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The Politics of Child Abuse

In the fall of 1997, a sensational murder trial took place, regarding the death of a baby treated at a Boston hospital where I had recently begun a pediatrics residency. The central issue of the trial—was the baby a victim of intentional violence?—precipitated an acerbic controversy about whether doctors could accurately diagnose child battery. As the case recapitulated a medical debate that was centuries old, it became clear that many among the public were swayed by an unlikely scenario offered by the defendant, despite the testimony of numerous respected physicians who were convinced that she had injured and killed the child.

This is the story about why people didn't believe the baby's doctors.

I—The Emergency

The emergency department at Children's Hospital in Boston has thirty-one rooms numbered by colored signs, and each room's color implies relative severity of illness. The red and black area, comprising ten rooms, is used for routine complaints such as infant fever, mild dehydration, and various aches and pains. The green section is reserved for more acute cases, including asthma attacks or severe abdominal pain. The blue area, taking its name from the feared "Code Blue" denoting cardiac or respiratory arrest, has two trauma bays reserved for the most dire emergencies, such as high speed motor accidents. On February 4, 1997, eight-month-old Matthew Eappen was rushed into a blue bay with respiratory arrest of unknown cause.

At 3:46 p.m. that day, a 911 dispatch operator received a frantic call from Louise Woodward, an eighteen-year-old British au pair who looked after Matthew and two-year-old Brendan Eappen, when their parents were at work. Woodward reported she found Matthew suddenly

unresponsive. “Help! There's a baby. He's barely breathing! He's not focusing his eyes. Help, help, what should I do?” she cried, according to courtroom transcripts. The dispatcher directed two paramedics immediately to the Eappens’ house, where they arrived three minutes later. They found a comatose child on the floor, with a stable heartbeat but very shallow, slow breathing. Ashen-faced and critically ill, Matthew held his arms stiffly to his sides, in an involuntary reflex that indicates severe brain damage. Immediately, the paramedics launched into a resuscitation algorithm that was itself reflexive: Establish an open airway, then assist breathing, then ensure proper circulation. A pulse oximeter, a device that measures oxygen by beaming a red light through skin, was placed on Matthew’s finger and confirmed that he was breathing inadequately. The paramedics placed a small plastic mask over Matthew’s face and blew pure oxygen into his lungs with squeezes of an inflatable bag, loaded Matthew into their ambulance, and commenced the short drive to the emergency room. En route, they made a “ten-minute out” call to Children’s Hospital and spoke with Ken Mandl, a lanky, energetic doctor who alerted his code team to assemble.

A flurry of activity precedes the arrival of any critically ill child to a blue bay. Mandl emergently summoned the “code team” and strategically placed them around the aseptic fifteen by twenty-foot room. Three nurses drew resuscitation medications into syringes to be immediately injected if needed, and a radiology technician with a portable x-ray unit and two respiratory therapists were paged. Dr. David Greenes was assigned to the head of the bay and prepared to control the patient’s breathing, and two residents stood to his sides and readied intravenous catheters. Mandl, the most senior doctor and therefore the “code leader,” stood detached several feet from the others to orchestrate the entire process. Once everyone was in position, Mandl pondered the situation in the brief lull. Children rarely become so sick so quickly, he thought, and the list of possible causes was not long. The team would first consider and treat possible seizures, overwhelming infection, cardiac failure, and unusual problems with body electrolytes.

At 4:07 p.m., Matthew arrived and was immediately covered by a profusion of gloved hands. Within five minutes, monitoring equipment was affixed to his chest, intravenous lines were inserted into his arm and foot, a urinary catheter was inserted into his bladder, a protective collar

was applied to his neck, and a breathing tube was passed through his mouth into his trachea. After sending several blood tests, Mandl ordered the administration of antibiotics and anti-seizure agents. He was still puzzled. “Nobody knew exactly what was going on,” he said.

From the house, Louise Woodward had paged the Eappens with the news that Matthew had been taken to the emergency room. Sunil Eappen, an amiable anesthesiologist at the adjacent Brigham and Women’s Hospital, arrived out-of-breath and still wearing blue surgical scrubs. Deborah Eappen, who worked farther away, came soon afterwards. Stricken, they helplessly watched as the doctors and nurses worked on Matthew. Following standard practice in evaluating coma of unknown cause, Mandl decided to order a computed tomogram (CT) scan of Matthew’s head. Just before sending the child to the radiology suite, Mandl bent cheek-to-cheek with his patient and peered into the pupils with a hand-held ophthalmoscope. Dismayed, he saw a sea of crimson instead of the usual orderly lattice of blood vessels. He was looking at a retinal hemorrhage.

The retina is a tissue-thin layer of nerves and blood vessels at the rear of the eye. Though delicate, it generally resists injury better than the blood vessels of the brain. Mandl therefore realized that the retinal hemorrhages almost certainly meant brain bleeding, which explained why Matthew was so critically ill. Paradoxically, the skull that so effectively protects the brain also makes it extremely vulnerable to certain kinds of injuries. Because the brain occupies a closed space that cannot expand, enough excess material like blood in the same space can cause fatal compression of the brain. “We all knew a retinal bleed was a likely death sentence,” Mandl recalled. He quickly paged the resident ophthalmologist to confirm the eye findings before Matthew went to the CT scanner.

Before the resident arrived, though, the team learned that Deborah Eappen also was an ophthalmologist. As they waited, Gary Fleischer, another senior physician, gently explained to her why, of the multiple specialists available at Children’s Hospital, Mandl had selected an ophthalmologist to see Matthew urgently. Deborah Eappen was so taken aback by the possibility of retinal bleeding that after the resident arrived and completed an exam, she borrowed the glass examination lenses from the resident. As the previously bustling room plunged into silence, she

looked carefully into her comatose son's eyes. There was no doubt: the hemorrhages were present, and the full horror of Matthew's prognosis flooded her.

"I knew what that meant," she later said. "I was shocked. I couldn't believe it."

II—The Radiologists

Had this situation occurred a few decades ago, only one physician in the United States, a radiologist named John Caffey, would have known the most likely cause of Matthew's brain bleed. The cause of hemorrhage inside the skull, or intracranial bleeding, had been a long-debated and poorly understood phenomenon in infants, and Caffey thought he finally understood its origin. In 1946, he published the abstruse sounding "Multiple fractures in the long bones of infants suffering from chronic subdural hematoma" in the *American Journal of Roentgenology*. Caffey's paper ended many years of speculation about the origin of intracranial bleeds in children.

The dubious nature of such bleeds was described as early as 200 A.D. in the textbook of the Greek obstetrician, Soranus. Realizing that an overly stressed caregiver could be dangerous, he made a fascinating observation that foreshadowed Caffey's discovery. Soranus advised new mothers to be careful in selecting a wet nurse, for those without "an even temperament" would let babies "shake and tremble [and] come back with large heads and water on the brain," the earliest known description of probable intracranial bleeding.

The first physician to study infant brain bleeds systematically, the nineteenth-century German pathologist, Rudolph Virchow, found nothing suspicious about them and hypothesized they were just due to infection. Virchow knew that the meninges, the three layered membranes covering the brain, serve as a scaffold for blood vessels supplying the brain. He thought that meningitis, or infection of the meninges, caused these blood vessels to bleed. Because the blood was often found under the outermost layer of the meninges, the dura, the type of bleeding Virchow described was called "subdural" bleeding. This illness seemed to be common. In 1890, the German pathologist Doehle performed four hundred children's autopsies, and found that almost

one-tenth had subdural bleeds, also thought to be caused by infection.

In the same hospital where Matthew Eappen was treated almost a half-century later, David Sherwood in 1930 began to speculate that such bleeds might be influenced by a child's home environment. His approach was unique because he inquired about the children's living conditions and referred to them in a monograph. The histories are striking: half his cases were from "dubious home conditions," including a malnourished child of a neglectful mother, and numerous children in foster homes or institutions. However, Sherwood stopped short of inferring intentional battery, instead opining that the "etiology is obscure."

In his famous 1946 paper, Caffey finally mustered enough confidence to point out that only traumatic injury could explain many brain bleeds. A radiologist who read x-rays but didn't often interview patients, Caffey described six children who had subdural bleeding in association with multiple other skeletal fractures and a suspicious history from caretakers. By associating long bone fractures with subdural bleeding in these cases, Caffey clearly showed that the children were subjected to forceful injury, and became the first physician in history to suggest that serious trauma was causing infant brain bleeds. Although he didn't directly state that the injuries were purposefully inflicted, he wrote, "The causal relationship between the traumatic force and damage to the bone is clear. It is unlikely that trivial unrecognized trauma caused the fractures."

Over the next several years, Caffey became convinced that many such injuries were intentional, and broadcast his theory with messianic zeal. In one of his more forcefully worded papers, he wrote that the radiologist "must stand his ground after his own diagnosis of trauma and urge his trauma-insensitive colleagues to go into the history more fully." One can imagine him sitting in his darkened, quiet reading room perusing x-rays day after day, wondering why the repetitive injuries so obvious to him were so opaque to the primary physicians. So frustrated was he by the pediatricians' blindness to intentional battery that he wrote,

Paediatricians, faced with unexplained pain and swelling in the extremities, in the absence of a history of injury, customarily set out on an elaborate search for lesions produced by more sophisticated causal agents such as vitamin deficiencies, metabolic

imbalances, infections, neoplasms, reticuloendothelial proliferations, prenatal disturbances, and chromosomal injuries contracted in earlier generations. Simple direct mechanical trauma often receives short shrift by those bent on solving the mysteries of more exotic diseases.

Despite the publication of Caffey's work, medical professionals seemed to take little notice of it until sixteen years later, when C. Henry Kempe of Denver, Frederic Silverman of Boston, and three colleagues defined the "battered child syndrome" in the *Journal of the American Medical Association* in 1962. (Occasionally, doctors suspecting battery still coyly write "Rule out Silverman's syndrome" on x-ray orders.) The paper is an unusual scientific document; there is no hypothesis, no detailed methods section, and no experimental data; the authors simply described their experience working with injured children. Nevertheless, the paper was a turning point that finally led to public acknowledgement of intentional battery.

Frederic Silverman, who was Caffey's first trainee and protégé, speculated that the paper was a marketing coup, which franchised the concept of intentional injury by naming it well. (He called it an illustration of "the role of terminology in the propagation of concepts.") The number of published studies about skeletal trauma in children skyrocketed from less than two per year before 1962 to over thirty-five in 1964 and to several hundred a decade later. Radiologists also described other obvious indicators of intentional injury; Paul Kleinman's classic textbook on child abuse reproduced x-rays of an open safety pin and light bulb in an battered infant's rectum, and seven sewing needles impaled in an eleven-year-old boy with belly pain. A national epidemic, it seemed, had been "discovered," and pent-up denial of child battery seemed finally to explode. The ensuing national outcry resuscitated legislation designed to protect children, and led to a profusion of laws and agencies at national, state, and local levels. By 1967, every state had passed mandated reporter laws, requiring certain professionals to report all suspected child abuse to authorities. In 1974, Richard Nixon signed the Child Abuse Prevention and Treatment Act, creating a national center providing funding and technical assistance for child abuse services to local governments.

In retrospect, it seems perplexing that child battery was overlooked for so long. Its denial wasn't

rooted in a lack of publicity regarding battery. In 1873, for example, the Catholic missionary Etta Wheeler discovered a severely beaten child named Mary Ellen Wilson living in a New York tenement. City officials ignored Wheeler's repeated overtures for assistance until, of all agencies, the Society for Prevention of Cruelty to Animals became involved. In the torrent of sensational publicity that followed, the Society of Prevention of Cruelty to Children, Save the Children, Newsboy Refugees, and other organizations were founded. However, these groups focused not on child battery, but on child labor in factories (though Mary Ellen Wilson had never worked in a factory). In the prevailing social climate, child labor was an attractive target for reform since it smacked of slavery, which was intolerable. Although advocacy groups were willing to reform public cruelty to children by investigating and exposing sweatshops, none were willing to fight private cruelty to children by the homes of abusive parents and caretakers.

The recognition and popularization of child battery was therefore left to the medical profession, which had its own cadence. In dealing with illness, doctors have a near religious reliance on the collective body of published medical articles, referred to as "the literature." It is therefore conceivable that the lack of any naming of intentional child battery in the literature before 1962 meant that child battery simply didn't exist as a medical entity. But why was the phenomenon not described in the literature for so long? A pediatrician has an unusual therapeutic relationship with a child, since parents or other caregivers control the patient's contact with the medical system. In pediatric care, therefore, an alliance between caregiver and doctor is critical. To accuse a parent of intentional battery would destroy that bond, and with it, any hope of continuing to care for a child at risk. Perhaps doctors as a group acted like battered partners; given that they could not endure separation, they simply stayed quiet and hoped they could change batterers with coaxing and cajoling.

III—An Education

Like many fledging pediatricians, I almost missed my first case of intentional injury. A few weeks into my residency, I was seeing patients in the black and red areas of the Children's Hospital emergency room, reserved for common, usually benign conditions. I wrote my name in dry-erase marker on the large patient board, assigning myself the case, and walked over to the

room where the child, whom I'll call Tim, and his father waited. Before entering, I quickly flipped through the chart that hung on the door. The triage nurse had listed the chief complaint as "febrile illness," or fever. Tim was almost three months old. Pulse and blood pressure were stable, although he had a high temperature. There were no unusual past medical problems. I knocked on the door and entered.

"Tim's mother couldn't make it," explained the boy's father, a stocky man dressed in a shirt and tie who sat in a chair and tried to bottle-feed an infant positioned awkwardly in his lap. "She said Tim's been irritable all day, won't be quiet. He's been hot," he added. I pulled up a chair next to Tim's father, and launched into the standard interview. After all, fever was probably the most common complaint seen in the emergency room, and I had already evaluated similar infants earlier in the day. Nothing out of the ordinary came up, and a brief physical exam was normal. "We'll do a few blood tests, a urine test, and we'll need to obtain a small amount of spinal fluid," I said, and he agreed without protest. Spinal taps often spooked parents, but he acceded, "Whatever you have to do, doc." His deference was flattering, especially to a first-year resident like myself. Leaving the father, a nurse and I took Tim to a procedure room, where we prepped Tim for a spinal tap by holding him naked on his side and cleaning his back with a brown antiseptic. I briefly noted a curved red mark on his buttock that I had missed earlier. The spinal tap went smoothly, but the nurse commented that Tim seemed especially upset when he held Tim's leg.

We decided to obtain an x-ray of the leg, which showed an unusual "spiral" fracture of the thigh bone, indicating a serious twisting injury. Now I was confused, since only a lot of force can break the largest bone in a baby's body. Returning to the examining room, I asked Tim's father if he recalled any falls or injuries Tim could have sustained. He didn't. I sought out the supervising physician for the night, a precise and efficient woman who reviewed the x-rays, examined Tim, talked to his father, and then called me outside the room. "Did you see exactly what Tim's father was wearing?" she asked. Not really, I responded, unsure of the question's relevance. "His belt buckle," she explained, with the tone of a doctor diagnosing a simple ear infection. "It's the same shape and pattern as the skin lesion. He might have whipped the kid at some point, maybe broke the leg too."

I must have looked skeptical, since she explained patiently, “Look. The kid has a spiral fracture, and nothing except twisting can do that. He’s only three months old, so he couldn’t have been running or biking or whatever. Someone must have done it, and based on that look of the belt buckle it must be dad. There’s just nothing else that explains the injuries.”

The attending advised me to involve the Child Protection Team, an interdisciplinary team which analyzes cases and reports if abuse is likely or if the child would be in danger if returned home. The C.P.T. social worker, a no-nonsense woman, helped me alert the state social services department to a case of potential abuse, as required by law. She then reviewed the case with the C.P.T. physician on call, and relayed her conclusions to local authorities. The C.P.T.’s opinion is weighed heavily by state social services agencies, which ultimately decide where the child will be placed. A child may be sent back to his family without intervention, sent home with regular visitation and support by social workers, or removed from his home. In this case, the state was persuaded by the C.P.T. that Tim would be endangered if sent home, and he was placed in temporary foster care.

A first case of abuse is something of a carnal experience for an intern; it is a somewhat frightening, unforgettable, and wholly inevitable step to becoming a mature pediatrician. On a small scale, an intern’s first diagnosis of inflicted injury recapitulates the historical acknowledgment of child battery: there is often an initial period of misdirection, a gradually increasing suspicion of the truth, and finally, recognition of a problem that in hindsight seems almost obvious.

In addition to a first abuse case, almost every resident at Children’s Hospital recalls a lecture from Eli Newberger, the medical director of the C.P.T. Not long after I saw Tim in the emergency room, Newberger gave my class of residents an annual lecture on recognizing and treating child abuse. Newberger, who founded the C.P.T. in 1970 as a twenty-nine year old resident, once told me he “stumbled into the field of child abuse” as an impressionable resident in the 1960s. An internationally renowned jazz musician, Newberger says that his involvement with battered children “connects to the sense of shared struggle and social protest that runs deep

in the history and practice of jazz.” While he often denied liking the controversy that surrounds his work, I often suspected he was secretly attracted to it. Newberger is a man drawn to conflict; for him it is a source of creative generativity.

He wanted to make sure that the trainees of Children’s Hospital would appreciate the breadth and variety of intentional injury. In his lecture, he flipped through slides featuring a disturbing variety of children’s injuries, including cigarette and iron burns, scalding by immersion in boiling water, stab wounds, electrocution scars, limbs intentionally bent into unnatural angles, and strangulation. As each slide changed, a murmur of horror went through the audience. Some residents cried, some sat in stony silence. Newberger’s point, I think, was to expose maltreatment so nakedly that it was undeniable. He continued on to other, more bizarre forms of child battery, including the curious entity of Munchausen syndrome by proxy (M.B.P.). Described originally in the British journal *Lancet* in 1977 as the "hinterland of child abuse," M.B.P. usually involves caregivers who secretly inflict injury on children, seek medical care for the problems, and enjoy the subsequent medical and social attention. These cases are frequently bizarre; one involved a mother who periodically injected fecal material into a child's brain, a situation those experienced in the diagnosis of M.B.P. call “stool shooting.” Newberger finally ended his lecture by playing a tape of a 911 call placed by a child, screaming as his sibling was beaten by his father.

A pediatrics residency, where one watches children suffer from a variety of diseases day after day, can be harrowing. Before their training, most budding physicians know that cancers, genetic ailments, infections, and other afflictions can happen to any child. After beginning residency, one comes to realize that inflicted injury, neglect, and even torture also affect children without discrimination. I cared for several children like Tim over the next few months. Like many pediatricians in training, I gradually began to think of inflicted injury as less and less unusual.

Having evaluated abused children for almost three decades, Newberger long ago stopped being surprised by cases of child battery. He first heard about Matthew Eappen just hours after the child was brought to the emergency room. That afternoon, Ken Mandl communicated his

concerns about probable forceful injury to Joanne Michalek, the C.P.T. social worker on call that day. As required by mandatory reporting laws passed in the 1960s, she assisted Mandl in notifying the local Department of Social Services.

Michalek soon learned what transpired after Matthew was taken to radiology, and called Newberger at his home. Newberger thought the entire description so convincing for intentional injury that the C.P.T.'s involvement seemed almost like a formality. He told Michalek, "It sounds like a classic case of abuse. I'll see him in the morning since we're told he's stable enough to make it through the night."

IV—The Making of a Sensation

After Ken Mandl confirmed in the emergency room that Matthew had retinal hemorrhages, he sent Matthew to the radiology suite to get a head CT scan. The images showed an immense bleed exerting enough pressure to push Matthew's brain out of position, a critical condition called midline shift. Joseph Madsen, a dapper senior neurosurgeon, was leaving to attend his daughter's music recital when he stopped by the radiology department to glance over an unrelated case. He never made it to the recital. Madsen spied Matthew's CT scan as it came up on a screen, and was so dismayed at the amount of bleeding that he rushed Matthew to the operating room. Immediately, Madsen drilled holes into Matthew's head and removed part of the skull to relieve the high pressure. In a child whose brain is under normal pressure, a surgeon opening the skull usually sees only a trickle of fluid. In his remarkable operative report, Madsen described the horrifying explosion of blood from Matthew's brain:

A small opening in the dura was made and liquid blood squirted out several feet from the patient. [After] the bone fragment was removed the dura was rapidly opened [and] a massive amount of clot extruded itself and delivered from the brain. The brain which was initially pushed down then swelled to beyond its normal dimension. Within another five minutes or so we noticed [the] brain became very firm as it projected like a bread loaf through the cranial defect.

After considering a partial removal of Matthew's brain so that the remainder could be squeezed back into the skull, Madsen instead decided to leave the skull open, in hopes that the brain would return to its normal size. After the surgery, Matthew was admitted to the intensive care unit on life support. All predictors of brain recovery, including eye pupil response to light, spontaneous breathing, and certain reflexive eye movements, were discouraging, even though Matthew's heart and lungs responded well to life-support. The next day, the intensive care team obtained a series of x-rays, called a skeletal survey, to see if Matthew had any other injuries indicating trauma. He did. The survey showed a skull fracture, which appeared recent, and a wrist fracture, which appeared one to four weeks old (though the radiologist noted that the fractures were difficult to date precisely). A senior ophthalmologist, Lois Smith, examined Matthew's left eye (the right was too swollen to open), and described "folding" of the retina in addition to the previously noticed bleeding. She described these findings as "pathognomonic" for child abuse, meaning that even if she didn't consider Matthew's brain bleed and fractures, the retina showed irrefutable evidence of sudden, forceful injury of the type usually seen in high-speed car accidents.

Matthew's brain failed to recover and his other organs began to deteriorate. The Eappens held an agonized vigil for the next four days. Repeated CT scans showed extensive areas of brain death, and neurologists could not elicit any significant brain function when examining Matthew. On February 9, Sunil and Deborah Eappen met with Matthew's medical team, and were told that the odds of recovery were now so poor that withdrawal of life support should be considered. The Eappens agreed, and sometime after 10 p.m., artificial respiration was discontinued. Matthew's parents played children's music, lit a candle, and took turns holding him. At 10:57 p.m., Matthew was pronounced dead.

From the outset, suspicion of intentional injury fell on Louise Woodward. One hour after bringing Matthew to the emergency room, the paramedics alerted Newton police detective William Byrne to a possible child battery case in his town's jurisdiction. Byrne called Mandl, who told him that Matthew had almost certainly received a forceful blow to the head. Byrne then drove to the Eappens' home to interrogate Woodward, arriving in the evening around the same time Matthew was being admitted to Children's Hospital's intensive care unit after his surgery.

At the house, Woodward initially seemed so innocent that Byrne recalled he “couldn’t help calling her ‘honey’.” Then Woodward told Byrne she was “a little rough” with Matthew, had “dropped him on some towels in the bathroom,” and at one point “delicately shaken him.” Byrne asked her to demonstrate with a doll, and Woodward gingerly shook it. Giving Woodward what he called “the benefit of the doubt,” Byrne took his leave after asking where she was spending the night, in case he had more questions.

The following morning, Eli Newberger evaluated Matthew and believed he had sustained acute, inflicted injury. “What else could it possibly be?” he rhetorically asked me later. Though the scenario was familiar, even routine, Newberger was still angered. Despite the pity he occasionally feels for batterers, Newberger doesn’t believe any circumstance absolves them from personal responsibility. He is motivated by a deep moral outrage, and wants them to face punishment. He decided that he had no qualms about testifying against Woodward, the only caregiver who was with Matthew for the seven hours before the 911 call. “She was guilty,” he said to me simply, “and she should be accountable.”

The same day, Byrne spoke with Madsen, and heard a graphic description of Matthew’s injuries. Now more suspicious, Byrne called the home of a coordinator of the agency E.F. Au Pair, where Woodward was staying, to ask more questions. A lawyer answered the phone, and Byrne never spoke to Woodward again. To this day, he is convinced that if left to herself, Woodward may have confessed more dramatic trauma, since she had already admitted to handling Matthew “roughly.” “The lawyers sure got to her fast,” he says. Given the opinions of Mandl and now Madsen, Byrne took Woodward into custody for assault and battery of a child, a charge elevated to murder after Matthew’s death.

Three weeks after Matthew died, a grand jury heard key testimony from several physicians including Newberger, who said that Woodward had shaken Matthew so hard that his developing brain “smashed back and forth within his skull” and that the final injury was a “severe traumatic impact against a hard surface.” The jury accepted that “extreme cruelty” may have motivated Woodward, and she was indicted for first-degree murder and held without bail. (Massachusetts allows first-degree murder indictments in the absence of premeditation if “cruelty” or “atrocious”

is involved.)

Byrne expected a quick resolution. “I thought it would all be decided by plea bargaining in a back room and be over,” he told me later. He was wrong. Ken Mandl better appreciated the impact the case would have. “Every female resident in the emergency room with a kid called their daycare when Matthew came in, to make sure they were OK. Right then, I knew the case would be big, would touch a lot of nerves.” (The case also consumed Mandl. At a party at his house last year, I glimpsed stacks and stacks of courtroom videotapes crowding the shelves of his pantry, when he ducked inside for additional hors d’oeuvres. “Nanny case,” he explained, with a sheepish smile acknowledging his obsession.)

As Mandl predicted, the Woodward trial became a sensational media event overseas as well as here. To begin with, the British press was fresh from the funeral of Princess Diana and recently exposed to American trials in the O.J. Simpson prosecution, and Woodward represented a sort of media hybrid of these stories: a virtuous paragon tried by an unfair system. One British tabloid pontificated, “American justice...O.J. Simpson is innocent and Louise Woodward is a child-killer.” The trial involved a Briton tried in the American court system, and British coverage of the trial had a decidedly sporting flavor; the London *Guardian* commented that the case “may officially be the State of Massachusetts vs. Louise Woodward in that courtroom, but it's also America vs. Britain.” (Without a touch of irony, talk-show host Larry King also wondered if local criticism of Woodward was “cultural” since Boston’s Irish roots created anti-English bias.)

Second, the British and American publics were increasingly skeptical that many allegations of child abuse could be substantiated, and were poised to direct anger toward accusers. In 1987, two pediatricians from Cleveland county in Leeds, England used an endoscopic technique described in a *Lancet* article (provocatively titled “Buggery in childhood”) to diagnose rectal penetration in one hundred twenty children. Many of these children were removed from their homes, without explanation to the children or parents. A media outcry ensued. The seeming arbitrariness of these actions in the so-called “Cleveland affair” created conspicuous distrust of child protection agencies, and even years later the *Sunday Telegraph* bemoaned “how easily over-officiousness and ignorance can result in innocent parents being falsely prosecuted.” On

this side of the Atlantic in the early 1990s, Americans had recently witnessed the retraction of entire “diseases” involving childhood battery, including satanic ritual abuse, multiple personality disorder, and recovered memory syndrome. In many cases, patients later dubbed their memories of childhood abuse a figment of the imagination, and won spectacular multimillion-dollar lawsuits against physicians who diagnosed them.

Lastly, the case stoked class and ethnic tensions. Sunil and Deborah Eappen, both physicians, lived in an affluent suburb of Boston, and were perceived by some people as harsh taskmasters of their au pair; one Boston laborer told *USA Today* that the Eappens “expected Woodward to be a slave.” Another columnist mused that perhaps Woodward “was given too much responsibility by a woman shirking her own.” The Eappens were blamed for retaining an ill-motivated, poorly experienced caregiver who frequently missed her curfew and was once caught leaving their children unattended. One radio caller in Boston opined, “She is guilty of manslaughter,” referring not to Woodward but to Deborah Eappen. Additionally, the Eappens are a mixed couple (Sunil Eappen is South Asian, Deborah Eappen is white), and covert racism may have swayed sympathy away from them.

In such charged circumstances, a courtroom was not the right place to expect a productive dialogue about child battery. Parties were mostly interested in conviction or exoneration after a child was already dead, not in educating the public about the facts of child battery. The trial became a confusing, often dishonest, medical debate that ultimately led the judge and many observers to conclude that a severe, sudden injury never happened.

V—The Prosecution

Shortly after Woodward’s indictment, Massachusetts district attorney Tom Reilly appointed Gerard Leone and Martha Coakley to try the case for the prosecution (Reilly’s original choice took a maternity leave). The agency that placed Woodward with the Eappens, E.F. Au Pair, engaged the Boston firm of Silverglate & Good, who also recommended hiring Barry Scheck, an attorney experienced in forensic medical cases. After several delays, the trial was set to begin in early October, nine months after Matthew’s death.

In his 1962 paper describing intentional injury, Kempe wrote, “The bones tell a story that the child is too young or too afraid to tell.” Since then, the advent of CT scans, nuclear bone imaging, improved recognition of ophthalmologic trauma, and new neurosurgical techniques have greatly expanded the tale a child’s body can tell. The trial of Louise Woodward was not just about what Matthew’s bones were saying; it was about what his brain and eyes disclosed as well. This time in a courtroom, the same problem that had interested Virchow and Caffey decades earlier was revisited: What causes a child’s brain to bleed? In a sense, the trial reversed the historical evolution of the concept of child battery. A clear case of an inflicted subdural bleed was slowly encumbered by doubt, until many observers wondered if trauma had occurred at all, and whether there were other, more sensible reasons to explain why many children die of brain bleeds.

At his office overlooking downtown Boston, Leone sat at his desk, which had a small picture of Matthew Eappen next to pictures of his own children, and explained the prosecution’s strategy succinctly, “We argued there was simply no sensible explanation for Matthew’s injuries other than abuse.” Anticipating that the trial would be a battle of experts and reputations, he and Coakley assembled numerous physicians involved in Matthew’s direct care. Eight doctors from various Children’s Hospital divisions, including emergency, radiology, pathology, neurosurgery, child protection, and ophthalmology, testified that Matthew’s injuries were non-accidental and acute, and therefore caused by Woodward. The prosecutors hoped that the doctors’ testimony seemed unassailable to the jury. Between them, these physicians had evaluated hundreds of injured children and authored an equivalent number of scientific papers. Physicians polled by *U.S. News and World Report* have selected their hospital as the best pediatric facility in the country yearly for the past decade.

On the opening day of arguments, October 7, 1997, Gerald Leone said in opening statements that Woodward “in a frustrated, resentful, unhappy attitude, slammed the baby into a hard object and shook him, causing his death—actions that anyone would know would result in death. In this Commonwealth, that is murder.” Defense counsel Andrew Good countered by telling the jury that defense experts “are going to tell you this was no slamming.” He continued, “This child

came to the emergency room with absolutely not a mark on him, no external sign of trauma.” If Matthew had actually sustained the alleged trauma there should have been “a smashed and destroyed head.” What actually happened, Good closed, was that Matthew suffered an earlier injury, possibly from an accident, that resulted in blood leaking into his skull over several weeks.

Almost from the beginning, the prosecution made key errors that undermined its case. The first medical witness for the prosecution, emergency physician Ken Mandl, described how Matthew first came to the hospital, and how nothing but forceful injury explained Matthews’ bleeds. (Mandl had written in his chart with confidence, “Trauma X physical abuse strongly suspected.”) In a tense cross examination, Scheck confronted Mandl with the previous grand jury testimony of Gerald Feigin, a forensic pathologist who examined Matthew’s brain and said the force needed to cause the observed injury was equivalent to that of “a fifteen-foot fall onto a hard surface.” (Neurosurgeon Madsen made a similar statement in his deposition.) Reiterating the comparison, Scheck asked Mandl if there were any bruises or other external findings indicating that Matthew head had “slammed down onto a hard surface with the force equivalent to dropping a child from a height of fifteen feet onto concrete.” Mandl didn’t explain that such external injuries are frequently absent even in confessed battery cases, and therefore irrelevant. Instead, he acquiesced, “There were no findings to specifically indicate that, no.”

The misleading “fifteen-foot fall” analogy haunted the prosecution’s case. It was a mistake to compare Matthew’s injury to a fall from a specific height, since this estimate was very speculative. This was the first of multiple tactical errors made by the prosecution. Their frustrating lack of a confession, an eyewitness, or medical proof thoroughly convincing to laypersons, led them to mistakenly create specific scenarios that could not be substantiated. Analogies are effective explanatory devices because they simplify complex phenomenon and are easily recalled. Conversely, they are deadly for the same reasons when retracted.

Over the following two days, Scheck repeated the analogy to neurosurgeon Joseph Madsen, radiologist Patrick Barnes, and Feigin, who each retreated from it without offering a clearer alternative. Under direct cross-examination from Scheck, Madsen admitted that it was misleading and that he had only made the comparison “in response to a very specific question”

during grand jury testimony. When asked if he could support Leone's claim that Matthew had been shaken for "about a minute," Barnes responded that he thought Matthew had been traumatized but couldn't estimate a time (roughly "how many shakes and how many impacts") that the child suffered.

On the fourth day of testimony, Gerald Feigin also explained that his autopsy findings didn't support Newberger's prior estimate to a grand jury that Matthew was shaken violently for about a minute. "It would have been physically difficult to shake a twenty-two pound baby violently for that amount of time," he said. He then confessed that he was mistaken when he had told a grand jury that Matthew's head injury was the "equivalent of one suffered from a fifteen-foot fall onto a hard surface." In fact, he said, the baby's skull fracture could have resulted under some circumstances from a fall of a few feet. The entire issue—whether the child was dropped from three or fifteen feet—was extremely speculative and marginally related to the case. No one reported dropping Matthew anyway, so the discussion involving distance seemed irrelevant. (Even if Matthew had fallen several feet for some reason, such children almost never suffer retinal or severe subdural bleeds.) However, confusion regarding estimates of times and distances was apparent, and damaged the credibility of Matthew's doctors.

Another serious error was made on the sixth day of testimony when Eli Newberger took the stand. Leone asked him, "Do you have an opinion concerning the manner of infliction of injuries to Matthew's eyes, skull, and brain?" With brisk confidence, Newberger answered, "My opinion is that this child was violently shaken for a prolonged period. [This] shaking was to such a violent degree that it would have required as much energy as an adult could muster, sustained over a period of time up to or exceeding a minute, possibly delivered in intervals." Newberger then mimed how hard Woodward had to have shaken Matthew to produce a subdural bleed. While dramatic, it's hard to argue the demonstration was entirely accurate, since the precise timing and nature of Matthew's trauma could never be known with certainty. The defense exploited this error later.

Looking back of the trial, several of Matthew's doctors expressed frustrations because they realized Woodward hurt Matthew, but were unable to show exactly how. Their uncertainty made

for a difficult legal argument, since any doctor's clinical suspicion of abuse, however strong, is ultimately circumstantial. And so it seems a few of Matthew's doctors resorted to embellishment. In retrospect, they underestimated the judge's and jury's ability to comprehend complex medical arguments; perhaps they should have truthfully explored their clinical intuition instead of estimating specific heights and times.

Despite their disagreements, all doctors involved in Matthew's care, from the emergency room to the medical examiner's office, agreed on the fundamental argument of the prosecution, that no disease other than acute, severe trauma could explain Matthew's illness. Madsen later told me, "I saw the kid's brain and blood. I never thought Woodward would become a cause celebre because of it," and Mandl said, "There was never any doubt" that Woodward killed Matthew and "there still isn't." Tell any doctor about a child with a large skull fracture, a huge subdural bleed, obvious retinal hemorrhages, and a previous wrist fracture, they argue, and each will tell you the child was suddenly, violently injured. "It's about as clear as it gets," one of Matthew's doctors said. "You can argue the circumstances 'til you're blue in the face," another said, "and you'll never decide exactly how [the abuser] did it. But you know they did."

In her book "Science on Trial," Marcia Angell bemoans the abandonment of the scientific method in litigation involving breast implants. She finds a fundamental difference between the scientific and legal process for seeking truth. In science, one assesses data and then constructs an explanation that best fits the data, whereas in the courtroom, one decides upon a conclusion, and then presents only data that support the conclusion. As any physician knows, a conclusion-driven approach is a dangerous way to seek diagnoses, since one can support almost any harebrained theory in an information-rich situation like a complex medical case. (As a medical student, I remember being convinced that a patient had a rare condition called amyloidosis in his kidney, based on his high blood pressure. I then thought he developed a funny heart sound that also suggested amyloidosis in the heart. Thinking a rare diagnosis had been missed, I recommended definitive rectal biopsy to look for amyloid. Thankfully, the attending brushed aside my plan, and the man turned out to be using illicit drugs, a far more common explanation for his problems.) Whereas Matthew's doctors examined data and presented the most likely explanation for the child's injuries when they cared for him, the defense experts assumed

intentional injury never occurred, and created a supporting theory. Matthew's doctors were at a significant disadvantage. Though they opined that the defense's theory, involving rebleeding or slow progression of an old injury, was highly unlikely, even unprecedented, they could never *prove* such an event never occurred.

VI—The Defense

At least one defense lawyer took the accusations of Matthew's doctors as a personal affront. In a letter to the *Wall Street Journal*, Harvey Silverglate accused them of maliciously conspiring in a "child abuse cult." He later told me, "Once the first doctor at Children's concluded there was child abuse, others fell into line." A crusading attorney who selects only causes that interest him, Silverglate honestly believed that Woodward was being railroaded; he later called the case "the single most agonizing" of his career. He based part of his skepticism of Matthew's doctors on personal experience, since his own three-week-old child had once fallen off an changing table and suffered a minor skull fracture that healed without complications. He didn't think the prosecution's misguided analogies were the product of simple courtroom naivete, but a malignant incompetence. He said, "One of the reasons I knew the prosecution's witnesses were all wet was because they were saying that this was a kind of skull fracture that could only be inflicted from dropping a child from a two-story building onto concrete. [But] I knew from personal experience that these people were complete charlatans."

Before the trial, Silverglate hired attorney Barry Scheck to assemble medical experts to argue that Matthew's death could be explained without implicating Woodward. A brilliant attorney, Scheck grasped a basic principle of courtroom science: hired experts in sufficient quantities can create the impression of legitimate scientific disagreement. His group included pathologists Jan Leestma and Michael Baden, neuroradiologist Alisa Gean, neurosurgeons Ayub Ommaya and Ronald Uscinski, and biomechanics expert Lawrence Thibault. (The defense was unable to locate an ophthalmologist willing to testify Matthew's injuries were non-acute.) Several individuals initially seemed to lack serious credibility. Not one had actually examined Matthew; they only looked at photographs and slides. Only a handful, Ommaya, Uscinski and Thibault, had conducted any significant research regarding child abuse, and only Ommaya and Uscinski

worked with patients regularly.

The defense argument was intuitively simple. First, two pathologists testified that autopsy slides of Matthew's brain several days after his injury showed a few cells and clots indicating healing. Then, a radiologist testified that Matthew lacked signs of external injury, like a bruise or swelling, when he came to the emergency room. Therefore, they collectively concluded, Matthew must have had an old head injury. Since he had an old injury (and here they invoked a leap of faith), he must suffer from a condition whereby minor handling causes a child with an old injury to collapse and die of bleeding, without a new severe injury. In any event, said two neurosurgeons and a biomechanics expert, an adult wasn't strong enough to cause severe brain damage by shaking a child anyway.

On October 17, the first day of defense testimony, Barry Scheck called neuropathologist Jan Leestma, who introduced the theory that Matthew succumbed from an old injury. Having concentrated on the head injury, the prosecution had not really explained Matthew's wrist fracture. Leestma hypothesized the fracture signified a previous traumatic episode that also caused a hidden brain bleed. Granted access to slides and photographs of Matthew's brain tissue after autopsy, Leestma claimed that Madsen, Matthew's neurosurgeon, had misdiagnosed Matthew's intracranial bleed as sudden when there was evidence of an extra membrane in the brain, implying a prior bleed. Leestma also asserted that he could see evidence of microscopic healing around the clot, a process that needs weeks to occur. (Later in the trial, Michael Baden, a pathologist who had previously been hired by Johnnie Cochrane for O.J. Simpson's defense, agreed with Leestma's findings.)

For purposes of trial, Leestma appeared to have changed his mind about the significance of an extra membrane in the brain. In a neuropathology textbook published earlier, he condemned as an opportunistic defensive ploy the very testimony he gave. He wrote:

Often there are older membranes beneath the fresh hematoma that signal prior head trauma episodes. Such older membranes are often invoked by defense attorneys to explain recent subdural hemorrhages on the basis of spontaneous rebleeding. Such

explanations do not take into consideration the brain swelling which is invariably present and the fatal outcome which [is] caused by a new episode of trauma.

In Woodward's defense, however, he contradicted himself, telling the jury that Matthew had died from exactly the type of injury he previously thought impossible. (When asked about his reversal by Martha Coakley, he said "subsequent case materials" had convinced him that his original opinion "was too narrow an interpretation.") Putting aside the speculation that an "older membrane" could ever rebleed, three Children's Hospital pathologists and the city medical examiner who examined Matthew's brain couldn't observe any "membrane" at all, even in retrospect. To date, Leestma and Baden are the only pathologists to describe findings indicating old injury in Matthew's brain. This disagreement highlights the complexity of pathological evidence, and a parallel debate observed in malpractice lawsuits regarding interpretation of Pap smears is instructive. In those trials, an unscrupulous pathologist might point to an unusual cell (on a slide of hundreds or thousands) as pre-cancerous, and accuse another of missing a diagnosis. Any reasonable pathologist would, however, find the cell innocuous were he not aware of the patient's eventual development of cervical cancer. In response to this confusion, national standards were developed regarding ethical conduct by Pap smear readers in trials. No such standards have ever existed for child abuse cases.

Despite its flaws, Leestma's testimony was important to Woodward's defense for two reasons: first, it offered a theory consistent with Matthew's wrist fracture, and second, it provided an entrée, however tenuous, for disputing the age of Matthew's retinal hemorrhages. Previously in the trial, Lois Smith, an ophthalmologist who examined Matthew, testified for the prosecution that "the eye is witness to what's happened to the brain," and asserted that the bleeding and folding of Matthew's retinas could be caused only by severe, sudden injury. On the second day of defense testimony, however, San Francisco-based neuroradiologist Alisa Gean speculated that Matthew's retinal bleeds were the result of "a dramatic increase in intracranial pressure," which occurred as blood leaked into Matthew's brain. She concluded, incredibly, that a child could have a brain bleed that caused progressive retinal bleeding and folding over a period of weeks, a theory about retinal injury that made its debut at the trial and has never been taken seriously in any medical journal or forum. (No ophthalmologist agreed to corroborate Gean's testimony for

the defense, a point used effectively by Gerard Leone in his closing argument.)

Gean concurred with Leestma that Matthew had no evidence of a new injury when he first came to the emergency room. She cited Madsen's operative note describing the fluid in Matthew's head as "clearish at first," implying that the fluid was old. This was an odd statement, since Madsen described a profuse amount of fresh blood in Matthew's head, and furthermore, clear fluid is expected even in sudden bleeds, since a portion of the blood can clot within minutes and leave clear yellowish fluid in its place. Though she rarely cares for patients directly, Gean finally asserted that Matthew's skull fracture was old since there was no swelling around it. "I have never seen an acute skull fracture without associated soft-tissue swelling," she said. (Matthew's fracture site did develop swelling by autopsy, a point that galled Ken Mandl, who had to admit Matthew initially had no external injury. "Everyone missed this simple point. It sometimes takes time to develop swelling, just like it takes time to get a bruise," he said.)

As Mandl suggests, signs of external injury are initially absent in many cases of sudden brain trauma. In a widely cited 1992 study by Ann-Christine Duhaime (a researcher who worked with Lawrence Thibault, another defense witness), almost one-half of the cases of children with inflicted subdural bleeding had no significant evidence of external trauma. Duhaime explained the infants' heads were hit against a "soft padded surface," like a mattress, that left no external mark of trauma. Unlike the studies of other experts, Duhaime's was unique because it relied not on idealized mannequins or animals but on actual children seen in emergency rooms. (Her findings also alluded to the severe injury required to produce a retinal bleed. Of the seventy-six children with injuries unrelated to intentional battery, only the single fatality, a passenger in a high-speed motor vehicle accident, had a retinal bleed. Of the twenty-four children with inflicted injury, nine had retinal bleeds, and three died.)

After arguing that Matthew's brain and eyes had evidence of old injury, the defense claimed that shaking an infant can't result in brain bleeding and skull fracture. Woodward, they argued, simply wasn't strong enough to deliver the injuries of which she was accused. For this purpose, on the third day of defense testimony Scheck called Lawrence Thibault, a biomechanics professor. Because one can't experimentally induce head injury in human children, data about

what types of trauma explain specific injuries are largely derived from experimental models using animals or specially monitored dolls. In 1987, Thibault corrected an important misconception about the cause of brain injury in battered children by showing that dolls the size of one-month-old infants were unable to be shaken by adults with enough force to cause intracranial bleeding and skull fractures.

Thibault, a scientific purist who abhors any speculation, told me he thought Matthew's doctors were "full of bullshit" when they estimated the duration that Matthew was shaken or a comparable height from which he could have fallen. He thought Newberger's testimony that Matthew's eyes had "slammed back and forth in his orbits" and that his brain had "smashed back and forth within his skull" was ludicrous; he testified that "there was no slamming against the orbit."

"There is nothing more shameful than abusing a child," Thibault told me. "But as a doctor you have to be honest about what you know and don't know." To be sure, Thibault legitimately corrected some misleading claims made by Matthew's doctors implying the child was solely shaken to death. But he didn't mention a key result of his study: dolls' heads hit against an unyielding surface by adults could easily attain enough force to cause severe injuries. Based partly on these findings, the condition previously described by Caffey as "whiplash shaken baby syndrome" has been renamed "shaken baby impact syndrome."

Though Thibault correctly stated that Matthew didn't have the former condition, he should have clarified that Matthew almost certainly had the latter one. When Scheck asked if Matthew was "shaken violently, such that his neck snapped uncontrollably back and forth, be it for a period of twenty seconds or a period of a about minute," Thibault dismissed the possibility of intentional injury, and said only that Matthew "did not experience that shaking." (Defense neurosurgeons Ommaya and Uscinski supported this opinion in separate testimony.)

VII—The Verdict and Aftermath

On October 28, closing arguments were made. Gerard Leone dramatically recreated the final

moments of Matthew's life, describing how Woodward was becoming more and more upset because "Matty is still crying, he's fussy, he's cranky, and she can't stand it." He concluded, "So she grabs Matty Eappen and she shakes him because it worked before. He stopped crying. Matty Eappen stopped crying." For the defense, Andrew Good stated that Woodward was "going to go home. She's going to go back to school. Someday she'll get married and she'll be somebody's mother. And she'll be a wonderful mother." Scheck reiterated the theory that Matthew had an old injury, and added that Matthew's doctors "have been misinterpreting [data] in this case and, unfortunately, probably in other cases." Holding a CT scan of Matthew's head, Scheck said there was no swelling around Matthew's skull fracture. "This is reasonable doubt!" he exclaimed, shaking the scan. "This is the end of the case!"

The defense sensed imminent victory. Silverglate was so confident that their client would be acquitted of murder that he encouraged Woodward to ask the judge to withdraw an option for the jury to consider manslaughter, forcing a choice between murder and acquittal. The judge complied.

In a shock to Woodward's attorneys, after thirty hours of deliberation the jury convicted Woodward of second-degree murder. On Halloween, she was sentenced to life in prison. But the Woodward camp's disappointment was short-lived. Ten days later, Judge Hiller Zobel, in perhaps the first legal decision released via the Internet, summarily commuted the verdict to involuntary manslaughter and the penalty to time served, opining that only a slight "roughness" may have caused Matthew's death. (The following day's *Boston Herald* headline punned, "Saved by Zobel.") He described a version of events remarkably similar to that presented by the defense:

Had the manslaughter option been available to the jurors, they might well have selected it, not out of compromise, but because that particular verdict accorded with at least one rational view of the evidence, namely: (1) Matthew did indeed have a pre-existing, resolving (i.e., healing) blood clot; (2) Defendant did handle him "roughly"; (3) the handling (although perhaps not the roughness) was intentional; (4) the force was, under the circumstances, excessive, and therefore unjustified; (5) the handling did cause re-

bleeding; and (6) the re-bleeding caused death.

An erudite man, Zobel has the bearing of a patrician and the didactic conversational style of a professor. I asked him whether he thought a courtroom was a good place to seek truth in trials involving complex medical testimony. “What is truth? The truth in a court of law,” he lectured me, “is that which persuades a jury beyond a reasonable doubt.” But apparently there are exceptions. For the third time in his career, he changed the decision of a jury. As in medical cases, he said, there are some times in a trial “when you can’t put your finger” on what’s bothersome. He wouldn’t comment specifically on what bothered him in the Woodward trial, and only opined vaguely that “the legal system is a human system. Things are not always perfect.”

Zobel wasn’t the only one who thought that the jury railroaded an innocent girl. The *Boston Globe* praised Zobel’s judicial wisdom, opining that given Matthew’s pre-existing bleed, the “slightest degree of mistreatment could have sufficed for a fatal injury. That rough handling would fit the definition of manslaughter. [The trial] has come to a just conclusion.” The *New York Times* joined the adulation, editorializing that “Judge Zobel made use of a safety valve in Massachusetts law designed to serve justice in those rare cases when a conscientious jury produces a bad decision.”

Woodward returned to her hometown of Elton, England, to a heroine’s welcome, and received a crowd of well-wishers at the airport, attended parties at local pubs, and enjoyed yellow ribbons tied to trees in her honor. In contrast, Deborah Eappen, a thirty-one-year-old mother who worked part-time and arranged her schedule so that she could come home to breastfeed Matthew during the day, disposed of bags of hate mail, and was reproached by some Newton residents in *Time*. One said, “I wondered how she could leave two kids alone with an eighteen-year-old.” Another commented, “An eighteen-year-old is just a child. What do you expect?” For these individuals, it seemed less problematic to blame a dead child’s mother for poor judgement than to blame a well-mannered young woman for killing a child.

Though Woodward had been convicted, the credence accorded to her defense during the trial

incensed many physicians. In an unprecedented decision, *Pediatrics* published a letter signed by forty-seven academic pediatricians and child abuse experts nationwide (the largest number ever permitted by the journal) which read, “The hypothesis put forward by the defense that minor trauma caused a ‘re-bleed’ of an earlier head injury can best be characterized as inaccurate, contrary to vast clinical experience, and unsupported by any published literature. [Infants] simply do not suffer massive head injury, show no significant symptoms for days, then suddenly collapse and die.” While not as obvious as *Pediatrics* in its bias, *The New England Journal of Medicine* then published an educational article on “non-accidental head injury in infants” authored by Cindy Christian (who signed the *Pediatrics* letter) and Ann-Christine Duhaime.

The medical community’s backlash against perceptions of Woodward’s innocence was largely ignored by the popular press, and the search continued for explanations other than the most likely, that Woodward had injured Matthew’s head. In a trade publication naming him one of the top ten lawyers in Massachusetts a year after the trial, Harvey Silverglate was still considering theories to explain Matthew’s death. He suggested that Matthew may have been injured by his two-year-old brother, commenting that the defense “possibly made a mistake not bringing out that [the] older brother was imperfect. The older brother in fact was quite a wild kid.”

Another sensational theory followed. Sometime in the winter of 1998, Jan Leestma, at the request of a defense lawyer, handed over pathological specimens of Matthew’s brain to journalist Katie Leishman. After shopping around the tissues to several specialists nationwide, she made contact with Floyd Gilles, a neuropathologist at Children’s Hospital, Los Angeles, and Marvin Nelson, chief of radiology at the same hospital. They offered yet another theory on Matthew’s death, asserting he had actually been strangled, perhaps two days before his acute illness. Gilles and Nelson invoked a sort of reflexology, asserting that pressure on the neck could cause a distant artery within the head to rupture. (That previous February, defense attorney Elaine Whitfield-Sharp consulted thirty-five medical experts about the same samples, including Gilles and Nelson, without hearing a similar story. In a bizarre twist, she was stopped for drunk driving some months later, and told arresting officer Randy Cipoletta that she was pushed to drink and drive from the stress of working for a guilty client, Louise Woodward.) Leishman’s report aired on *60 Minutes* in March 1999, and several doctors, including Bob Reece of New England

Medical Center, Douglas Miller of New York University, and Eli Newberger, immediately and publicly disputed this theory.

Reviewing the many ideas about Matthew's death, one understands why even the crystal structure of DNA was described before child battery in the medical literature. Child abuse is the last possible diagnosis some people are willing to accept, occasionally for good reasons, but mostly for bad ones. As John Caffey wrote presciently decades ago, "Simple direct mechanical trauma often receives short shrift by those bent on solving the mysteries of more exotic diseases." On the wards of Children's Hospital, the residents have an aphorism for overly eager students bent on diagnosing unusual diseases instead of common problems: "When you hear hoofbeats, look for horses, not zebras." Looking for alternatives to child abuse sometimes becomes the ultimate zebra hunt.

VIII—Lessons

Though painstakingly engineered over many years, public acceptance of intentional injury to children can be very tenuous, especially when the offender avoids signs of external trauma. This type of battery, which often involves head injury, is essentially a perfect crime. There is a tremendous historical and social reluctance to acknowledge the entity even exists. In almost all cases, no one has witnessed the event. The victim is too young to give a history. The evidence against a perpetrator is wholly circumstantial. Even in textbook cases, like that of Matthew Eappen, a team of smooth medical experts and lawyers might outmaneuver experienced practicing physicians and convince intelligent people to dismiss allegations of forceful injury.

How, then, can we protect children from physical battery? Predicting which infants are at risk of death is a difficult business. Although three million abuse and neglect reports filed yearly, less than one in a thousand result in death. This low prevalence of fatality makes risk assessment very difficult (though about five children die daily from forceful injury in the country, many from traumatic head injuries). For example, the Department of Social Services in Salem, Massachusetts handles about sixty calls per week regarding suspected child abuse. About half, including many from Children's Hospital, come from mandated reporters such as pediatricians

who are required by law to report all cases of suspected abuse. A social worker reviews the complaint, then interviews the family and performs a home visit, looking for indicators like social isolation, poor living conditions, previous criminal record, or previous domestic violence.

Kathleen McCarthy, the manager of the Salem D.S.S., is the first to admit that these are crude measures, biased to protecting the socially advantaged. Many dangerous perpetrators cannot be identified by these criteria. For example, one of McCarthy's training manuals reads that abuse can sometimes "involve inflicting severe pain or torture, such as burning, starving, beating for hours, etc. [This] type of offender frequently does not have a criminal record. He is usually employed and may have a prestigious position in the community."

In his book on multiple personality disorder, "Multiple Identities and False Memories," Nicholas Spanos describes how the witch-hunting frenzies of the seventeenth century withered once respectable people in power were accused. In many child battery cases, however, a similar dynamic allows such citizens to escape legitimate punishment. In her office overlooking the downtown where witch trials actually took place, McCarthy is aware of the historical dangers of false accusations. But she has seen too many abusers escape justice, and sorrowfully confesses that her department "simply cannot protect the children of highly intelligent sociopaths." Perhaps the lenient treatment of Woodward merely emphasizes the lesson of many sensational trials: a guilty but privileged defendant might get away with almost anything, and win public sympathy in the process.

There is, however, a more constructive lesson here. While serious abuse certainly merits prosecution, contentious trials like that of Louise Woodward increase public distrust of the very people and institutions that help children. In truth, few cases are as obvious as that of Matthew Eappen, and like many pediatricians, I have treated several patients with suspicious injuries but not entirely implausible stories, and discharged them home to possible abusers. Bringing these cases to court would have disastrous results, since public agency inquiries into such cases rarely reveal reasons to remove a child from the home. Ultimately, one must address the needs of these jeopardized children.

One may begin by trying to understand why their caregivers are motivated to hurt them. With this perspective, perhaps one may allow Louise Woodward some “benefit of the doubt,” as detective William Byrne did when first interviewing her. Maybe Woodward was not an “atrocious” or “cruel” killer who deserved a first-degree murder charge, which carries a mandatory life-imprisonment sentence without parole. In his 1906 short story *Sleepy-Eye*, Anton Chekhov, a practicing physician, described the mental state of thirteen-year-old nanny Varka, just before she suffocated a baby:

"Bayu, bayushki, bayu!" she murmurs, "Nurse will sing a song to you." But the child cries and wearies itself with crying. Varka sees again the muddy road, the men with satchels, Pelageya and father Yélim. She remembers, she recognizes them all, but in her semi-slumber she cannot understand the force which binds her, hand and foot, and crushes her, and ruins her life. She looks around her, and seeks that force that she may rid herself of it. But she cannot find it. And at last, tortured, she strains all her strength and sight; she looks upward at the winking, green spot, and as she hears the cry of the baby, she finds the enemy who is crushing her heart. The enemy is the child.

Attuned to the vagaries of passion, Chekhov suggests that Varka’s crime results not from premeditated malice, but from a defective response to stress. In a similar vein, child death review teams in Colorado and Oregon have identified specific triggers for violence, which include a child’s inconsolable crying, feeding difficulty, toileting problems, and disobedience. (Woodward did tell a detective that Matthew “had been crying all day.”)

This explanation shifts the focus of child welfare from assigning blame to providing support. Matthew Eappen’s death and the trial of Louise Woodward demonstrate how an exclusively penal approach can encourage a knee-jerk denial of child battery, a reluctance to even acknowledge the problem. Rather than locating and prosecuting individual cases of abuse after they have occurred, a pre-emptive strategy helping caregivers learn child management skills may be better suited to dealing with potential child abuse.

At some point, every caregiver must decide whether he or she will hit a child as a disciplinary measure. Scores of psychological studies suggest that physical punishment is no more effective than time-outs, that many caregivers who hit children feel significant remorse and guilt after cooling down, and that children who are physically punished are more likely to hit their spouses and own children as adults. But like a drug, corporal punishment often results in immediate results; parents experience an acute relief of rage, and a child's offending behavior is usually extinguished. It is a difficult temptation to resist, and about one-quarter of American parents hit their children on a weekly basis. However, as in any excessive substance use, gradual tolerance develops, requiring increasing or more frequent dosage for behavioral effect. That is how children die.

To be sure, children seem to possess an uncanny ability to amplify rage. Perhaps by admitting that all individuals are potential abusers, strategies to prevent abuse might be identified. This effort is analogous to a universal vaccination effort: when it is impossible to tell which children are at risk, hundreds of thousands must be inoculated against harm. The Elmira program created by David Olds in Denver uses visiting nurses and home health aids as partners with all teenage mothers for a period of six months after childbirth. This elementary approach has led to an eighty-percent reduction in child maltreatment in the intervention group, and a fifty-percent reduction in runaway, arrest, and emergency room utilization by involved families. The program is based on the simple philosophy that effective and safe parenting can and must be taught. Though educational programs like Elmira have shown positive results in multiple studies, they are present in only a handful of states.

Richard Krugman, who chaired a national blue ribbon commission on child abuse and is currently dean of the University of Colorado medical center, believes that funding child abuse prevention has simply not been a priority for policymakers. He gives the example of the political backlash against managed care in Colorado, which recently culminated in a much-publicized law guaranteeing women two days of recovery in a hospital after giving birth. This intervention costs up to three thousand dollars per birth and is supported by no scientific studies. Krugman calculates that for the same price, a mother could be "lodged in Denver's finest hotel penthouse suite for a night, have round-the-clock room service during her stay, have follow-up nursing care

at home for several days, and still have enough money left for six months of home health aide visits.” If we’re willing to fight for a second hospital day for a mother’s comfort, he wonders, why are we so reluctant to demand spending on family support programs, which are proven to help? Have we not learned that an ounce of prevention is worth a pound of cure?

A highlight of my second year of residency was one month attending to births at Brigham and Women’s Hospital. Carrying a bright yellow tackle box full of equipment, I ran to deliveries on the obstetrics unit when a bell, indicating a high-risk birth, rang where I worked in the newborn intensive care unit. My team would arrive in the birthing room, and we would be handed a tiny, helpless baby to resuscitate, sometimes so small that my hand was larger than its entire body.

Most times, the babies recovered in the delivery room with minimal supportive care. One of the most rewarding acts we performed was handing the children to anxious parents, who told their baby how much they loved them, kissed them, cried tears onto them, and felt such bursting joy that my own eyes misted. In contrast, one of the most depressing acts we performed was handing the children over to mothers who had tested positive for drugs, were in abusive relationships, or confessed to not really wanting their child.

Sunil Eappen, whose specialty is obstetrical anesthesia, was often present attending to the mother’s anesthesia for Caesarian sections. Sometimes I watched his face, wondering what he was thinking, witnessing over and over the drama of childbirth. I couldn’t bring myself to ever ask him. Perhaps he felt the same thing I did: a searing desire to convince at-risk families what a delicate vessel a child is, so in need of nurturing, and so fragile.