaimed Friend of Louie, displaying a photo of himself with the director in his lab office.

Their relationship went back to the Moody case, where Roger Martz, like Tom Thurman, had provided vital forensic evidence for one of Freeh's most celebrated prosecutions. "They both had access to Freeh, and he promoted that sort of personal association," says one former manager. "Once we were having some sort of anniversary celebration for Martz at the lab, and to our surprise Freeh just popped in." Indeed, early on, lab managers had high hopes for life under Louis Freeh, given his favorable experience of the lab in the Moody case. "We thought his relationship with Martz and Thurman would be a very positive thing for the lab," recalls John Hicks. "That's one of the reasons the pressure on rapid reassignment was such a surprise. It became a bit like working with a no-huddle offense. Things would happen and you just wouldn't know why."

Roger Martz had testified as an expert in dozens of cases, some of which had made national headlines or even become books. One was the case of an elderly couple who disappeared at sea from their yacht, which was later found in the possession of a young couple. Analyzing a small amount of a white residue found inside a luggage trunk that had drifted onto a deserted beach, Martz managed to prove it had contained a body, enough evidence to prosecute the young couple for murder. Another case had been a pair of cyanide poisonings by means of adulterated Excedrin tablets in Washington State in 1986. Examining the contents of five bottles of the tablets, Martz quickly confirmed not only the presence of potassium cyanide, the poison, but some little green specks. They turned out to be particles of a rare algicide, a product Stella Nickell, the wife of one of the victims, had bought for her fish tanks and then crushed with the same mortar and pestle as the poison. Nickell was convicted of a double murder.

But old friends and recalcitrant management were not the only reasons the FBI lab came to Louis Freeh's immediate attention as he settled into the director's chair in room 7176. By 1993, Fred Whitehurst's complaints about the lab had reached the very highest level. In February 1993, just months before he was ousted, FBI director William Sessions had met twice with Whitehurst, on one occasion in the presence of David Binney, the deputy director, who stayed on under Freeh. It was decided at these meetings that his complaints should be referred to the FBI's Office of Professional Responsibility. But by 1993 Fred Whitehurst had begun to despair of the bureau's ability to investigate itself and was looking around for external help.

That same year Whitehurst approached Stephen Kohn and David Colapinto, lawyers from the National Whistleblower Center, a nonprofit agency representing employees who blow the whistle on waste, fraud, corruption, or law breaking and are guaranteed protection under the Whistleblower Protection Act of 1989. In February 1994, Stephen Kohn would write to the FBI demanding a proper examination of Whitehurst's complaints by a special counsel or some other form of independent prosecutor to avoid any further conflict of interest. At about the same time, Whitehurst had started taking some of his complaints to the Office of the Inspector General (IG) in the Department of Justice, which had limited oversight responsibilities for

the FBI. As a result, in October and December 1993, Whitehurst was approached and interviewed about his complaints by personnel from the IG when they were doing a routine audit of the FBI lab.

All this meant that Frederic Whitehurst and his complaints were one of Howard Shapiro's first big problems in his new job in the J. Edgar Hoover Building. Replying to Kohn, Shapiro stated that the FBI's new Office of General Counsel (OGC) would conduct an investigation itself. Two lawyers from OGC, Steven Robinson and John Sylvester, carried out the investigation, reporting back to Shapiro in May after interviewing Whitehurst and other lab staff and reviewing documentation from previous investigations. The authors have obtained a copy of this memo, albeit redacted. The OGC lawyers generally concluded that the lab had investigated each of Whitehurst's allegations fully and had taken appropriate action. The one exception was Whitehurst's complaints about Terry Rudolph. Robinson and Sylvester concluded that Rudolph's work would not withstand significant legal and scientific scrutiny and recommended that Material Analysis Unit chief James Corby do a complete review of Rudolph's casework -- a review Corby actually had been advocating for years.

The fact that the OGC investigation revealed nothing of Whitehurst's complaints about the alteration of reports or testimony by unqualified examiners and found no suggestion "that any Laboratory Division or other FBI components have covered up any past problems" -- all activities later confirmed by the IG's investigation -- was in itself an indication of what Whitehurst was complaining about. Yet there are interesting asides in the memo to Shapiro. One comment ran: "The QA/QC [quality assurance/quality control] Officer advised that the FBI would not meet minimal accreditation standards until changes are made in several areas of the LD [Laboratory Division]....[I]t does appear incredulous [sic] that the premier forensic laboratory in the world is not accredited."

Within days of the memo, a formal audit report from the IG at the Department of Justice was published. It was not a scientific audit, and its main informants were the lab's users, FBI field offices, and state and local law enforcement authorities. As such it could be expected to give the lab a clean bill of health. Yet even this sort of inquiry turned up major problems, confirming how little had changed in the three years since the ASCLD study committee had reported its findings to John Hicks. Once again, the IG audit made it clear that the problem in the lab was less the procedures and protocols, more the people and management. "It appears that the LD has acceptable QA/QC guidelines, but they have not been fully followed or enforced in some LD units," it concluded.

Evidence control was, the audit admitted, a nightmare. The auditors examined 96 requests from a universe of 22,321, submitted in an eighteen-month period between 1991 and 1993. In eight instances, case-file documentation did not explain how and when requests, specimens, and results were routed among lab units. On this basis the auditors estimated that the case-file documentation for 1,861 requests,

or 8.5 percent of the total, was incomplete. On the same sample basis, auditors estimated that the Evidence Control Center database did not list the number of specimens in 2,791 requests and that the database disagreed with the statistical sheet and the final report in some 1,396 requests. For four requests, Information Resources was unable to locate the case files or the case files were empty. On that basis the auditors estimated that the case files were missing or empty in 931 of the 22,321 cases, more than 4 percent of the total.

It was a frightening picture of chaos in the handling, tracking, documentation of evidence as well as record retention, all issues on which ASCLD/LAB inspectors place particular emphasis. But there were many other problems. The auditors discovered there was no open proficiency testing program in either the Questioned Documents or Latent Fingerprints units. In three other units, Firearms-Toolmarks, Materials Analysis, and Hairs and Fibers, staff were not being tested according to the FBI lab's own QA guidelines. In Firearms-Toolmarks the quality control coordinator who administered the tests was not himself being tested. Unit managers also interpreted the "twice a year" testing requirement to mean that two tests could be given on the same day, rather than every six months.

But corrective action on errors in proficiency tests was even more of a problem, according to the IG's auditors. Two units had no means of taking corrective action on errors made in proficiency tests, and managers in three other units were unaware of the corrective action measures contained in their own unit's QA plans. Faced with this negligence, in January 1994, John Hicks reissued the lab's own QA corrective action policies to all unit chiefs. The truth was that many in management at the FBI lab viewed proficiency testing as a motion to be gone through, not something designed to actually improve lab performance, correct errors, or ensure accuracy.

Documentation standards were also a mess, according to the IG auditors, despite new instructions going back to 1991. The auditors decided that requirements for casework documentation were not clearly established in four units, Explosives, Chemistry and Toxicology, Materials Analysis, and Hairs and Fibers. Managers in these units stated that documentation standards were unnecessary, notes and reports being needed only to serve the examiner in court, exactly what Rudolph had maintained in the Psinakis case, rather than assist any other examiner or external scientist trying to check or interpret those results. This view was upheld even by section chiefs, the lab's senior management.

Three years after the ASCLD study committee's checkup, two years after the quality assurance program began, nothing had changed to correct record keeping. And all this despite the fact that documentation of lab work to a sufficient standard to allow peer review from any quarter was a very basic ASCLD/LAB accreditation requirement. Lab section chiefs made the stunning observation to the auditors, again despite both ASCLD/LAB and the FBI's own quality assurance provisions, that reviews of examiners' work by unit chiefs "would be a

duplication of effort." In other words, there was no need even for internal review. The auditors were blunt in stating the obvious: "In our opinion, unless unit managers review workpapers in accordance with ASCLD/LAB standards, there is a risk that errors in the examiners' conclusions will go undetected."

The OGC report and the IG's audit gave Howard Shapiro and Louis Freeh an early insight into the real depth of the problems at the FBI lab. In June 1994, Shapiro sent John Hicks a memo asking for a plan to implement solutions. Hicks retired the following month, before replying. Freeh immediately appointed Milton Ahlerich to tackle the mess. Ahlerich was a bona fide Friend of Louie and, fittingly, considering the continuing preoccupation with image, came straight from the FBI's Public Affairs Unit, where the FBI's shine was burnished every day. Ahlerich had specific instructions from Freeh: improve quality assurance within the lab and actively pursue ASCLD/LAB accreditation.

A blizzard of directives from Ahlerich in the next fifteen months would attempt to enforce some measure of compliance with ASCLD/LAB provisions. In September 1994, the new chief issued a memorandum restating policies for case review, documentation, evidence handling, and safety. In January 1995 the lab adopted revised policies for blind proficiency testing. In February there were guidelines for standard operating procedures; in July came new policies concerning the preparation of case notes and the monitoring of testimony; in September, a new open proficiency-testing program and a new policy for the control of evidence.

The truth was that by then it was too little, too late. By 1995 what the lab and successive managements had sought to avoid for years -- external scrutiny -- was drawing closer. The logic of outside oversight was now unassailable. For years, FBI lab managers had insisted that their work was scrutinized in court under cross-examination. For decades that had rarely happened but now, with the advent of DNA typing, some judges were upholding requests for the documentation that made real scrutiny possible. Similarly, for years, FBI lab managers had insisted their internal proficiency tests ensured high standards. Yet now it was obvious from the IG's audit that even in units where proficiency tests were being performed, they were a sham.

Following the IG audit of June 1994, Whitehurst continued to write to the IG's office with complaints. His allegations that his lab reports had been changed set new alarm bells ringing. When interviews during the first half of 1995 confirmed that two other lab employees supported some of Whitehurst's allegations, the IG started discussing the possibility of a joint IG-FBI investigation. But the idea of any FBI input in such an investigation was effectively scotched by press attention. In August and September of 1995, Whitehurst's allegations, including the charge that previous FBI investigations had been a whitewash, became public. On September 18, the Department of Justice announced that the IG would conduct its own investigation, aided by a panel of scientific experts. That investigation would,

eighteen months later, produce the IG's 517-page report, a full investigation of Whitehurst's charges.

As of December 1997, seven years after beginning the process of self-scrutiny designed to lead to ASCLD/LAB accreditation, the FBI lab has still not been inspected. "I'm really surprised it's taken that long," says former lab chief John Hicks. Indeed, it is now known that the FBI lab may be unaccreditable. Even if the lab sorts out its protocols, procedures, and proficiency-testing problems, it may have an insurmountable problem: its location. Space, safety, and security concerns in the laboratory's area in the FBI's headquarters are such that the Laboratory Division currently may be breaking fire and safety regulations as well as compromising the results of its forensic examinations.

ASCLD/LAB accreditation criteria cover three areas. The first, laboratory management and operations, concerns planning, organization, direction, and control, including quality control, evidence control, and proficiency testing. The second area covers personnel qualifications in all the separate areas of forensic expertise. The third area concerns physical plant, which covers space, design, security, and health and safety in the laboratory itself. Even a cursory comparison of the ASCLD/LAB stipulations in the last category and the FBI lab's layout demonstrates what may be insurmountable obstacles.

As long ago as 1988 the issue of space, safety, and security were raising such concern at the FBI lab that officials called in the architectural and engineering firm Lee-Thorp Consulting Group of McLean, Virginia, to examine the problem. They recommended relocation to a new facility dedicated solely to the laboratory. Nothing happened. In 1992, another study came to the same conclusion with the same nonresult.

It was not until May 1995, twenty months after he took office and with his problems with the lab mounting, that Louis Freeh went to Congress to ask for \$150.2 million to construct a new lab at Quantico, Virginia, the site of the FBI laboratory's Forensic Science Research and Training Center. This was in addition to a more than 50% increase in the lab's annual budget of \$60.5 million. Construction of the new lab is scheduled to be completed in the year 2000, more than twelve years after the FBI initially concluded it needed the new facility in a new location.

In fact, a new lab went on the Bureau's shopping list largely because by early 1995, in the wake of the Oklahoma City bombing, both Congress and the White House seemed determined to throw money at the FBI. Within days of the bombing, the White House had put together a \$71-million special appropriation for the justice Department and promised another \$400 million in the 1996 budget. The chairman of the Senate judiciary Committee, Senator Orrin Hatch, promised a similar package. It was in this context that Louis Freeh wrote a \$1 billion wish list to take the bureau into the next century. The proposed new FBI lab and forensics spending was just one fifth of this.

In his testimony to Congress in support of the request, Freeh was quite blunt: "We have stripped away equipment, research, and development over the past ten years to make payroll, which is important, but we need some mechanics." Ironically, the need to make a strong pitch for the money for a new laboratory meant the submissions to Congress had to make it clear how outdated and inadequate the current laboratory was even in 1988. Worse still, such submissions had to show that forensic work was being affected. "Recent safety inspections by the National Institute of Safety and Health and General Services Administration have identified inadequacies in the exhaust and ventilation systems which, again, are difficult or impossible to remedy in existing space. Evidence examination and storage facilities are inadequate, and, in many areas, not immediately accessible to examiners. Irreplaceable reference files and collections cannot adequately be secured," noted one paper.

The document went on to detail difficulties with the fume hoods vented to the outside -- hoods needed to examine items in a putrefied condition or for handling noxious and/or highly volatile chemicals and industrial-type solvents used in processing evidence. The fume hoods could not be maintained, the FBI admitted, because the air-handling capacity of the building was inadequate. The FBI lab's "recycled air," rather than the "once-cycled air" preferred by laboratories, increased the risk of contamination, and the absence of "clean rooms," sealed areas to accommodate trace analysis away from bulk-evidence analysis, carried the same risks.

The use of new instruments in the lab could be compromised because they could not be ventilated or cooled properly, the FBI concluded. Apart from the potential danger to defendants in terms of incorrect forensic results, a series of dangers to those working in the FBI facility and even in downtown Washington were listed. The FBI appropriations submission states somewhat prosaically: "The explosive bunker in the basement is inappropriate in an office facility...The shipment of hazardous and explosive materials to an office building located in a major urban area is inappropriate." It was also noted that the disposal of waste chemicals into neutralizing tanks adjacent to office space was unsafe and that the indoor firing range used by the laboratory's Firearms-Toolmarks Unit and the office space next to it had become contaminated with lead.

Once again, such problems were well-known and had been widely reported years earlier. Fred Whitehurst had been raising safety issues for years; the IG audit of 1994 had noted major problems too. On safety, the IG noted, there were, yet again, plenty of policies and rules - - most notably the FBI's Chemical Hygiene Plan (May 1991) -- but they were, once again, often ignored. Compressed gas cylinders were not labeled or stored separately; protective attire, such as lab coats, safety glasses, and gloves, seemed to be optional in many units. Chemicals with flash points below two hundred degrees Fahrenheit were not stored in "FLAMMABLE" storage cabinets as policy required. Indeed, three lab units had no such cabinets. The authors have learned confidentially of at least one fire that has occurred in the FBI

lab.

Space was a key problem, compromising both the safety and integrity of examinations. Numerous individual units within the Scientific Analysis Section are in split locations. "Evidence must be transported through public access hallways....Evidence processing rooms are crowded." As the FBI document admits: "The current laboratory layout was originally designed with the interests of the public tour route foremost. The result has proven to be terribly inefficient through the years and poses significant problems attendant to security and unauthorized access to controlled space from the tour route."

Behind the document's vague terms, such as "unsafe," "overcrowded," "inefficient," "difficult unit management," and "inadequate storage space," were specific pitfalls, some of which were made clear to us privately by lab employees. "It's not just that the lab fails to check for contamination, it's simply that in many areas it is just impossible to do so," says one. "Machines are so close together -- or even on top of each other -- anything could be there." Four people working in space designed for two inevitably increases the risk of commingling or cross transfer. "You could put a beaker down. Your colleague might then pick it. Before you know it, trace evidence has been transferred between you. It's all pretty high risk," complained another examiner.

Despite the squeeze on government spending and the trend toward balancing the budget, Louis Freeh has now secured everything on his \$1-billion shopping list. The FBI's budget has risen by nearly half since Freeh took over, from \$2.1 billion to \$3 billion in fiscal year 1997. Spending on the FBI's Laboratory Division has virtually doubled in just three fiscal years, rising from \$60.5 million in 1995 to \$112.8 million in 1997. "So much for reducing costs by employing civilian scientists rather than agent-examiners," observes one former lab manager.

What has all this bought? Because more money has not been accompanied by any commensurate increase in accountability, the truth is, we simply do not know. There is absolutely no evidence that it has bought better forensic science or that a new crime lab will bring new attitudes, new approaches, or a new culture. In the past, all efforts to impose meaningful change or enforce some accountability in the FBI lab have failed. Compliance with everything from court orders to congressional exhortations that the FBI did not agree with has been minimal, begrudging, or nonexistent.

One thing, however, is clear. The soaring budget has increased the FBI's power enormously. A drift toward the federalization of law enforcement at home and the globalization of FBI activities abroad has been one important consequence that has been reported extensively. In the forensic arena, as elsewhere, the equation has been very simple. More money equals more power -- for investigations, for training, for personnel, for research. And it was, after all, the arrogance of power that got the FBI lab into trouble in the first place.

The budgets have soared, but not on the condition that the FBI lab put

its own house in any sort of order or, even more important, address the underlying causes of the problems, in particular the culture and attitude that pervades the lab. The money has poured in before any mechanisms to ensure radical improvements -- and to monitor their enforcement -- are in place. The risk is obvious: given all the circumstances, pumping more money into a fundamentally flawed organization may only serve to reinforce those flaws and their impact. That, as the remainder of this book shows, is a frightening thought and a very dangerous development.

Copyright © 1998 John F. Kelly and Phillip K. Wearne.
All rights reserved.

ISBN: 0-684-84646-2

[Return to Top](#)

[Return to Books](#)

[Return to Denver Post Home](#)