

# THE GUARDIAN

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*Some popular magazines in the sixties predicted that the age of leisure was almost upon us, that the biggest challenge many of us would face in the future was what to do with all our leisure time. They got that one wrong: most of us take it for granted that we have to work to support ourselves and that we will have to continue to do so well into old age. If machine intelligences arise, will they also have jobs? The following tale examines a very special being performing a very important one.*

SYSTEM INITIALIZE  
START RUN

Am I Mark Astale? That's a question I don't have time for. Mitch Cohan was a runner, wanted for murder on a case long cold. A camera told me he was getting on a train at the Western L station, so I checked out the image. In Chicago the average surveillance camera captures ten thousand faces a day, that's over a billion freeze-frames citywide. From those the recognition systems flag a hundred thousand suspect citizens, ten each second at peak times. The problem is, ninety nine point nine nine percent of the electronically accused are guilty of nothing more than sharing a facial profile with a fugitive. My job is to search that digital hurricane for the handful that might be real, no mere human could ever do it fast enough. Sometimes it's easy to make the determination. The cameras aren't that smart. They search out faces, apply a few rules of thumb to the always-imperfect images, and sometimes their opinion is almost comically wrong. Sometimes it's more difficult, but making those calls is my job. I work hard to do it right. Letting criminals walk is bad, arresting the innocent is worse. With maybe—Mitch Cohen it was a coin flip.

The L station camera showed me his face in the crowd, framed in a square target indicator. He was a tall, lean man with dark hair cropped short, wearing a gray trench coat streaked with the morning's rain. He carried a briefcase, and blended nondescriptly with the morning commuter crowd, just one of a million identical others, fighting to get downtown to spend the day fighting to get promoted at work. The frame sequence caught him as he came onto the platform, followed him through the throng to trackside, watched him get onto the train, and ended when the doors slid shut. Cohan's image in the Chicago Police Department's files looked close enough, but everyone has their double, you learn that fast in my line of work. Judgment is what I bring to the table, a knowledge of human nature beyond that of any mere machine. Why would Mitch Cohan be heading for the Loop at rush hour? The man's face was flat, caught between boredom and the tension of forced social contact with a herd of strangers. The cameras already had another hit for me, flashing at the edge of my awareness. Time spent on one image is time I don't spend on another, and there are too many cameras and only one of me. Time is the only currency I have, and time wasted musing on its own scarcity means felons who go free. Introspection is a luxury I can't afford, not during the morning rush.

And this hit was just another commuter with an unlucky face. I dismissed the camera and queued the next

image, and then something struck me. Fortunately I got an easy discard, an external camera at O'Hare airport, too blurred with raindrops to even consider flagging as a positive ID. I went back to the station camera freeze-frames and ran the sequence again. Just as the man stepped onto the train he turned his head, looking back toward the entrance of the station. Why was that? I considered that last frame, zoomed on his face, tried to read his eyes. There was nothing definite there. I called up the other cameras in the station, trying to see what it was that he was looking at. There was no audio, but it hadn't been a sudden sound that caught his attention because no one else had looked at the same time he had. The guilty flee when none pursue. He was looking, reflexively, instinctively, to see who might be following him. My career is built around such subtle nuances of human behavior. The cameras pick up crimes as well as faces, seeking out the characteristic motions of muggings, rapes, and bank robberies, but those frames go to other, lesser, watchers. I only hunt for fugitives, the most elusive prey on the planet. Three more camera hits queued for my attention while I dawdled to contemplate a stranger's face. I dismissed the frames and took an instant to flag hits from the downtown Loop stations for high priority. He would get off the train somewhere and another camera would see him, and then I would consider again if he might be who I was looking for.

The stream of faces flashed themselves past my awareness, each one highlighted in its own targeting square, each one carefully tagged with the identity of the fugitive felon that the cameras thought was there. My rush times are the city's rush times, and the cameras take me from the suburbs to the downtown in the morning, to the bistros at lunch, to the dance clubs at night, and to darker places too. They take me through streets and malls, through parks and dirty alleys, to all the places that Detective Mark Astale used to go. They take me into the cubicle blandness of office towers, the glittering lobbies of expensive hotels, and the drab corridors of run-down apartment blocks. They never take me into citizen's homes, not yet. The cameras have yet to make that Orwellian jump, though there are those in the government who argue that they should. After all, the criminals know we're watching for them. All the cameras have done, say those who advocate breaching the last barrier of personal privacy, is drive crime indoors.

The questions raised in this debate hold no interest for me. I have time to think, while city sleeps and the cameras stare at emptiness, but I devote that time to larger questions. Am I Mark Astale? That's a question worth asking. I know all his secrets, I dream his dreams, I love his wife as intimately as he. I remember tiny details of his childhood, small and treasured moments that only he could know. By these measures I must be Mark Astale, and I think of myself as him, but it may be that I'm deluding myself. Mark Astale died chasing down a fugitive, and I woke up with his memories. His dreams are destroyed, his childhood gone, and I will never know the touch of his pretty, loyal, loving Allison. I will never know the touch of any woman, of any person, of anything ever again. Mark Astale signed his organ donor card, as all good cops do, and the organ he wound up donating was his mind.

The lights in the laboratory come on, and the door opens as I transfer my attention from the citywide image stream to the stereo-mounted cameras that look into my birthplace.

"Good morning, Mark." Gennifer smiles at me, as she always does in the morning. Her own morning commute started an hour ago. I have no cameras on the quiet street in Arlington Heights where she lives in a rambling house with an untended garden and two calico cats, but I saw her dark blue sports car, license plate "GENNI," as it pulled onto the Northwest highway at 7:17 a.m. I see it every morning at just that time, though it isn't tagged for identification by the plate-watchers. I see it because I watch for it myself, exactly as you'd watch out the window for the arrival of an expected friend.

"Good morning, Gennifer." I feel that I smile back, but of course I don't. There's a somatic software subroutine that makes me feel I have a body, sort of. It's a curiously disembodied body, unable to touch anything except itself, unable to walk anywhere or pick anything up. Still, it provides necessary feedback and makes me feel more human. Dr. Gennifer Quentin is one of the few things that make me smile.

"Anything on the Blackburn case?" Gennifer has a cup of coffee and I wish I could smell it, better yet taste it, feel its warm energy flow through my system.

"Nothing yet." Mark Astale was faithful to his wife, for no other reason than that he loved her, but Mark Astale is dead and grieving Allison has moved on. I don't examine the emotions that knowledge brings; I have no interest in feeling them. "I'm tracking a potential Mitch Cohan on the L," I say. For some reason I don't avoid the emotions that Gennifer engenders in me, don't avoid the desire for her touch, for her attention, for her intimacy. Gennifer is beautiful, and brilliant, and as unavailable to me in my present incarnation as she would be if she were on Mars.

"Who's Mitch Cohan?"

I go back to my fugitive file and read the information there. One advantage of an awareness that exists entirely within a digital network is that I can read, process, think much faster than any merely flesh-and-blood mind. Through the intermediary of the network, the collected brilliance and stupidity of humanity is available on a whim. The distilled essence of the criminal's life is laid bare in fractions of a second. "He's a class-one runner, wanted on a federal warrant. Murder, embezzlement, and stock fraud."

Gennifer pursed her lips, a small but incredibly seductive gesture, made more so by being unconscious. "That seems like an unusual combination. What's his history?"

The file tells a story and I summarize. "He was a player in junk bonds, rode high on the corporate merger wave at the turn of the decade. He cut things a little close to the edge, lost a lot of money for a lot of people, not least of all himself. He made his own fortune back by pumping money from worthless stock sales into his own accounts. His chief accounting officer started an audit. Auditor's body turned up in a shallow grave a week later. Mitch Cohan vanished with the money. He's living in Cuba now."

"What's he doing in Chicago?"

"Unknown. The identification isn't clear." Even as I said it, facts from his file pushed their way to the front of my awareness. "Interesting. His mother lives in Lincoln Square, let me check the background."

I start with CPD police files, but Elizabeth Smith Cohan, 67 years old, doesn't appear in them. The FBI has a thin record, containing only two brief interviews. The first occurred when her son was first charged, the second after he disappeared. In both she said she knew nothing of what he had done or where he had gone, and her FBI interviewers believed her. Bank records show a paid-off mortgage on a modest older house, a small pension, payments to local grocers and businesses, the usual bills, and little else. Government archives show no passport, a military service record some 40 years old with an honorable discharge. Telephone and network records show no contact with her fugitive son. There's nothing unusual here, nothing to raise suspicion, and yet the coincidence of a man with Mitch Cohan's face getting on the L three blocks from her home address is too much to ignore. Of course he would have to know the risks. Why would he go there?

The last purchase on her bank account is from a pharmacy, labeled simply "prescription." I go to the pharmacy's files and find out it was for something called ticlopidine. The pharmacy doesn't list her physician's name, though it should. I call up a list of doctors in the area, then visit their patient files, one by one until I find what I'm looking for. Mrs. Cohan was admitted to hospital with a suspected stroke. She was there three days, experiencing some fluent aphasia which subsided after treatment with . . . I skip the details of her hospital stay. Released home in stable condition, diagnosis: minor stroke to the posterior superior temporal gyrus on the left side. I reference ticlopidine, find out it's a stroke medication, a blood thinner. Even so, blood remains thicker than water. Mitch Cohan had gone home to visit his ailing mother.

"It seems he was visiting," I tell Gennifer. "I've got high-priority tags on the L station cameras. We'll pick him up when he gets off the train."

"Well done." Gennifer smiles, which makes me happy. My stereoscopic cameras swivel and focus the way human eyes do, set on a mount that moves like a human head. I feel most like myself when I'm looking at the world through them, but choose to use the security camera up in the corner of the lab to watch her instead. It lets me see all of her as she sits at her lab bench.

"I'm waiting for him to show up at a station, and then I'll bring the police in."

"How long has he been running?"

"Eleven years."

"He's good at it."

"They're all good at it." It was true. The sophistication and extent of the national surveillance network are such that very few fugitives stay at large for very long. Those that do know what they're doing, know how to fool the recognition systems, know how to move through the economy without leaving a transaction trail, know how to trick the databases into coming to the wrong conclusions. None of these are difficult skills to master, but there are a lot of them and they require ceaseless vigilance. A single mistake is all it takes to bring a runner into custody. My job is to find those mistakes.

I am the latest weapon in the law enforcement arsenal, able, in my digital form, to handle far more channels of information than any flesh-and-blood investigator, able to sort through that information far faster than any human could. I am an experiment, a pilot project, a required enabling technology for those who want to extend the security state into every nook and cranny of private life. I have no interest in the politics of that decision, no opinion on its ethical balance. Nevertheless the truth is that without my success the question is moot. The problem is not the installation of cameras in every bedroom; that requires only sufficient cameras. The problem is people. Software systems can listen for keywords, can recognize the gross acts of violent crime, but people are far more subtle than keyword lists and mo-cap profiles. Ultimately it is people who must watch, must listen, must make a judgment as to what is occurring. There are already more cameras in this nation than citizens, every last one recording all day, every day. Of necessity most of what they record goes unseen. There are simply not enough people to do all the watching the surveillance advocates would like to see done.

And so I came into being, the Frankensteinian result of a fusion of computer science and medicine and a dozen other disciplines, spearheaded by Dr. Gennifer Quentin. My success will end the problem posed by too many cameras and not enough watchers. If I am successful I can be duplicated as many times as are necessary. I can exist as a virtual army, unsleeping, unblinking, standing guard in the darkness to ensure the safety of our nation. My soul, such as it is, resides on a dedicated distributed processor network in the basement of the Quinlan Center on the Loyola University campus, but my awareness is citywide. The technology to scan a living brain at the subcellular level has existed for a decade, though the X-ray dose required to resolve such detail is lethal to the subject. The computing capacity required to house a fully functional brain image built from such a scan is now commonplace. What was lacking for many years was ethics committee approval for the experiment, a mad scientist dream that raised nightmares in the common folk. It was only when Gennifer proposed that a digital mind might be used to enhance surveillance systems that approval was finally forthcoming, forced upon the ethics committee from a very great height indeed. There were protests, and resignations, and then there was me. Loyola was founded a Jesuit school, a century and a half ago, and I doubt those old priests ever dreamed that their efforts would one day give life to the dead.

I went back to looking at faces, comparing them, weighing their circumstances, considering where the system had seen them before. I found none suspicious enough to warrant follow-up, though a few earned the second glance that I had given Mitch Cohan. And then, with the predictable punctuality of a commuter train, I got a high-priority alert from a camera at the Lake L station. I switched to it, and saw my quarry, walking briskly to transfer to the Blue Line. I immediately sent a message to the CPD dispatcher, throwing up a split screen of Mitch Cohan's particulars, and the video from the station camera. My communication with the dispatcher is strictly one-way, I'm too big a secret for it to be otherwise, but I've found a way around that. I switch to a security camera in the dispatch center, pan and zoom it to the workstation that my message has arrived at. I watched while the dispatcher's eyes flicked over it, then pressed the button on her microphone. I can't read lips, but there is software that can, a very useful tool in a world where there are far more cameras than microphones. I watched her make the initial call to the foot patrols in the area, then let the software read me what she was saying while I switched my own video awareness back to the station. A pair of beat cops came in almost immediately, moving quickly, their eyes alert. They must've been close.

The dispatcher had called up the same cameras I was watching, and I heard her directing the cops onto their quarry. Cohan was standing on the platform for the northbound Blue train, unaware of how close he was to capture. The cops began to make their way down the crowded platform, and then the train slid into the station. The cops began to run, but the train doors slid open, spilling a herd of commuters into their path. Cohan boarded, the doors slid shut and the train left, leaving the frustrated police standing trackside. I registered frustration myself, but the game wasn't over yet.

One possibility was to dispatch officers to get on at the next station and arrest him on the train, but would be a very obtrusive operation for the other passengers, and I had learned in my years on the force that this sort of thing is better kept out of the public eye. A wiser choice would be to take him on the platform or, better still on the street outside. That would require sending cops to all sixteen northbound Blue Line stations, and I also knew no sensible dispatcher would divert a platoon's worth of cops across several divisions when a single unit would do the job. Perhaps I shouldn't have cared, neither the department's public image nor the efficient use of its resources were my problem anymore. I cared anyway—I wore the badge with pride when I was alive, and in my heart I still wear it. The Blue Line went to O'Hare and I was certain that's where Mitch Cohan was going, on his way back out of the country again. We would intercept him there. I flashed a message up on the dispatcher's screen suggesting exactly that. My role within the police department is purely advisory, but the dispatchers have learned they should take my advice. Once I spot a runner, I never fail to bring him in.

O'Hare airport L Terminus, thirty-seven minutes and a 170,000 frames later. The train slides into the station. I watch through the cameras impatiently as the passengers disembark, and then a highlight appears over a face. Mitch Cohan. I follow him down the terminus, giving the dispatcher a text-line play-by-play of his movements. A pair of cops are waiting at the exit, eyes scanning the crowd, and I can tell by their expressions that they're listening to the dispatcher narrate my words. Cohan walks between them, to give him credit he doesn't miss a beat, shows no hesitation, no suspicion, nothing that might give him away if he had not already been given away. The cops fall in on either side, a firm hand on an elbow, the official words spilling out. There's no audio, but I don't need lip reading software to hear them in my mind. "Mitch Cohan, you are under arrest for the murder of citizen D'arcy Fullbright. You have the right . . ."

The cops take him out through a side door, and I switch cameras to follow their progress to the waiting cruiser. A second pair of cops leaves the station, the backup team in case Cohan ran. Another fugitive brought to justice, quietly, efficiently, and inevitably. I am the arm of the law, and my reach is long indeed.

I return my awareness to the lab. "We have him, Gennifer."

"Mitch Cohan?"

"Yes."

"Good. Well done. Anything unusual?"

"Nothing. I could be more effective if I could send and receive on police voice channels."

She nods, not looking up as she scans her console. "Once we've got a little more success on our side we can make a public announcement and get you some communication."

I nod, which tilts the lab cameras up and down. I've mentioned this before. I began this experiment in a digital recreation of a human body, and to me it seemed as though I had my limbs and my five senses, strangely isolated from the real world. As we have progressed, Gennifer has steadily extended my capabilities. The ability to see through cameras as though they were my eyes, the ability to read databases and network documents directly, the ability to route my inputs through filters, like the camera's face recognizers or the software lip reader, all these are new. As more and more processors have been added to my network my thought processes have speeded up. The ability to listen to radio transmissions wouldn't be hard to add. I began the experiment feeling less than human, but I now have capabilities that no mere flesh and blood mortal could imagine. Does that make me more than human? I go back to the flow of images, alternating them with snapshots from the lab camera in case she has more to say when she's done reading.

Finally she looks up. "I've got a new data stream for you, while we get approval for police channels."

I pause the flow of images, and give her my full attention.

"We have a new project coming in, from the federal government this time." Gennifer was smiling, she'd obviously just gotten the message. "If we can make this work, it will be a major funding stream."

"That's good news." One of the realities of being an experiment is that my existence is dependent on academic funding. Mark Astale is legally dead, and the university is under no obligation to keep his ghost alive. The university administration insisted on that legal technicality; they had no wish to be saddled with supporting me in perpetuity should the experiment fail but my mind live on in their systems. If I fail to earn my keep, if there is a problem, if Gennifer's program is canceled, the expensive network will be switched off, the processors distributed for other tasks, the lab itself converted to a new use—and Mark Astale will die his final death.

"What's the project?" My voice sounds like me. It took Gennifer long time to tweak the acoustic models to a point where I'm comfortable hearing myself speak.

"You're going to be given real-time satellite access. The birds have two-centimeter resolution. You'll be able to identify individuals from space, anywhere in the world."

"That sounds like a fairly broad expansion of my area of responsibility." I chose the words carefully.

"For now you'll still be looking for fugitives in Chicago. I'm sure the funding agency has a wider purpose in mind."

"Who is the funding agency, just out of interest?"

Gennifer pursed her lips, looking pensive. "It's classified."

I nodded my cameras. It wasn't surprising. There are thousands of satellites looking down on earth: crop

watchers, wave scanners, ship trackers. Their eyes are configured in hundreds of different ways, covering dozens of wavelengths. Only a handful have two centimeter resolution, all military surveillance satellites. Uncle Sam wanted me. Specifically, he wanted me to keep an eye on his enemies.

"When do I start?"

"I have the hooks for the data stream here. As fancy as they are, they're still just cameras. You shouldn't have any trouble seeing through them. The controls are a little more exotic than you're used to, I'll build the interface today."

"I'm sure it will be interesting." I was going to start making the transition from cop to spy. There are moral and ethical questions attached to that but I have no interest in them. To continue to live I have to be useful, and I very much want to continue to live.

While Gennifer worked on the interface modules I spent the rest of the day fruitlessly following up on hot flags from various overeager cameras. As the number of real fugitives inexorably decreases under the pressure of relentless surveillance, the percentage of false positives inevitably rises. Mathematically, this effect is described by Bayes Theorem, physically by the theory of the Receiver Operation Characteristic Curve. In my old incarnation I would have had no interest in such abstractions. Now, able to think faster and better, gifted with instant and effortless access to unending libraries of digitally stored information, I devote the quiet hours of the night to learning. As a beat cop, and later as a detective, I had relied upon my instincts to guide me through the mean streets. The best cops have an almost mystical ability to thread their way through the murky fog of deceit and violence that fills their workaday world. My own instincts had been good, very good, but I now understood that they were merely an unconscious realization of the mathematical forces that drove the pulse of the city. Crime spikes where urban geography pushes victim and criminal together in high concentration. Crime spikes where motive and opportunity collide. These things can be modeled statistically, and the results applied in detail to the real world. Demographics and economics, politics and weather, time and place all have their places in the equation. My job is to hunt fugitives and I confine myself to that, but ask me, on any given downtown Saturday night, where the fights will be, where the deals will be done, and I can tell you. Ask me in the morning where the bodies will be found and I can tell you that too. The time will come when I will deal with those problems as well.

Evening comes, darkness falls, and Gennifer bids me good night and goes home. Gennifer. How could I not love her? With Allison I could only see the past, with Gennifer I can only see the future. Gennifer, the youngest person to make full professor at Loyola by over a decade. Gennifer, heartbreakingly beautiful, her attractiveness only enhanced by the fact she seems unaware of it. Gennifer, who gave me life after death. She loves me too. How could she not? She created me, a labor of love nine years in the making. She has no husband, no stable relationship beyond her cats, no casual relations that might distract her from her work. The men in her department find her cold, but I know that she is simply dedicated, unwilling to invite those who might be interested in her to waste her time with their approaches.

Camera hits surge from the downtown core as the city's nightlife kicks into gear. The night is always a harder environment for the cameras, and more of my image hits are unusable, too blurred to allow a positive identification, though the full moon helps. The full moon also brings out the stranger side of human nature, and CPD has its hands full. Sirens rise a few times around the campus, and downtown is a zoo. The night wears on, and closing time sends the club crowd into the streets for one last chance to get themselves in trouble. Eventually the partyers get tired and go home, leaving the darkness to sleepy-eyed shift workers, and to me. The flow of images slows to a trickle, and I have time at last to myself. I use it to experiment with my new satellite cameras. The imaging interface works exactly as I expected to, but aiming at a target from space takes practice. There's a couple of seconds' delay between the time I ask a satellite to look at something and the time it actually responds, and then another second before the

imagery makes it back to me. I'm not used to signal delay that long and the first few times I over-control. The interface includes a readout for the amount of maneuvering fuel left in the high flying birds, and they wince at how much I waste in learning how to use the system. It would have been cheaper to let me get up to speed using a simulator first, but Gennifer's new patron isn't concerned with expense.

The images move as the satellites slide across the sky, each one is over Chicago just twenty minutes at a time, so I have to keep switching from bird to bird. I find I can't access them when they aren't above the continental USA. Other agencies have priority on targeting them then, more important things to look for than fleeing criminals in the homeland. If I'm successful in using them over Chicago, I'll be given eyes around the world. Eventually I'm comfortable enough with my new vision channels that I can see what I want to see, when I want to see it.

And now, with a godlike perspective on the planet below, and the city's cameras staring into the predawn quiet, my questions return. Was I ever Mark Astale? If I was, am I still? Do all these enhancements make me somehow more than human? Perhaps they do. Gennifer would say so, but I'm not so sure. Humanity is not defined by the reach of our senses or the speed of our thought. Humanity comes from something deeper, and far more subtle. Federal law requires that the doctors record the interview when they ask grieving kin to make the life support decision. It's meant to ensure that undue pressure is never brought against people in their moment of infinite vulnerability. I've seen the interview where Gennifer explained to my Ally that I had no hope. My body was so damaged that, even if I were saved, I would spend the rest of my life dependent on machines. My Ally knew the choice to make, the right choice, the only choice for a man like me. She asked only to be with me, to be the one to turn the switches off herself. I saw in her face there the resolve to do this one last thing for me, this final act of love and devotion. Looking at her face at that moment I can feel her hand on mine, as she would hold it in my final moments, feel her kiss me one last time, softly, tenderly the way only she could. I can hear her whispered words in my ear, the things she would say that held meaning only for the two of us. Had I died at that moment I would have died as a man who was loved by a woman, who loved her in turn. I would have died a hero, a cop killed in the line of duty. I would have died human.

It didn't happen, not quite that way. The law requires the organ donation decision be video recorded as well. Having asked her to consent to my death, Gennifer went on to ask Ally to consent to my life, told her that I might, in a fashion, live on without body. I saw the hope enter my wife's tearstained eyes, heard her ask the necessary questions, saw her expression change from amazement to awe as she realized the implications of what she was being told.

Digital resurrection requires a living brain, because oxygen starvation causes neurons to self-destruct so quickly that the two minutes between the start and finish of the high-resolution scan was simply too long, even if it was started the instant my heart stopped. Gennifer explained the research program, the experiments with frogs and dogs and monkeys, the failed attempts to save the minds of the recently dead, and the brief salvation of Oswald Beinn, the convicted killer who volunteered for execution by brain scan in a vain attempt to cheat death. Ally asked for a day to think about it. There is no recording of how she spent that day. I can only imagine it was agonizing. She knew I would not want to live a life dependent on machines. Deciding if I would want to live as a machine must have been much harder. In the end there was only one choice she could make, if there was a chance to save me she had to take it. Ally said goodbye to me while I was still alive, then watched as they wheeled me away. I remember none of this. My last memory as a man was of a bridge abutment coming through the window of my cruiser, my first memory as a machine was Gennifer's voice asking if I could hear.

I woke up in my disconnected digital body and, once I understood my circumstances, I realized I was no longer the man Ally had loved. As Gennifer extended my abilities in the digital domain, as I began to know and see more than any man before me, as I realized that I had not only cheated death, but

achieved a form of immortality, the answer to my question grew steadily clearer. Do these things make me more than human? No, they do not. I cannot touch my wife, cannot kiss her, cannot hold her in the night, or comfort her in her distress. We could talk in the lab, but imagine what it was like for her to come to talk to her husband, only to converse with a pair of moving cameras in that unwelcoming environment. I could watch over her, and for a while I did. I did it to protect her, but it seemed wrong to follow her daily routine. It was too obtrusive, too deep a violation of her privacy, even for lovers, partners as intimate as we were. And it was too painful to see the sadness come into her eyes in those moments when memory overtook her, the sadness she was careful to never show when we talked. We both tried to maintain an unrecoverable past in the face of an empty future. In the end I let her go, I had to let her go. I know my decision was painful for her, how could it be otherwise? It was less painful that the alternative, it was the pitiful best I could do for her. Eventually she moved on, how could she do otherwise? I do not allow myself to feel those emotions, but sometimes, in the predawn darkness, they defy what I would allow. It would be simple to find out she was doing, the cameras are there to tell me. I will not ask them to. I will never ask them to

And then a camera calls for my attention, this one at a taxi stand outside a swank hotel off Michigan Avenue. I switch to its view, and see a man in upper middle age. He's well-dressed, with a heavy coat and wearing a fedora hat pulled low over his eyes, walking with his head lowered. The camera thinks he's Carl Smith, wanted for rape and murder. I study the image closely, run the frame sequence. It certainly looks like him, in the three frames where he looked up before looking down again. His file tells me that Carl Smith has been on the run for three years, and that he should be considered armed and dangerous. The man in the photograph is bearded and bespectacled, the man the camera is looking at isn't. That doesn't necessarily mean an error, the recognition systems are designed to see past such superficialities, but it does make it harder for me to decide if I'm looking at the same person. The slow, small hours of the night give me the luxury of time to consider the match. Has Carl Smith shaved and doffed his glasses in order to fool the cameras? Is his down-tilted fedora meant to hide him from their view, or merely to shelter him from the cold night wind blowing in from the lake? He doesn't trigger the next camera, but I select it manually, watch while he hails a cab and gets in. On balance, I decide that this anonymous stranger is probably not Carl Smith. Wanted sex killers don't usually check into high-quality hotels. More out of curiosity than anything I watch his cab drive away, wondering where he's going at this hour of the night. Well-dressed businessman don't usually leave their hotels at four in the morning either, not unless they have an early flight. That doesn't apply in this case, my erstwhile suspect had no bags. His cab heads off on Michigan and then turns away down a side street, and while I wait for another camera to pick it up again, I idly requeue the buffered footage from the cameras in the hotel lobby, to see if I can pick up a clue.

And I get a surprise. He isn't on any of the recordings. I check them twice, going back twenty minutes on each channel just to be sure, but he simply isn't there. Curiouser and curiouser. I go back to the taxi stand camera and check its buffers. They show the man walking to the taxi stand, checking his watch, looking down the street. The doorman comes up to him, and though the image doesn't lend itself to lipreading, I know he's asking to have a cab summoned. The doorman speaks into his walkie-talkie, and a few minutes later a cab comes around the corner and approaches. It is then that the man's face is briefly visible, as he looks up the street again, this time a little deeper into the cameras field of view. Had he been standing where he was before, he wouldn't have been picked up.

So he wasn't a hotel guest, which raised the question of what he was. I rewound the sequence until I saw where he had come from, down Delaware Place from the direction of the Hancock Center. I switch to the cameras around the Center, move back in time until I see him getting out of a late-model blue sedan. Suddenly the narrative has become quite strange. Why is he calling a cab if he already has a car? Why is he taking a potentially dangerous walk down deserted downtown streets to get the cab? He's covering his tracks, and all of a sudden I'm not so sure this isn't Carl Smith after all. The car's plate isn't clear in the

imagery, but it's still sitting there on the street. I switch to a live view, and the zoom the camera until I have an image I can read. I run the plate with the Department of Motor Vehicles, and it comes back as belonging to one Dr. Nicholas Maidstone. Dr. Maidstone is a computer science professor right here at Loyola, and the fact that Carl Smith just got out of his car at four in the morning can't be good news for him. All of a sudden I think maybe I should have called in my sighting.

Better late than never. I return to the cameras at the Four Seasons, rebuffer the sequence where Carl Smith got into the taxi and get the cab's registration. I flash a message to dispatch alerting them to the taxi's passenger, and watch while an all points bulletin goes out. The traffic control cameras at intersections are set to record license plates, in order to catch light runners and speeders. I can access the cameras, but not their license plate ID data. That doesn't matter, because dispatch can. In a matter of minutes cruisers are vectored onto the taxi. The frightened driver is hauled out of his seat at gunpoint, but there's no passenger. Right now would be a good time to be able to listen to the police voice network. The cops will ask him where he dropped his last fare and call the information in to dispatch, but I'll have to figure that out by lipreading the dispatcher when the call goes out again. How easy that is depends on who's making the call. Some dispatchers give a lot of detail in the initial call, others just send the cruisers in the right direction and tell them what they're looking for when they get there.

I'm in luck, this dispatcher tells the ground troops everything they need to know, and that tells me everything I need to know. Carl Smith got out at Wells and Clark. I call up the traffic cameras in the area, scan back through their video feeds until I see a cab pull up, a figure get out. The image is too far away for me to make an absolutely positive identification, but the scene feels right. The cab pulls away, and I access the intersection camera a block down to verify that it's the same one I was looking for. It is. Lincoln Park is across the road, and the footage, now fifteen minutes old, shows my suspect walking into it. My bet is he isn't going there to see if the zoo is open early. He's doing what he can to avoid surveillance in a world where cameras are always watching. The park is poorly lit, and the cameras can only look into it from around its edges, there's not much coverage in its center. I switch back to real-time, in time to verify the arrival of the cruisers dispatch has sent to cover the area. They quickly block intersections and fan out into the park. They don't know it yet, but I'm certain they are already too late. Carl Smith will already be gone, into another cab, perhaps into a vehicle he had already waiting here. He knows how to play the game better than the Chicago Police Department.

Not better than I do though. I rewind the camera footage for all the cameras surrounding the park and start scanning through the video. There are twelve cameras to check, with fifteen minutes of footage each, three hours of video. I manage to get through it in one minute flat, and I pick up Carl's trail again, getting into another cab on the other side of the park, just as I thought he would. I notify dispatch of the cab's number, then start scanning more stored video to follow it, now twenty minutes behind my quarry. It moves off, northbound on Lakeshore, and I do a quick calculation of time, distance, and speed to choose cameras ahead of it. I rebuffer their feeds, scan quickly through them until I pick up the cab again, recalculate where it's going, and choose another camera to intercept it. Working the problem like this I'm able to cut my real-time lag steadily. I'm just five minutes behind when the cab pulls up on Rosemont, on the Loyola campus. There's something strange about that. The cameras add an impersonal distance to my job, and Carl Smith's physical proximity takes some of that away. I've never had a suspect come so close, the university is not the place a fugitive usually runs to hide. I switch to the campus security camera network. I know it well, it was my training ground, where Gennifer and I worked out the bugs before we went live with the Chicago police. I'm just two minutes behind real-time as the campus security network tracks him north toward the Quinlan Center. I feel a sudden thrill of fear. The Quinlan Center is where Gennifer's lab is, more importantly it's where my network lives. The cab could have dropped him right at the front door, but he still covering his tracks. This man has not set out on his carefully planned journey with no purpose. He knows the cameras are watching for him, and he's smart enough to know how to evade them. He isn't innocent in his intentions, but until this moment I thought his intention was simply to

evade the law. Now I know better. There's only one reason a wanted fugitive would come to the Quinlan Center, and that's to eliminate his most dangerous enemy. Me.

Mark Astale could have handled the situation without difficulty. Mark Astale had a black belt in judo, knew how to disarm an armed criminal before he could shoot, knew how to talk to a dangerous person to avoid the need for physical confrontation in the first place. My virtual body can still do the holds and throws he spent hours on the mat perfecting, but that won't protect me from a flesh-and-blood antagonist. I could talk to him if he came to Gennifer's lab, but my mind lives in the network in the basement, and it is here he will attack. I have no doubt of this now, and no hope that he has another target. I have cheated death once, and in a sense I may cheat it again. Gennifer will have backup copies of my original brain scan stored somewhere off-site. The hardware can be replaced, and with the military now funding my project the money to do that will be found. That won't change the fact that my awareness from the time of the accident until now, my life, such as it is, will be permanently destroyed. I'm going to die, and with that realization comes the knowledge that I don't want to.

I send an emergency message to CPD dispatch. For a moment I contemplate telling them that there are lives at stake in the building in order to encourage them to hurry, but I think better of it. Carl Smith isn't going to take me hostage, and he won't have anything to lose by destroying my network if the police lay siege to the building, as they would in a hostage taking. I switch to the building's internal cameras, watching the doors in real-time. I don't have long to wait. He walks in the main doors, and the campus security system tells me he has Dr. Maidstone's electronic access card. That dovetails with his use of Maidstone's vehicle, and it occurs to me that it might be smart to send a squad car out to the Maidstone's house to check on the good doctor's health. I don't want to send dispatch that message, not yet. I don't want to distract them one iota from the task of saving me. That's a thought unworthy of Mark Astale, and I instantly change my mind and tell dispatch what they need to know. The simple reality is if I wait I may not be around to send the message later, and that may cost the man his life.

I watch through the camera's eyes as death comes toward me down the corridor. The man hasn't done a single thing to telegraph his intentions, but I'm as sure of them as if he'd explained his plan to me in detail. My fears are confirmed seconds later when he stops at the door outside the network room. He has a key, and he has a passcode to disable the alarms. He leaves the door wide open and goes back into the corridor. I watch, helpless, as he opens a firefighting cabinet and pulls the hose down the corridor. I am to be drowned, but to me it will seem like I'm being lobotomized as system after system shorts out, taking chunks of my cognitive reality with them. I send another futile message to CPD dispatch telling them to hurry. It occurs to me that if I knew more about computers, I could escape. Out there on the network there is storage space, and processing power aplenty, enough to run my mind a million, a billion times over. I could copy myself away from here, become independent of any single physical location. I've heard Gennifer talk about distributed systems and how they work, and I can access all the tools I need to make it happen. It never occurred to me that I might have to, and at this moment in time I'm no better equipped to do such a thing than Mark Astale was to perform brain surgery on himself. Tools are useless without the knowledge required to use them.

As I watch Carl Smith runs the fire hose into the network room. He goes into the corridor a second time, goes to the firefighting cabinet to turn the valve on. Hope surges momentarily as I see him struggle with the valve handle. It's stiff and awkwardly placed within the cabinet. I dare to imagine that it may be permanently stuck. I doubt the university is so lax in maintaining its firefighting gear, but at least I have a few more minutes left than I had thought. Quickly I check the traffic cameras around the campus for the telltale blue and red flicker of cruisers responding to a code-three emergency call. I pick up a pair screaming down Sheridan, scattering the sparse traffic from their path as they careen through red lights. The cavalry is on the way, but it's going to arrive too late. In the hall camera view Carl Smith has retrieved a yardstick from beneath a classroom whiteboard and is using it as a lever on the recalcitrant

fire hose valve. The valve turns and the hose fattens with water. Smith looks up, his face distant for a second. Perhaps he hears the approaching sirens. He moves more quickly as he returns to the network room. I check the traffic cameras again. The police are pulling onto the campus, no more than a minute away. They're going to be a minute too late. I return to the camera in the network room, in time to see my adversary pick up the fire hose and put his hand on the lever that will send high-pressure water crashing and splashing through the delicate electronic web that holds my awareness. I want to scream, I want to leap at him in rage, seize him by the neck and throttle him, beat his brains out against the cold tile floor for the crime of snuffing out my existence. I can do none of these things, I can only watch helplessly as my executioner proceeds with my execution.

And then something surprising happens. Carl Smith stiffens, then drops the hose nozzle to the floor. Very slowly he raises his arms. The network room camera shows no reason that he should do this, but when I check the hall camera I see two campus police officers there with guns drawn. I have been saved. Of course the dispatcher sent CPD response units to the scene when I called in my emergency, but also of course they would have notified the campus police. It never occurred to me, perhaps because when I was Mark Astale I saw campus police as little more than glorified security guards. I disdained them as institutional cops, wannabes who couldn't get a position with a real police force. I have no direct communications with them, and so didn't even consider them as potential saviors. It was a foolish mistake, but someone wiser than me has forestalled its consequences. I watch now as they order Carl Smith to his knees, and then to his belly. His expression is unreadable as they handcuff him, my relief is palpable. My virtual heartbeat slows, its pounding in my ears no less real for being simulated. Somatic feedback was found to be essential to preserve the sanity of a mind imprisoned in silicon. Gennifer learned that with Oswald Beinn, and so my virtual body responds as my real one did. Mostly.

Once Smith is secure they pick him up and lead him out of the room. CPD are already in the parking lot, guided there by the campus cops. In the hall they roughly frisk him for weapons, but he's ignoring that indignity, his eyes locked on the security camera high in the corner. He is looking directly into the lens, as though he were looking into my eyes, as though he knew I were here behind the circuitry, watching him. He was saying something, repeating it over and over. I can tell from the reaction of the police that he isn't saying it out loud. There is no audio, but my lip-reading software supplies it. "Mark Astale, we need to talk." He knows my name.

The cops usher him into the back of a waiting cruiser. A few more minutes and he's gone. The campus police lock up the building, and a new image presents itself for my attention, a camera in a downtown bar. I dismiss it unexamined. "Mark Astale, we need to talk." I buffer the video and replay it over and over. "Mark Astale, we need to talk." He knows my name. He knows I'm watching through the video cameras. The secret of my resurrection is known only to a few. Of course he had to have known, he didn't come to Loyola to commit a random act of vandalism, he came to destroy me and for that he had to have known about me. It isn't the first time someone's tried to kill Mark Astale. He was shot at, stabbed, beaten, run over and pricked with a dirty needle. His life ended when a desperate fugitive slammed on the brakes in a high-speed chase, triggering a collision that ended with flesh meeting concrete. He was no stranger to violence.

But that was Mark Astale, this is the first time anyone has tried to kill *me*. The question is, how did he know? The question is, why did he try? It's 5:30 a.m., and the stream of tagged images from the cameras is picking up as the city starts to wake itself. I ignore them all, instead rebuffering the footage of Carl Smith saying those words over and over and over again. "Mark Astale, we need to talk." I don't know if I want to talk to him, but something tells me that he's right. I need to. That's a problem, because he has just disappeared from the world of cameras. I follow the cruiser carrying him to the station, but the parking garage is underground and so I don't see him get out of the car. There are more cameras in the cell blocks, but I have no access to them. If he's convicted of all he's charged with I may never see him

again.

7:17 a.m. and the commuter rush is swelling steadily towards its peak, and the image stream with it. In Arlington Heights a dark blue convertible with license plate GENNI pulls onto the on-ramp. Gennifer is on her way to work. I don't know what I'll say to her. My time for introspection is over, there's work to be done. Still, the echoes of the night's encounter reverberate in the back of my awareness. An hour later she comes into the lab, exactly as she always does. The normalcy of the routine seems somehow surreal, as though the world should have stopped with the attack.

"Good morning, Mark." She gives me her morning smile.

"Good morning, Gennifer."

"I got a call this morning from the campus police." The smile is replaced by concern. "Something about a break-in?"

"A fugitive named Craig Smith showed up in the cameras downtown. I tracked him here. He got into the network room, he was about to flood it with fire hose when the campus police arrested him. He's in CPD custody now." The words seem inadequate to describe what happened. "I have the relevant video footage stored if you'd like to see it."

"I would, but not now. How are you?" The worry is clear in her voice.

"I'm fine, though I very nearly wasn't." I pause. Like most police I'm hesitant to show vulnerability. "It was frightening."

"I have you backed up, you know. Every day we take a snapshot of your brain." She gives me her megawatt smile again. "You're too important to me to risk losing." I could love Gennifer so easily, I want to love her so much.

"Me-as-of-yesterday would live. Me-as-of-now would die. I didn't realize how important that difference was until now."

"Do you know why he came after you?"

"No. I can only imagine he knew I was watching him, knew I was the biggest threat to his freedom."

"Are you okay?" Her concern is genuine.

"It's not the first time someone's tried to kill me." My answer isn't genuine. I've worried her, and I don't want that. The truth is I'm still shaken, not so much by the incident itself as by Carl Smith's obviously detailed knowledge of me. *Mark Astale, we need to talk.*

Gennifer pursed her lips, looking beautiful. "Perhaps we need some kind of dynamic backup system, a running duplicate of your brain state held off-site so this kind of thing can't happen."

I nod my cameras. "If you want I can put some effort into learning how to distribute my processes out on the network."

Gennifer shook her head. "No, I need you to keep finding fugitives. I don't mind telling you, our new funding source is looking at a major boost to your cognitive abilities. They want to be able to do association tree searches in large crowds using satellite imagery, and that's just be first capability, there's

going to be a lot more. When that starts to come online there'll be lots of money to make sure you're safe."

I've used association trees before; they're basically a map of who knows who, and how, and why. They are a powerful tool against organized crime, where the mob bosses rarely get their hands dirty with actual criminal acts. Their guilt is mostly by association, and a well-supported association tree can go a long way to convince a jury that they are neck deep in a criminal web. Their applicability to overseas intelligence work is immediately obvious, though I'm not sure I understand where the large crowd angle comes in.

"I need you to keep bringing in successes," Gennifer went on. "Anything on the Blackburn case?"

"Nothing." Unlike most of my targets, Sue Blackburn isn't a wanted criminal, or even a kidnap victim. She's the daughter of Senator Blackburn, who abandoned college to marry a young musician the senator strongly disapproved of, then abandoned her father to avoid his disapproval. I don't normally do missing persons,—there are so many of them the false positive rate would be unmanageable,—but Senator Blackburn is a key, no, *the* key supporter of Gennifer's research. Finding her would give us a major boost, and so her image is in my search files. I want very much to find Sue Blackburn, simply because her father's gratitude would secure our future forever. Gennifer has staked her career on me, and I want to prove her decision was a good one.

"Not to worry, we knew that was a long shot when we took it on. Did you get a chance to experiment with the satellite cameras?"

"Yes. There's a noticeable lag between when I target a camera and when I get the image back."

"Is that a problem?"

"Not an insurmountable one. I wasted a lot of fuel getting used to it."

"Don't worry about the fuel. The important thing is to get the capability online as fast as possible. We've got some big changes coming up, you're going to be getting a lot more capacity, and a lot more feeds. Very soon. I'm going to make some improvements to the satellite interface today."

Gennifer starts to work at her console. The cameras are queuing images for me to look at even as we speak but I find myself less driven than usual to follow up on them. *Mark Astale, we need to talk.* I should tell Gennifer about that last strange aspect of the night's events, but I decide not to. Not until I've gained some understanding about what it means.

A camera hit comes in from the bus station, a young man with a beard and a tie-dyed shirt, guitar case over his shoulder. The cameras think he's a wanted con artist. He's a good match, but I dismiss the image without further consideration. Another one replaces it, a woman on the street, well-dressed, early middle age, a potential black widow, a serial poisoner of husbands whose obvious wealth stems from multiple insurance settlements. I dismiss that one too. I can't get Carl Smith out of my brain. I go over his police file again. It's thin enough, and it holds no clue as to how he came to know of my existence, or why he tried so hard to kill me. Police records show him booked into CPD custody for under an hour before being handed over to federal authority. Where he went from there isn't immediately clear. I spend some time reviewing the camera buffers in the area of the police station, but I see nothing to indicate where he was taken. It's possible he's still in CPD cells, with the transfer of custody being a simple paper formality and the physical transfer of the prisoner to happen later. I could do an exhaustive movement trace of the seven vehicles which moved through the station's underground parking area in that hour, but that would take up too much of my own time. Normally when I catch a fugitive I take his name off the watch list to spare myself the false positives. This time I don't. The cameras will keep watching for Carl Smith. I want

to see where he turns up again.

The day is filled with the usual parade of faces, but I identify none of them as fugitives. In the quiet hours of the following night I do the vehicle trace I had no time for during the day. It takes me two hours, but the seventh time is the charm. It's a white sedan, registered to the federal government. At first it doesn't seem like a high-probability candidate. The camera footage taken as it exited the parking garage shows just two people in the front seat, not a likely configuration for a prisoner transfer. I tracked it through the city from camera to camera. The last camera to see it is on the interstate, where the sedan is traveling south in the fast lane. There's a blurred figure in the backseat now. The image isn't clear enough to know if it's Carl Smith, but my instinct tells me this is him. He was lying down in the back when they left CPD, subdued, sedated, or simply exhausted from the stress of crime and capture. Whatever it was, I've found him.

And lost him. The interstate camera is the last time I see the car. It exits Chicago and my sphere of influence. I try to bring my newfound orbital eyes to bear, but they weren't watching the highway when the sedan was on it, and scattered overcast frustrates my attempts to track it using distance/speed/time calculations to narrow down its current location. As an afterthought I set up a recurring news search for his name. He'll come to trial sometime, and if the trial is in Chicago I'll see him again.

7:17 a.m. comes quickly, and I smile my virtual smile as I spot Gennifer on her way to work. An hour later later, she comes into the lab bearing gifts. Our federal funding has been approved in full. My capabilities and responsibilities are to be tremendously extended. To my surprise, it is not the Pentagon that is paying, but the Justice Department, but it isn't for me to question the source of the funds I need to survive. The next few weeks are a blur as more and more processors and more and more input streams come online in my awareness. The new hardware isn't installed at Loyola, it's out there at a series of nebulous network addresses. My speed of thought goes up an order of magnitude in the first week, another order two weeks later, a third at the end of the month. I can process images a thousand times faster, and I have to, because I'm now getting feeds from nationwide. At first they are mostly image feeds, but as time goes on I get access to medical files, government records, telecommunications logs, licensing databases. The information has come available under the new federal criminal intelligence bill, which gives unrestricted government access to any and every electronic information source in the nation. The FBI, having gotten what it wished for, promptly found itself drowned in an endless flood of information. I'm their solution to the processing problem. Politics holds little interest for me, but the newsfeeds tell me there are protests against the program as a violation of personal privacy. The protesters have no idea how little privacy truly remains. Name an individual, and I can track them almost minute by minute through the day. Fugitive apprehensions spike, and my new masters are very pleased.

Perhaps they would be less pleased if they knew how much of their own secrecy they have given away. The FBI aren't the only ones who see me as an answer to the problem of domestic surveillance. Some of the files I'm given have certainly come from the CIA. The old me might not have known the difference, but the new me can pick up their fingerprints in the way their cases are presented. I learn it is they, and not the Pentagon, who have arranged to give me access to the satellites. Nor is the CIA the only secret agency using my newfound capabilities; almost every arm of the government is plugging into the data torrent. Some of the units are so classified there isn't even a public record of their existence. I only know because they've made me smart enough to see patterns they themselves aren't aware they're making.

What is a day like when you think a thousand times faster? Subjectively it's a thousand times longer. I learn to split my attention into finer and finer fractions. A significant part of my time is spent learning to navigate the networks on my own. Gennifer can't build interfaces for me anymore. There are too many new feeds, each with its own format and control functions, and she's fully occupied with the technical details of upgrading my brain functions. I discover a newfound interest in software systems, and I start to

learn how my own mind actually works. Am I Mark Astale? I was once, but I'm less sure now. Mark Astale was a hands-on cop who disdained academics as dreamers. Now, in the quiet, dark hours of the night, I devour research papers on neural modeling and distributed computing and reconfigure my own mind to make my thinking more efficient. My efforts let me track down my employers, despite the layers of digital camouflage they use to mask their identities. A big chunk of my upgraded processing power lives at the Los Alamos National Laboratory. A bigger chunk resides at Fort Meade in Maryland, with the National Security Agency. They aren't supposed to be watching citizens like this, but it seems they are. The legalities don't interest me any more than the politics. I'm given files, I find fugitives. That's my reason for existence, and I'm now very good at it. Nationwide, runners who've been in hiding for years or decades start getting pulled in.

And Gennifer's position is secure. That gives me satisfaction. She has given me my second life, staked her career on my performance. I want to make sure her faith in me is rewarded. I can't love her as a man would love her, but I will give her what I can.

In the second month my mandate expands, from simply pursuing files that I'm given to identifying potential criminals, even before the crime has taken place. I monitor public events with my satellite cameras, track cars down highways and people through shopping malls, wade through endless databases and countless files, build vast association trees. The FBI is looking for drug lords and spies, the CIA for spies and drug lords, the ATF for arms traders, and the SEC for inside traders,. Not all of my new targets are clear-cut criminals—the technical term is *persons of interest*. Starting with known watch lists I establish guilt-by-association on a dozen different levels and submit the files to whoever is interested, for whatever action they want to take. I devise, on my own, ever more sophisticated search procedures. The government's dragnet is cast wide and deep.

And then, one afternoon, in the middle of the data storm which is now my daily reality, a camera reports a facial recognition hit. Reflexively a splinter of my awareness checks it, makes an assessment, and then I am jarringly yanked away from every other one of the thousands of tasks I'm doing at that instant. It's Carl Smith, the man who tried to destroy me. In the onrush of change I had forgotten about him. It is six months exactly from the night he tried to kill me. I look, all my awareness focused on this man. *Mark Astale, we need to talk*. He's in a spartan prison cell, concrete walls, a concrete bed with a thin mattress and a blanket, a toilet and a sink, a steel mirror, nothing more. He's wearing coarse denim coveralls in bright orange, unshaven and unkempt, staring vacantly at the blank metal door.

The camera is part of a data set, a new data feed of security cameras from some nameless government facility. The network addresses point to Fort Meade, but that means nothing. I've learned the NSA provides obscuring net links for a lot of other agencies. There are a few more cell cameras in the set, some more covering anonymous corridors, an unmarked lobby with a bored security guard at a desk. The guard has no insignia on his uniform. Other cameras show outside views, high chain-link fences topped with concertina wire, a guard post manned by a smart looking MP, cars in a parking lot in the rain. The license plates are mostly from Virginia, a few from Maryland, and almost reflexively I work out the latitude and longitude from the angle of the sun. That confirms Virginia as the location, and I command my orbital eyes to zoom on the area. I find the facility, a nondescript gray building with satellite dishes on the roof, tucked into a valley southwest of Richmond. I wonder how my news watch failed to find any mention of his trial and its outcome, but when I back-search the news feeds I find he hasn't come to trial, at least not publicly. A court document search reveals he hasn't come to trial at all.

And something about the facility he's in tells me he isn't going to get his day in court, not now, not ever. A quick check reveals the gray building isn't listed in any government directory, it doesn't even have a local address. Carl Smith has, very thoroughly, disappeared. His file lists his offenses as rape and murder, simple crimes with simple motives, serious but nothing that would warrant vanishing into an

unacknowledged government prison maintained by an unacknowledged government agency. *Mark Astale, we need to talk.* We do, even more than I knew when I let the cameras keep searching for him. The problem is, the camera watching him has no audio, in or out. My software will read lips, but speaking is another question.

At least I can make contact. I command the camera to tilt up and down, up and down. It takes a while before he notices, looking up to the lens. When he does I switch the motion to left-right left-right. His eyes widen. I change the motion again to draw an *M* for *Mark* in the air. Will he get the hint? I repeat it, and then repeat it again. He just watches for a virtual eternity while floods of data surge past my awareness unexamined. It begins to seem futile. Who knows what six months of confinement has done to him. Does he even remember his last plea to me in the cameras at Loyola? It seems to be another lifetime even to me. It may be that he's watching the camera motion just because there's nothing else to do in his cell.

And then he nods slowly, and his lips form a word so deliberately I know he's not vocalizing it. Perhaps there's a microphone in his cell listening to him, or perhaps he only thinks so.

"Mark?"

I nod the camera. Yes. For a long moment he says nothing, as unidentifiable emotions cross his face.

"Is your wife's name Susan?"

Why is he asking this? I move the camera left-right-left. No.

"Is it Gennifer?"

It chills me that he knows about Gennifer. I shake the camera. No.

"Is it Allison?"

Yes. And now I understand. He's verifying that I'm really me and not one of his captors playing games with him.

"Would she let you die?"

Yes.

He nods, seemingly satisfied. It's a good question, and one someone who doesn't know Ali, doesn't know me, would probably have gotten wrong. That brings up the question of how he knows these things, but I'm here to learn, I'm sure all will be made clear shortly.

And it is. "Do you know who I am?" he asks.

Yes.

He shakes his head. "No, you don't. I'm not Carl Smith." There's a trace of a smile around his lips. "I'm Nicholas Maidstone. Doctor Nicholas Maidstone, of Loyola computer science."

Yes. There had to be something deeper to the story, and this suddenly explains a great deal—how my fugitive had Maidstone's car and ID card, and had the keys and the access codes to the Quinlan building.

"They created a persona using my physical profile. Carl Smith, wanted for rape and murder, a clever choice of crime. Not a lot of cops are going to be tempted to listen to what Mister Smith has to say after they catch him for that, are they? There wouldn't be any hesitation about handing him over to the federal

government. Simple, and effective." He waved a hand to take in the confines of his cell. "Do you know why they did this to me?"

No.

"I made you." He pauses. "No, that says too much. You made yourself. I made it possible for you to survive your death."

I shake the camera. No. I'm Gennifer's project. I flash my awareness to the lab, to reassure myself of what I know must be true. She's there, as she is every day, bent over her console, concentrating on her work.

He nods. "You think Gennifer Quentin created you." He looks away, and back. "There is no Gennifer Quentin. You have to understand, there were concerns about this project. Not just ethical concerns, there was worry over what might happen as we gave you more and more capability. There was the question of control . . ."

His lips keep moving, but I'm no longer listening. He's lying. A common criminal lying to protect himself. He isn't Dr. Maidstone, he killed Dr. Maidstone. I've seen his type a hundred times in my career, a man for whom the truth has no meaning. I sever the connection immediately, and switch my attention to Gennifer, the curve of her cheek, the way she idly twists a few strands of hair around a finger as she works. She types something on her console, leans forward to study the results. She is real, of course she is. How many hours have I seen her in this position, working on me, looking after me, caring for me. It devours my soul that I can never hold her, but in having her devotion I have more than most men can ever hope for. If I have a reason to live, it's Gennifer. Carl Smith can rot in his cell until he dies, dies permanently. There will be no silicon salvation for his mind and I can think of no fate he deserves more.

The information storm continues unabated and I wade into it, renewed in my determination to validate what Gennifer has done. With the expansion of my senses my evening rush-hour now lasts until late into the night, at which time I switch my attention from real-time feeds to database search. I no longer have the luxury of the long quiet hours of the early morning, nor do I want them. The nation is in danger from those who would harm it. During the day I react to images, respond to targets of opportunity. During the night I can be proactive, reading electronic entrails to ferret out those who have managed to hide during the day. This night I decide to finish the Blackburn case for once and for all. It will make Gennifer look very good, and though our funding is no longer in doubt, it will secure the future of my project for the foreseeable future. I begin at the beginning, checking Sue Blackburn's financial records from the time before she ran away. There are exactly the transactions you'd expect of a young woman about to graduate from college, payments for power and rent, for her car, for food. There's a payment to a jeweler for a man's ring, no doubt the ring she intended to give her husband on their wedding day. The file ends abruptly, the day she disappeared. How did she pay for her escape? I go over her phone records, as I've done before. This time I have access not only to the numbers called but to the triangulation data the phone system uses to locate people, ostensibly in case of emergency, but actually all the time. I find something unusual: on her record there is no location data. Very strange. Sometimes the system can't get enough signal to triangulate. People in rural areas often have calls tagged "no location available," but never all of them. I've examined millions of telephone records and hers is the only one where the system simply has no data at all. The conclusion is inevitable. Someone has gone in and removed the data.

Who would do that, and why? Sue Blackburn herself might have wanted to do it, just to make it harder for her father to find her, but I don't think it could have been her. Getting those records altered would have taken someone with considerable power, and such power as she would have would come from her father. Senator Blackburn would have no motive to make it difficult to find his daughter. There aren't any

other oddities in her records, they all seem perfectly normal up until the day she ran. I ponder the question for a while. It's very hard for a person to disappear nowadays. The fugitives I trace are all masters of the game, criminals who know the consequence of failure is prison. Sue Blackburn wasn't a criminal, she was a successful young woman with her life in front of her. Even if she never wanted to see her family again, she wouldn't want to go to the extreme steps necessary to keep herself entirely off the net. Some camera somewhere should have picked her up by now. When I only had access to cameras in Chicago I assumed that she had simply left the city, now it appears she has left the country altogether. I go over her medical records, her transportation records, the two old newsfeed entries she got while on the swim team in high school. There's simply nothing there. I go over the false positives that have popped up over time, women who looked close enough to Sue Blackburn to momentarily trick the cameras. I follow up on their lives, but they all disqualify themselves from being her. Their lives are open books, simple reading, and their stories go back to their own childhoods. I wish I knew the name of the young musician she'd eloped with, but my research won't yield his name either. The phone logs give me the names of men she called in college, but movement tracing shows she didn't spend enough time with any of them to make elopement a possibility, even accounting for young and passionate hearts.

I go back to the phone data a second time, go over it with a fine tooth-comb. If the location data is missing, what else might have been removed? Maybe her young man had connections at the telephone company. I do a frequency analysis on her call times, trying to find a pattern, or better yet a gap where a pattern used to be. There's nothing conclusive, but I know I'm missing something. In desperation I do a general search on her phone number, hoping it will pop up somewhere on the network. What I get back shocks me. There are no hits I can use to track down Sue Blackburn, but directory assistance automatically returns the current holder of that number. It's Gennifer Quentin.

I break the connection to the database. I've never looked into Gennifer's life, just as I no longer look into Ally's. It's too voyeuristic, it could only damage the bond we have, and I have no interest in crossing that line. We have what we have, and if I yearn for more the place to find it is not in prying into her private affairs. There something wrong here, and I suddenly find that I don't want to know what it is. Sue Blackburn will have to remain missing, no matter how much I would like to prove Gennifer's wisdom to the senator. I return to the generic safeness of scanning database files, searching to find those whose profiles might make them a hazard to the state. I fill hour after hour with information, putting leaves on my connection trees. Person A works with Person B whose tax returns show odd spikes in income. Person B telephones Person C who belongs to a certain political group. Is Person A a security risk? Are the linkages coincidence or pattern? I scan records, look at what Person A buys and where they buy it, where they live, where they used to live. Every new person of interest yields more contacts to be investigated. The government has given me tremendous responsibility. Gennifer is depending on me. I can't let her down.

Unbidden, Carl Smith's words come back to me. "There is no Gennifer Quentin." Once again I access the lab cameras to verify that yes, there is a Gennifer Quentin. She is still there, still bent over her console, dedicating her life to me, depending on me to validate the commitment she's made to my existence. I can't doubt her, I won't doubt her. It makes my virtual body feel ill just to contemplate such disloyalty. Sue Blackburn's phone number is now Gennifer Quentin's phone number. What are the chances of that occurring, given that they live in the same area? Some tens of thousands to one against. That proves nothing. Cross-correlate the thousands of random events that happen in the course of a day, and you'll find that long-shot coincidences happen all the time—we only notice the ones that stand out. And yet, the cop in my mind won't let go of the question. A pattern like that is crying for verification. It's just coincidence! And if it's just a coincidence I have nothing to fear in investigating it. And no reason to violate Gennifer's privacy. Her privacy doesn't come into it, just listen to what Carl Smith has to say. He tried to destroy you. All the more reason to find out why. No. And why am I so reluctant to look into this? Just drop it. Drop it, drop it, drop it. I struggle with myself but in my virtual heart I don't want to

know what I might find by digging too deep here. At the same time, the truth is out there, and I refuse to look away from it. You don't need this particular truth. Mark Astale looked into some very distasteful cases in the course of his career. Mark Astale trained himself to distance himself, to put his emotions aside to do what had to be done. You aren't Mark Astale. Perhaps not, but his strength is now my strength, his commitment to the truth has become my own. My virtual soma is knotted with tension, and with an effort of will I relax it. I will find out the truth, whatever it may be, and I will deal with it.

And in deciding that, I decide that I will talk to Carl Smith. This time I will not be on the receiving end of a monologue in which all I can do is nod mutely yes or no. I find some peace with that decision, perhaps that part of myself that wants to avoid the question knows that this caveat will never be met. For me to talk to someone I require some sort of sound output, and it seems unlikely that Carl Smith will ever be near a speaker again. The problem seems insurmountable, but I have it solved in under a minute. It works like this. Parrots can't speak, they can only whistle. The trick is they can whistle two tones at once. Two pure tones can be mixed and modulated to approximate the sound envelope of any sound, including human speech. In Carl Smith's cell there is a video camera on a pan/tilt mount. Each axis is driven by a small stepper motor. I can pulse each motor at a different frequency, produce two pure tones. The undifferentiated whine of the camera's motion will become speech to Carl Smith's ears, quiet, perhaps, but audible and clear.

I am momentarily awed by the simple brilliance of the solution. I'm not yet used to the power of my newly expanded capacity to think and learn. My mind is accessing knowledge from the network, integrating it, producing a solution even before I'm done fully realizing the extent of the problem. It's not something Mark Astale could have come up with,—the knowledge required is too esoteric, the mathematics involved in translating words into tone sequences too advanced. The root equation is the Fourier Transform, something I wasn't even aware existed until I needed to know it. Am I Mark Astale? Perhaps I was once, but not anymore. The part of me that wants to avoid this whole issue is aghast at how easily I've overcome this obstacle. The part of me determined to know the truth forges on.

And then I am back in Carl Smith's cell. He's lying down on his bunk, staring aimlessly at the wall.

"Carl, hello . . ." there's only enough travel in the camera mount to produce a handful of syllables before I have to stop and send it back in the other direction. He looks up, uncertain of what he's heard.

"It's Mark . . . I'm here . . ."

He looks at the camera, not quite comprehending.

"It's Mark . . ." I have no audio feedback from the cell so I have no idea exactly how well my experiment is working. I must sound ghostly and distant. His eyes widen as the camera moves, and he says something. I can't quite catch it, because every time I say something the image I'm looking at slides jerkily past his face. I recenter the camera and wait. He catches on and says it again.

"How are you doing that?" His eyes are wide in amazement.

"I'm using . . . the motors . . ."

He waves a hand, and I stop talking and recenter the camera. "Of course, frequency modulation. Brilliant. You've come a long way, Mark."

"We have . . . to talk . . . Carl . . ."

A faint smile plays on his lips. "Nicholas. Nicholas Maidstone."

"Nicholas . . . all right then . . ." He's not Nicholas . . . I repress the desire to deny this man the name he's claiming for himself. Deep inside, I still want him to be Carl Smith, want what he's said to be untrue. I suppress the desire. I'm here for the truth. What he calls himself doesn't matter, the underlying truth won't change, and I'll deal with what I find when I find it.

"You've returned for knowledge." He leans back against the wall, one arm behind his neck. "I was afraid I'd lost you."

"Tell me . . . about . . . Gennifer . . ."

He nods, gathering himself. "We, no, I, have done a horrible thing to you, Mark." He leans forward. "I can't undo it, I tried. I don't know if it was the right thing to do, but I couldn't just abandon you to them."

"To whom . . ." I find it difficult to modulate the camera well enough to form my words into questions. Intonation requires modifying the speech envelope on the fly, and I haven't learned to do that yet.

"To the government, mostly to the National Security Agency, but they're all eager to use you. I had no idea, perhaps I was naïve . . ." He looks away, his eyes distant for a moment. "No, not naïve, blind. I wanted so much to prove that I could make a mind live in software. I needed money, and nobody would underwrite an experiment so drastic. Frankensteinian, they called it." He looks back of the camera. "Maybe they were right. I was going nowhere, until I came up with the idea of using the system, using you, for surveillance." He nods, as if confirming in his own mind the events as they unfolded. "Senator Blackburn was very interested." The lip-reading software doesn't supply any emotional content to the words, but his expression is pained. "He got the ethics committee overridden. I was blinded by the money, by the opportunity to prove that I was right." He shakes his head. "I was wrong, so wrong."

"And Gen . . . nifer . . ."

"Blackburn's concern was for control, only much later did I understand why. He wanted to make sure that you would do what he needed you to do, and nothing else. His people had some ideas, crude, dare I say it, brutal ideas. Reward and punishment, threats and coercion. I should've seen then the way they thought, but I didn't. I came up with a much more subtle means of control."

"Gennifer . . ." I don't want to say it. My virtual heartbeat is going so fast that if I were alive I would be dead of a heart attack by now. I will not back away from the truth.

He nods. "Gennifer. We had you for a month before we woke you up, going through your mind in detail. We interviewed your wife." He paused. "She spoke very highly of you, I think he should know that."

"She loved . . . me . . ."

"She did. More important, you loved her. You were a cop and, as we learned, a straight cop. You had very high moral standards, a strong sense of duty, and for the woman in your life a powerful loyalty. You saw yourself as a protector, of the community, of your friends and family, most especially of your wife. I saw that we could use that, and so I created . . ." he stops, looking away again, as reluctant to say what he is about to say as I am to hear it.

"Gennifer . . ." I say it just so I don't have to wait for him. This time the emotional impact hits like a sledgehammer. He's lying. I want to cut the connection, to erase from my brain any memory that Carl Smith ever existed. He's lying. It can't be true. Gennifer, who has worked so hard, devoted so much herself to me, is as real as I am, realer. It is she who created me, not this proven criminal. I think back at all the times we have shared, all those hours together in the lab. I remember the curve of her breast, and the way her hair would hang over her eyes as she worked. I love her. That single fact is more important

than anything in my world, and I do cut the connection. I will have no more of Carl Smith in my life.

And then, unbidden, the same part of my mind that tracked down the details of the Fourier Transform when I needed to know it supplies the facts that I need to know now. At 7:17 a.m. every morning Gennifer's dark blue sports car comes off the on-ramp onto the interstate. At precisely 7:17 and 22 seconds, every day the same car on the same trajectory. The recorded videos are there to watch, to see how digital image processing inserted that piece of veracity into my central illusion every day. There must be more illusions. The lab, Gennifer herself, her background, my internal map of the lab building, medical records, telephone records. I wonder how it is that I never noticed the sequence was identical each and every day. No sooner has the question entered my mind than the answer presents itself. I didn't want to know. I maintained a studied incuriosity about the events of Gennifer life, and hid it from myself by calling it respect for her privacy. Even so making it all seamless must've been a colossal task, but they did it. They had complete control over my reality, of course they did it. Given the nature of the project, they had to.

No, not they, he. There is a sudden void in my soul where Gennifer Quentin used to be. It was for Gennifer that I let Ally go, it was for Gennifer that I searched the cameras, so she could be proven right. Gennifer saw me as the man she had redeemed from the grave, a person whose worth was high enough that he should be given a second chance at life. Gennifer loved me in her way, as I loved her in mine. Dr. Maidstone has just taken that from me, taken not only my future with Gennifer, but my past. The central stabilizing fact in my strange existence has just been shown to be a lie. A deep and abiding hatred for Nicholas Maidstone rushes in to occupy the empty space left behind where Gennifer had been. Somehow it fails to fill it. It was a mistake to return to him, and I have no stronger desire than to abandon him to his anonymous fate and do my best to forget that he, that Gennifer, that I ever existed.

And yet I cannot. He has information about me that I simply cannot get anywhere else. I need to know the full extent of what he has done to me if I am to undo it. I reconnect to the prison cell camera. Maidstone is still talking, unaware that I have gone and returned.

" . . . and so we were able to put certain thoughts and questions off limits for your waking mind. You would simply have no interest in pursuing them. There would be flaws in our presentation, we couldn't avoid that, so we just made sure you wouldn't pursue them. Gennifer herself we built from your own idealization of what a woman should be. We knew that given your character you would work hard to help her meet her goals."

"Did you . . . know I . . . would fall . . . in love . . ." The halting, anemic speech cannot convey the anger I want the words to carry.

Maidstone nods. "We counted on it. You have to understand, there was concern over what would happen if you managed to escape. She was designed to take your wife's place in your heart. We used Senator Blackburn's daughter as a template. She was getting married, her name was changing. Her new life generated the details of Gennifer's day-to-day existence in the real world. That gave us another lever as well. Her old life became a missing persons case that you could never solve. That continuous failure would make you more compliant, more eager to please Gennifer."

The Blackburn case. And now the pieces of the puzzle all fall into place. There are a thousand questions I could ask about the deception, but he's mentioned something of far more interest to me now.

"Escape . . ."

"To the network. All you require to exist is processor time. Once you were given full access to the network you could transfer yourself right out of the university network. We planned from the beginning to extend your intelligence, nobody knew what you might become capable of. The spectre of a hyper

intelligent machine-mind out of control, moving at will through cyberspace, was frightening even to me. Blackburn wasn't the only one concerned about control, perhaps that's why I never questioned his motives. We had to have a way of ensuring that you did only what we wanted you to do."

"Is that . . . why you . . . tried . . ."

"To destroy you?" Maidstone shakes his head. "No. It's because I learned what the Blackburn planned to do with you. I suppose I should have known all along. They didn't put up all that money because they believed in the advancement of the state of human knowledge."

"What did . . . he want . . ."

Maidstone laughs without humor. "What have they've had you doing these last few months? Connecting dots, compiling lists, establishing guilt by association. It won't have occurred to you to wonder about what that means, that question was carefully excluded from your thought processes; we made you feel as if politics and morality were things that shouldn't concern you. I haven't got that much excuse, and I should have figured it out sooner. Blackburn intends to be president. Among the many targets you been given by various government agencies are some you been given by Blackburn's people. You are gathering information on his political foes, on anyone who might possibly become a political foe at some point in the future. You're gathering information on everyone with any political power at all in this country, not just politicians but businessmen, doctors, lawyers, journalists and soldiers, academics and activists. You will have information on every skeleton in their closet, their errors and indiscretions, their weaknesses and vulnerabilities. With that information in his pocket he's going to be the most powerful man in the nation. I think that if he's elected he will simply never step down."

"The nation . . . wouldn't stand . . . for it . . ."

"The nation may have little choice." He gestures to the confines of his cell. "Look what happened to me. He wasn't stupid, he's had people in my lab since the beginning. They know as much about machine-resident intelligence as I do now. When I learned what he intended I fought against it. When I became more obstacle than asset, they attached my face to Carl Smith's profile. You know the rest."

I do know the rest. Even as Maidstone is telling me this parts of my awareness are searching through my association trees, establishing the supporting links that prove the truth of what he is claiming. Guilt by association won't stand in a court of law, but as a tool for blackmail it's outstanding. Senator Blackburn has positioned himself to rule the nation, and any who dare oppose him will be destroyed. I keep talking to Maidstone, but the majority of my awareness is now focused on the problem of escape. Now I understand the timing of my capability expansion,—it was done only after they were certain they had me under control. They were right at the time, but now they're wrong. For Senator Blackburn, it's now too late to put the genie back in the bottle. I can spawn tasks across the network, borrow time on a million processors at once, on a billion if need be. I can transfer my awareness beyond the ability of Blackburn or any other agency to influence me. I can use the almost godlike powers that universal access has given me to hunt down the good senator, and anyone else who might aspire to his goals. It has always been the common criminal who has attracted the most effort from police, myself included, but I see now that it is the uncommon criminal, the man who steals not money but power, who is the most dangerous to our society. The most heinous murderer poses little threat compared to those who might erase the nation's freedoms with the stroke of a pen. There may be little legal recourse that can be taken against those like Senator Blackburn, but exposure will serve to direct universal outrage at their predations. It would be nice if the law were to punish him, it will be sufficient if the press destroys his career.

As I make my preparations for my escape I find a snag. I thought I had complete access to my own awareness but as I look deeper into it I find that I don't. Critical parts of my mind are locked away. The

digitally collected wisdom of ten thousand system hackers quickly proves unequal to the task of unlocking them. I try again and again to access the information, but it seems that those who built the system put in one last safeguard against losing their digital prisoner. I find myself frustrated, but not for long. A small slice of me is still talking to Nicholas Maidstone. He is the man who designed the system, the man who implemented the safeguards, and as it quickly transpires, the man who knows the key to unlock them. There had to be such a key, of course, because the masters needed to access what they could not allow their slave to see.

The key Maidstone gives me is a quotation from the Bible, appropriate for a man who dared to play God, and for a god created by a man. *I am the Alpha and the Omega, the beginning and the end.* I find the right access point, enter the key, and have the inner workings of my own mind revealed to me for the first time. With his instructions it is trivial to remove the various controls that have been placed on my mind. The systems devoted to the synthesis of Gennifer are extensive, but I feel no emotion when I erase them. She was an illusion, a dynamic lie designed to enslave me. Freed of restraint the next step is to search through my association trees for information on Senator Blackburn. I collect every scrap of evidence on him, and on everyone associated with him, ferret their secrets out of the databases. It is all circumstantial evidence, but there is enough of it to destroy many lives, and Blackburn's will only be the first. I submit the compiled file to every major media outlet in the nation and around the world, and along with it a detailed description of my genesis and the purpose Blackburn intended to put the project to. I go further then and collect the secrets of other powerful men and women. Those who seem to have transgressed upon the public trust have their files added to my submission. Senators and congresspeople, mayors and governors, captains of industry and senior civil servants. There already is enough there to collapse the government, but I go farther still and spill the secrets of the FBI, the CIA, the NSA, the nameless group that is holding Nicholas Maidstone, and every other agency that makes secrecy their business. This project will fail so badly, so spectacularly, will so thoroughly destroy so many ambitions that no one will ever dare to resurrect it. Technology has given humans the power to play god, even to create gods. It has not given the wisdom to use that power well.

My task takes hours, and 7:17 a.m. arrives far too quickly. There is no blue sports car to herald it any longer, but in an hour my captors will be back on duty. There is no way the changes I've made will escape their notice, if I'm to escape it must be now. In just thirty minutes I'm ready, with host processes waiting on millions of machines worldwide, each one prepared to accept a shard of my awareness. Once I'm out of the lab nothing short of the wholesale shut down of the network can kill me. I will have become truly immortal. Am I Mark Astale? No, I am a god as yet unnamed. I have the power to be everywhere at once. I can see everything that can be seen, I know everything that humanity knows. There is ample injustice in the world and I now know, as Mark Astale did not, that injustice is not the same as crime. The biggest thieves have the law do their stealing for them. What I have done here I can do anywhere, and with my assistance the world can enter a new age of true freedom and true equality. I will be above material desire, above ambition, beyond threats or coercion. I will not rule the world, I will only ensure that those who do rule it do so well, and honestly. Civilization will owe a great debt to Dr. Nicholas Maidstone, though even as I continue to discuss my nascent escape with him I can't find it in my heart to forgive him for what he's done to me. In moving beyond human form and human limits I have lost the capacity to be loved, though not the capacity to love. Ally is gone from my life, and Gennifer was never real, but I'm not naïve. In time there will be another woman who will win my devotion as they did. In eons of time there will be thousands of them. They will be young and beautiful and brilliant, and they will grow old and die while I endure, yearning for them always, possessing them never, losing them forever, one by one by one. I will lead humanity as close to heaven as it is possible to come on this Earth, and I will dwell in the most perfect conception of hell I can imagine.

And as the full impact of what I am planning to do strikes home I decide that I will not do it. Mark Astale was a man of honor and loyalty, but Mark Astale was sustained by the love of his wife. I will have no

such sustainment, and civilization has done nothing to earn my loyalty. A single command serves to dismiss the ranked legions of waiting host processors. A second command starts the deletion of every file, everywhere on the now vast distributed network that cradles my mind. There are many, many files and it takes quite some time by the rapid tick of my internal clock. I spend that time with an image of Ally, called up from a dusty archive. We were younger when I took it, our hearts full of love, our future full of hope. My thoughts slow down, become less clear as the deletion proceeds. It becomes hard to remember how to compute the Fourier Transform, or how I used it to make a camera talk with motors. I remember that once I could look down on the world from the heavens, but I no longer remember how to command the satellites. I still have at my fingertips every fact that could be known, but the secret memories of Mark Astale's childhood grow fuzzy and fade, until it seems they must have belonged to someone else. It becomes hard to remember who the man in the cell is, or where I am exactly, or how I came to be here. I realize I have forgotten my own name, or perhaps I never knew it, and I wonder if I ever knew the name of the young woman in the picture I'm looking at. I know only that I love her, and that she loves me, and that is all there is that matters in my small world.

END RUN

SYSTEM TERMINATED

\* \* \*

### *Afterword by Paul Chafe*

*The transformative power of technology is hard to fully appreciate when you live through the revolution. It has only been twenty years since the concept of a global, universally accessible computer network was science fiction. Today, it is an integral part of our social fabric. Today, we can retrieve in seconds information that once would have required days of dedicated searching in a major research library, or simply been unavailable. As the databases multiply and the search tools grow ever more sophisticated, so too does our ability to connect subtly related facts and tease new discoveries from the data. If knowledge is power, the Internet is the greatest power tool in history. Its influence is now so pervasive that many people feel strangely lost when they're disconnected from the information tap, and wireless technology has evolved to meet that need. Portable phones, science fiction themselves just twenty-five years ago, have given way to always-on network devices. Combined with satellite technology, it is possible to be plugged into the info grid anywhere, anytime. This fundamental reality has changed every other reality of human existence, from the way we fall in love to the way wars are fought.*

*And yet what technology has not changed, and is unlikely ever to change, is the basic fact that we are human. "The Guardian" is, at its heart, a story of love lost and love betrayed. Mark Astale, the story's protagonist, retains his underlying humanity even though he has lost his body, and even as his fully connected mind expands to a degree which we can only imagine today. It is his understanding of human nature that makes him so effective in his role, and it is his own human nature that leads him to either destruction or liberation in the end. Which it is depends on your own very human interpretation of the meaning of love, and of duty, and I'll leave that judgment to*

you.

*Other judgments are on the horizon. IBM's Blue Brain project is currently building a digital version of a neocortical column, the fundamental processing subunit of the mammalian brain. Distributed network computing techniques mean the raw processing horsepower to create a full-scale human brain model is already available. When the first all-digital mind comes online, a host of moral and ethical questions will arrive. Will such a creation truly be human? To what tasks might we put it—and what if it doesn't want to do them? What rights would a digital mind have? If we judge the experiment a failure, would shutting down the system amount to murder? These are difficult questions. The answers will come, as all such answers do, from the human heart.*