Stories *of* Your Life *and* Others

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In memory of
Brian Chiang
and
Jenna Felice.

as he could see, he had merely swum up from the vault and entered the cavern below.

Somehow, the vault of heaven lay beneath the earth. It was as if they lay against each other, though they were separated by many leagues. How could that be? How could such distant places touch? Hillalum's head hurt trying to think about it.

And then it came to him: *a seal cylinder*. When rolled upon a tablet of soft clay, the carved cylinder left an imprint that formed a picture. Two figures might appear at opposite ends of the tablet, though they stood side by side on the surface of the cylinder. All the world was as such a cylinder. Men imagined heaven and earth as being at the ends of a tablet, with sky and stars stretched between; yet the world was wrapped around in some fantastic way so that heaven and earth touched.

It was clear now why Yahweh had not struck down the tower, had not punished men for wishing to reach beyond the bounds set for them: for the longest journey would merely return them to the place whence they'd come. Centuries of their labor would not reveal to them any more of Creation than they already knew. Yet through their endeavor, men would glimpse the unimaginable artistry of Yahweh's work, in seeing how ingeniously the world had been constructed. By this construction, Yahweh's work was indicated, and Yahweh's work was concealed.

Thus would men know their place.

Hillalum rose to his feet, his legs unsteady from awe, and sought out the caravan drivers. He would go back to Babylon. Perhaps he would see Lugatum again. He would send word to those on the tower. He would tell them about the shape of the world.

Understand

A layer of ice; it feels rough against my face, but not cold. I've got nothing to hold on to; my gloves just keep sliding off it. I can see people on top, running around, but they can't do anything. I'm trying to pound the ice with my fists, but my arms move in slow motion, and my lungs must have burst, and my head's going fuzzy, and I feel like I'm dissolving—

I wake up, screaming. My heart's going like a jackhammer. Christ. I pull off my blankets and sit on the edge of the bed.

I couldn't remember that before. Before I only remembered falling through the ice; the doctor said my mind had suppressed the rest. Now I remember it, and it's the worst nightmare I've ever had.

I'm grabbing the down comforter with my fists, and I can feel myself trembling. I try to calm down, to breathe slowly, but sobs keep forcing their way out. It was so real I could *feel* it: feel what it was like to die.

I was in that water for nearly an hour; I was more vegetable than anything else by the time they brought me up. Am I recovered? It was the first time the hospital had ever tried their new drug on someone with so much brain damage. Did it work?

The same nightmare, again and again. After the third time, I know I'm not going to sleep again. I spend the remaining hours before dawn worrying. Is this the result? Am I losing my mind?

Tomorrow is my weekly checkup with the resident at the hospital. I hope he'll have some answers.

I drive into downtown Boston, and after half an hour Dr. Hooper can see me. I sit on a gurney in an examining room, behind a yellow curtain. Jutting out of the wall at waist height is a horizontal flatscreen, adjusted for tunnel vision so it appears blank from my angle. The doctor types at the keyboard, presumably calling up my file, and then starts examining me. As he's checking my pupils with a penlight, I tell him about my nightmares.

"Did you ever have any before the accident, Leon?" He gets out his little mallet and taps at my elbows, knees, and ankles.

"Never. Are these a side effect of the drug?"

"Not a side effect. The hormone K therapy regenerated a lot of damaged neurons, and that's an enormous change that your brain has to adjust to. The nightmares are probably just a sign of that."

"Is this permanent?"

"It's unlikely," he says. "Once your brain gets used to having all those pathways again, you'll be fine. Now touch your index finger to the tip of your nose, and then bring it to my finger here."

I do what he tells me. Next he has me tap each finger to my thumb, quickly. Then I have to walk a straight line, as if I'm taking a sobriety test. After that, he starts quizzing me.

"Name the parts of an ordinary shoe."

"There's the sole, the heel, the laces. Um, the holes that the laces go through are eyes, and then there's the tongue, underneath the laces . . ."

"Okay. Repeat this number: three nine one seven four—"

"—six two."

Dr. Hooper wasn't expecting that. "What?"

"Three nine one seven four six two. You used that number the first time you examined me, when I was still an inpatient. I guess it's a number you test patients with a lot."

"You weren't supposed to memorize it; it's meant to be a test of immediate recall."

"I didn't intentionally memorize it. I just happened to remember it."

"Do you remember the number from the second time I examined you?"

I pause for a moment. "Four zero eight one five nine two."

He's surprised. "Most people can't retain so many digits if they've only heard them once. Do you use mnemonic tricks?"

I shake my head. "No. I always keep phone numbers in the autodialer."

He goes to the terminal and taps at the numeric keypad. "Try this one." He reads a fourteen-digit number, and I repeat it back to him. "You think you can do it backwards?" I recite the digits in reverse order. He frowns, and starts typing something into my file.

I'm sitting in front of a terminal in one of the testing rooms in the psychiatric ward; it's the nearest place Dr. Hooper could get some intelligence tests. There's a small mirror set in one wall, probably with a video camera behind it. In case it's recording, I smile at it and wave briefly. I always do that to the hidden cameras in automatic cash machines.

Dr. Hooper comes in with a printout of my test results. "Well, Leon, you did . . . very well. On both tests you scored in the ninety-ninth percentile."

My jaw drops. "You're kidding."

"No, I'm not." He has trouble believing it himself. "Now that number doesn't indicate how many questions you got right; it means that relative to the general population—"

"I know what it means," I say absently. "I was in the seventieth percentile when they tested us in high school." Ninety-ninth percentile.

Inwardly, I'm trying to find some sign of this. What should it feel like?

He sits down on the table, still looking at the printout. "You never attended college, did you?"

I return my attention to him. "I did, but I left before graduating. My ideas of education didn't mesh with the professors'."

"I see." He probably takes this to mean I flunked out. "Well, clearly you've improved tremendously. A little of that may have come about naturally as you grew older, but most of it must be a result of the hormone K therapy."

"This is one hell of a side effect."

"Well, don't get too excited. Test scores don't predict how well you can do things in the real world." I roll my eyes upward when Dr. Hooper isn't looking. Something amazing is going on, and all he can offer is a truism. "I'd like to follow up on this with some more tests. Can you come in tomorrow?"

I'm in the middle of retouching a holograph when the phone rings. I waver between the phone and the console, and reluctantly opt for the phone. I'd normally have the answering machine take any calls when I'm editing, but I need to let people know I'm working again. I lost a lot of business when I was in the hospital: one of the risks of being a freelancer. I touch the phone and say, "Greco Holographics, Leon Greco speaking."

"Hey Leon, it's Jerry."

"Hi Jerry. What's up?" I'm still studying the image on the screen: it's a pair of helical gears, intermeshed. A trite metaphor for cooperative action, but that's what the customer wanted for his ad.

"You interested in seeing a movie tonight? Me and Sue and Tori were going to see *Metal Eyes*."

"Tonight? Oh, I can't. Tonight's the last performance of the one-woman show at the Hanning Playhouse." The surfaces of the gear teeth are scratched and oily-looking. I highlight each surface using the cursor, and type in the parameters to be adjusted.

"What's that?"

"It's called *Symplectic*. It's a monologue in verse." Now I adjust the lighting, to remove some of the shadows from where the teeth mesh. "Want to come along?"

"Is this some kind of Shakespearean soliloquy?"

Too much: with that lighting, the outer edges will be too bright. I specify an upper limit for the reflected light's intensity. "No, it's a stream-of-consciousness piece, and it alternates between four different meters; iambic's only one of them. All the critics called it a tour de force."

"I didn't know you were such a fan of poetry."

After checking all the numbers once more, I let the computer recalculate the interference pattern. "Normally, I'm not, but this one seemed really interesting. How's it sound to you?"

"Thanks, but I think we'll stick with the movie."

"Okay, you guys have fun. Maybe we can get together next week." We say good-bye and hang up, and I wait for the recalc to finish.

Suddenly it occurs to me what's just happened. I've never been able to do any serious editing while talking on the phone. But this time I had no trouble keeping my mind on both things at once.

Will the surprises never end? Once the nightmares were gone and I could relax, the first thing I noticed was the increase in my reading speed and comprehension. I was actually able to read the books on my shelves that I'd always meant to get around to, but never had the time; even the more difficult, technical material. Back in college, I'd accepted the fact that I couldn't study everything that interested me. It's exhilarating to discover that maybe I can; I was positively gleeful when I bought an armload of books the other day.

And now I find I can concentrate on two things at once; something I never would have predicted. I stand up at my desk and shout out loud, as if my favorite baseball team has just surprised me with a triple play. That's what it feels like.

The neurologist-in-chief, Dr. Shea, has taken over my case, presumably because he wants to take the credit. I scarcely know him, but he acts as if I've been his patient for years.

He's asked me into his office to have a talk. He interlaces his fingers and rests his elbows on his desk. "How do you feel about the increase in your intelligence?" he asks.

What an inane question. "I'm very pleased about it."

"Good," says Dr. Shea. "So far, we've found no adverse effects of the hormone K therapy. You don't require any further treatment for the brain damage from your accident." I nod. "However, we're conducting a study to learn more about the hormone's effect on intelligence. If you're willing, we'd like to give you a further injection of the hormone, and then monitor the results."

Suddenly he's got my attention; finally, something worth listening to. "I'd be willing to do that."

"You understand that this is purely for investigational purposes, not therapeutic. You may benefit from it with further gains in your intelligence, but this is not medically necessary for your health."

"I understand. I suppose I have to sign a consent form."

"Yes. We can also offer you some compensation for participating in this study." He names a figure, but I'm barely listening.

"That'll be fine." I'm imagining where this might lead, what it might mean for me, and a thrill runs through me.

"We'd also like you to sign a confidentiality agreement. Clearly this drug is enormously exciting, but we don't want any announcements to be made prematurely."

"Certainly, Dr. Shea. Has anyone been given additional injections before?"

"Of course; you're not going to be a guinea pig. I can assure you, there haven't been any harmful side effects."

"What sort of effects did they experience?"

"It's better if we don't plant suggestions in your mind: you might imagine you were experiencing the symptoms I mention."

Shea's very comfortable with the doctor-knows-best routine. I keep pushing. "Can you at least tell me how much their intelligence increased?"

"Every individual is different. You shouldn't base your expectations on what's happened to others."

I conceal my frustration. "Very well, Doctor."

If Shea doesn't want to tell me about hormone K, I can find out about it on my own. From my terminal at home I log on to the datanet. I access the FDA's public database, and start perusing their current INDs, the Investigational New Drug applications that must be approved before human trials can begin.

The application for hormone K was submitted by Sorensen Pharmaceutical, a company researching synthetic hormones that encourage neuron regeneration in the central nervous system. I skim the results of the drug tests on oxygen-deprived dogs, and then baboons: all the animals recovered completely. Toxicity was low, and long-term observation didn't reveal any adverse effects.

The results of cortical samples are provocative. The brain-damaged animals grew replacement neurons with many more dendrites, but the healthy recipients of the drug remained unchanged. The conclusion of the researchers: hormone K replaces only damaged neurons, not healthy ones. In the brain-damaged animals, the new dendrites seemed harmless: PET scans didn't reveal any change in brain metabolism, and the animals' performance on intelligence tests didn't change.

In their application for human clinical trials, the Sorensen researchers outlined protocols for testing the drug first on healthy subjects, and then on several types of patients: stroke victims, sufferers of Alzheimer's, and persons—like me—in a persistent vegetative state. I can't access the progress reports for those trials: even with patient anonymity, only participating doctors have clearance to examine those records.

The animal studies don't shed any light on the increased intelligence in humans. It's reasonable to assume that the effect on intelligence is proportional to the number of neurons replaced by the hormone,

which in turn depends on the amount of initial damage. That means that the deep-coma patients would undergo the greatest improvements. Of course, I'd need to see the progress of the other patients to confirm this theory; that'll have to wait.

The next question: is there a plateau, or will additional dosages of the hormone cause further increases? I'll know the answer to that sooner than the doctors.

I'm not nervous; in fact, I feel quite relaxed. I'm just lying on my stomach, breathing very slowly. My back is numb; they gave me a local anesthetic, and then injected the hormone K intraspinally. An intravenous wouldn't work, since the hormone can't get past the blood-brain barrier. This is the first such injection I can recall having, though I'm told that I've received two before: the first while still in the coma, the second when I had regained consciousness but no cognitive ability.

More nightmares. They're not all actually violent, but they're the most bizarre, mind-blowing dreams I've ever had, often with nothing in them that I recognize. I often wake up screaming, flailing around in bed. But this time, I know they'll pass.

There are several psychologists at the hospital studying me now. It's interesting to see how they analyze my intelligence. One doctor perceives my skills in terms of components, such as acquisition, retention, performance, and transfer. Another looks at me from the angles of mathematical and logical reasoning, linguistic communication, and spatial visualization.

I'm reminded of my college days when I watch these specialists, each with a pet theory, each contorting the evidence to fit. I'm even less convinced by them now than I was back then; they still have nothing to teach me. None of their categorizations are fruitful

in analyzing my performance, since—there's no point in denying it—I'm equally good at everything.

I could be studying a new class of equation, or the grammar of a foreign language, or the operation of an engine; in each case, everything fits together, all the elements cooperate beautifully. In each case, I don't have to consciously memorize rules, and then apply them mechanically. I just perceive how the system behaves as a whole, as an entity. Of course, I'm aware of all the details and individual steps, but they require so little concentration that they almost feel intuitive.

Penetrating computer security is really quite dull; I can see how it might attract those who can't resist a challenge to their cleverness, but it's not intellectually aesthetic at all. It's no different than tugging on the doors of a locked house until you find an improperly installed lock. A useful activity, but hardly interesting.

Getting into the FDA's private database was easy. I played with one of the hospital wall terminals, running the visitor information program, which displays maps and a staff directory. I broke out of the program to the system level, and wrote a decoy program to mimic the opening screen for logging on. Then I simply left the terminal alone; eventually one of my doctors came by to check one of her files. The decoy rejected her password, and then restored the true opening screen. The doctor tried logging on again, and was successful this time, but her password was left with my decoy.

Using the doctor's account, I had clearance to view the FDA patient-record database. In the Phase I trials, on healthy volunteers, the hormone had no effect. The ongoing Phase II clinical trials are a different matter. Here are weekly reports on eighty-two patients, each identified by a number, all treated with hormone K, most of them victims of a stroke or Alzheimer's, some of them coma cases. The latest reports confirm my prediction: those with greater brain damage display greater increases in intelligence. PET scans reveal heightened brain metabolism.

Why didn't the animal studies provide a precedent for this? I think the concept of critical mass provides an analogy. Animals fall below some critical mass in terms of synapses; their brains support only minimal abstraction, and gain nothing from additional synapses. Humans exceed that critical mass. Their brains support full self-awareness, and—as these records indicate—they use any new synapses to the fullest possible extent.

The most exciting records are those of the newly begun investigational studies, using a few of the patients who volunteered. Additional injections of the hormone do increase intelligence further, but again it depends on the degree of initial damage. The patients with minor strokes haven't even reached genius levels. Those with greater damage have gone further.

Of the patients originally in deep-coma states, I'm the only one thus far who's received a third injection. I've gained more new synapses than anyone previously studied; it's an open question as to how high my intelligence will go. I can feel my heart pounding when I think about it.

Playing with the doctors is becoming more and more tedious as the weeks go by. They treat me as if I were simply an idiot savant: a patient who exhibits certain signs of high intelligence, but still just a patient. As far as the neurologists are concerned, I'm just a source of PET scan images and an occasional vial of cerebrospinal fluid. The psychologists have the opportunity to gain some insight into my thinking through their interviews, but they can't shed their preconception of me as someone out of his depth, an ordinary man awarded gifts that he can't appreciate.

On the contrary, the doctors are the ones who don't appreciate what's happening. They're certain that real-world performance can't be enhanced by a drug, and that my ability exists only according to the artificial yardstick of intelligence tests, so they waste their time with those. But the yardstick is not only contrived, it's

too short: my consistently perfect scores don't tell them anything, because they have no basis for comparison this far out on the bell curve.

Of course, the test scores merely capture a shadow of the real changes occurring. If only the doctors could feel what's going on in my head: how much I'm recognizing that I missed before, how many uses I can see for that information. Far from being a laboratory phenomenon, my intelligence is practical and effectual. With my near-total recall and my ability to correlate, I can assess a situation immediately, and choose the best course of action for my purposes; I'm never indecisive. Only theoretical topics pose a challenge.

No matter what I study, I can see patterns. I see the gestalt, the melody within the notes, in everything: mathematics and science, art and music, psychology and sociology. As I read the texts, I can think only that the authors are plodding along from one point to the next, groping for connections that they can't see. They're like a crowd of people unable to read music, peering at the score for a Bach sonata, trying to explain how one note leads to another.

As glorious as these patterns are, they also whet my appetite for more. There are other patterns waiting to be discovered, gestalts of another scale entirely. With respect to those, I'm blind myself; all my sonatas are just isolated data points by comparison. I have no idea what form such gestalts might assume, but that'll come in time. I want to find them, and comprehend them. I want this more than anything I've ever wanted before.

The visiting doctor's name is Clausen, and he doesn't behave like the other doctors. Judging by his manner, he's accustomed to wearing a mask of blandness with his patients, but he's a bit uncomfortable today. He affects an air of friendliness, but it isn't as fluent as the perfunctory noise that the other doctors make.

"The test works this way, Leon: you'll read some descriptions of various situations, each presenting a problem. After each one, I want you to tell me what you'd do to solve that problem."

I nod. "I've had this kind of test before."

"Fine, fine." He types a command, and the screen in front of me fills with text. I read the scenario: it's a problem in scheduling and prioritizing. It's realistic, which is unusual; scoring such a test is too arbitrary for most researchers' tastes. I wait before giving my answer, though Clausen is still surprised at my speed.

"That's very good, Leon." He hits a key on his computer. "Try this one."

We continue with more scenarios. As I'm reading the fourth one, Clausen is careful to display only professional detachment. My response to this problem is of special interest to him, but he doesn't want me to know. The scenario involves office politics and fierce competition for a promotion.

I realize who Clausen is: he's a government psychologist, perhaps military, probably part of the CIA's Office of Research and Development. This test is meant to gauge hormone K's potential for producing strategists. That's why he's uncomfortable with me: he's used to dealing with soldiers and government employees, subjects whose job is to follow orders.

It's likely that the CIA will wish to retain me as a subject for more tests; they may do the same with other patients, depending on their performance. After that, they'll get some volunteers from their ranks, starve their brains of oxygen, and treat them with hormone K. I certainly don't wish to become a CIA resource, but I've already demonstrated enough ability to arouse their interest. The best I can do is to downplay my skills and get this question wrong.

I offer a poor course of action as my answer, and Clausen is disappointed. Nonetheless, we press on. I take longer on the scenarios now, and give weaker responses. Sprinkled among the harmless questions are the critical ones: one about avoiding a hostile corporate takeover, another about mobilizing people to prevent the

construction of a coal-burning plant. I miss each of these questions.

Clausen dismisses me when the test ends; he's already trying to formulate his recommendations. If I'd shown my true abilities, the CIA would recruit me immediately. My uneven performance will reduce their eagerness, but it won't change their minds; the potential returns are too great for them to ignore hormone K.

My situation has changed profoundly; when the CIA decides to retain me as a test subject, my consent will be purely optional. I must make plans.

It's four days later, and Shea is surprised. "You want to withdraw from the study?"

"Yes, effective immediately. I'm returning to work."

"If it's a matter of compensation, I'm sure we can—"

"No, money's not the problem. I've simply had enough of these tests."

"I know the tests become tiring after a while, but we're learning a great deal. And we appreciate your participation, Leon. It's not merely—"

"I know how much you're learning from these tests. It doesn't change my decision: I don't wish to continue."

Shea starts to speak again, but I cut him off. "I know that I'm still bound by the confidentiality agreement; if you'd like me to sign something confirming that, send it to me." I get up and head for the door. "Good-bye, Dr. Shea."

It's two days later when Shea calls.

"Leon, you have to come in for an examination. I've just been informed: adverse side effects have been found in patients treated with hormone K at another hospital."

He's lying; he'd never tell me that over the phone. "What sort of side effects?"

"Loss of vision. There's excessive growth of the optic nerve, followed by deterioration."

The CIA must have ordered this when they heard that I'd withdrawn from the study. Once I'm back in the hospital, Shea will declare me mentally incompetent, and confine me to their care. Then I'll be transferred to a government research institution.

I assume an expression of alarm. "I'll come down right away."

"Good." Shea is relieved that his delivery was convincing. "We can examine you as soon as you arrive."

I hang up and turn on my terminal to check the latest information in the FDA database. There's no mention of any adverse effects, on the optic nerve or anywhere else. I don't discount the possibility that such effects might arise in the future, but I'll discover them by myself.

It's time to leave Boston. I begin packing. I'll empty my bank accounts when I go. Selling the equipment in my studio would generate more cash, but most of it is too large to transport; I take only a few of the smallest pieces. After I've been working a couple of hours, the phone rings again: Shea wondering where I am. This time I let the machine pick it up.

"Leon, are you there? This is Dr. Shea. We've been expecting you for quite some time."

He'll try calling one more time, and then he'll send the orderlies in white suits, or perhaps the actual police, to pick me up.

Seven-thirty p.m. Shea is still in the hospital, waiting for news about me. I turn the ignition key and pull out of my parking spot across the street from the hospital. Any moment now, he'll notice the envelope I slipped under the door to his office. As soon as he opens it he'll realize that it's from me.

Greetings, Dr. Shea,

I imagine you're looking for me.

A moment of surprise, but no more than a moment; he'll regain

his composure, and alert security to search the building for me, and check all departing vehicles. Then he'll continue reading.

You can call off those burly orderlies who are waiting at my apartment; I don't want to waste their valuable time. You're probably determined to have the police issue an APB on me, though. Therefore, I've taken the liberty of inserting a virus in the DMV computer, that will substitute information whenever my license plate number is requested. Of course, you could give a description of my car, but you don't even know what it looks like, do you?

Leon

He'll call the police to have their programmers work on that virus. He'll conclude that I have a superiority complex, based on the arrogant tone of the note, the unnecessary risk taken in returning to the hospital to deliver it, and the pointless revelation of a virus which might otherwise have gone undetected.

Shea will be mistaken, though. Those actions are designed to make the police and CIA underestimate me, so I can rely on their not taking adequate precautions. After cleaning my virus from the DMV computer, the police programmers will assess my programming skills as good but not great, and then load the backups to retrieve my actual license number. This will activate a second virus, a far more sophisticated one. This one will modify both the backups and the active database. The police will be satisfied that they've got the correct license number, and spend their time chasing that wild goose.

My next goal is to get another ampule of hormone K. Doing so, unfortunately, will give the CIA an accurate idea of how capable I really am. If I hadn't sent that note, the police would discover my virus later, at a time when they'd know to take super-stringent precautions when eradicating it. In that case, I might never be able to remove my license number from their files.

Meanwhile, I've checked into a hotel, and am working out of the room's datanet terminal.

I've broken into the private database of the FDA. I've seen the addresses of the hormone K subjects, and the internal communications of the FDA. A clinical hold was instituted for hormone K: no further testing permitted until the hold is lifted. The CIA has insisted on capturing me and assessing my threat potential before the FDA goes any further.

The FDA has asked all the hospitals to return the remaining ampules by courier. I must get an ampule before this happens. The nearest patient is in Pittsburgh; I reserve a seat on a flight leaving early tomorrow morning. Then I check a map of Pittsburgh, and make a request to the Pennsylvania Courier company for a pickup at an investment firm in the downtown area. Finally I sign up for several hours of CPU time on a supercomputer.

I'm parked in a rental car around the corner from a skyscraper in Pittsburgh. In my jacket pocket is a small circuit board with a keypad. I'm looking down the street in the direction the courier will arrive from; half the pedestrians wear white air filter masks, but visibility is good.

I see it two intersections away; it's a late-model domestic van. Pennsylvania Courier painted on the side. It's not a high-security courier; the FDA isn't that worried about me. I get out of my car and begin walking toward the skyscraper. The van arrives shortly, parks, and the driver gets out. As soon as he's inside, I enter the vehicle.

It's just come from the hospital. The driver is on his way to the fortieth floor, expecting to pick up a package from an investment firm there. He won't be back for at least four minutes.

Welded to the floor of the van is a large locker, with double-layered steel walls and door. There is a polished plate on the door; the locker opens when the driver lays his palm against its surface. The plate also has a dataport in its side, used for programming it.

Last night I penetrated the service database for Lucas Security Systems, the company that sells handprint locks to Pennsylvania Courier. There I found an encrypted file containing the codes to override their locks.

I must admit that, while penetrating computer security remains generally unaesthetic, certain aspects of it are indirectly related to very interesting problems in mathematics. For example, a commonly used method of encryption normally requires years of supercomputer time to break. However, during one of my forays into number theory, I found a lovely technique for factoring extremely large numbers. With this technique, a supercomputer could break this encryption scheme in a matter of hours.

I pull the circuit board from my pocket and connect it to the dataport with a cable. I tap in a twelve-digit number, and the locker door swings open.

By the time I'm back in Boston with the ampule, the FDA has responded to the theft by removing all pertinent files from any computer accessible through the datanet: as expected.

With the ampule and my belongings, I drive to New York City.

The fastest way for me to make money is, oddly enough, gambling. Handicapping horse races is simple enough. Without attracting undue attention, I can accumulate a moderate sum, and then sustain myself with investments in the stock market.

I'm staying in a room in the cheapest apartment I could find near New York that has datanet outlets. I've arranged several false names under which to make my investments, and will change them regularly. I shall spend some time on Wall Street, so that I can identify high-yield, short-term opportunities from the body language of brokers. I won't go more than once a week; there are more significant matters to attend to, gestalts beckoning my attention.

As my mind develops, so does my control over my body. It is a misconception to think that during evolution humans sacrificed physical

skill in exchange for intelligence: wielding one's body is a mental activity. While my strength hasn't increased, my coordination is now well above average; I'm even becoming ambidextrous. Moreover, my powers of concentration make biofeedback techniques very effective. After comparatively little practice, I am able to raise or lower my heart rate and blood pressure.

I write a program to perform a pattern match for photos of my face and search for occurrences of my name; I then incorporate it into a virus for scanning all public display files on the datanet. The CIA will have the national datanet news briefs display my picture and identify me as a dangerously insane escaped patient, perhaps a murderer. The virus will replace my photo with video static. I plant a similar virus in the FDA and CIA computers, to search for copies of my picture in any downloads to regional police. These viruses should be immune to anything that their programmers can come up with.

Undoubtedly Shea and the other doctors are in consultation with the psychologists of the CIA, guessing where I might have gone. My parents are dead, so the CIA is turning its attention to my friends, asking whether I've contacted them; they'll maintain surveillance on them in the event I do. A regrettable invasion of their privacy, but it isn't a pressing matter.

It's unlikely that the CIA will treat any of their agents with hormone K to locate me. As I myself demonstrate, a superintelligent person is too difficult to control. However, I'll keep track of the other patients, in case the government decides to recruit them.

The quotidian patterns of society are revealed without my making an effort. I walk down the street, watching people go about their business, and though not a word is spoken, the subtext is conspicuous. A young couple strolls by, the adoration of one bouncing off the tolerance of the other. Apprehension flickers and becomes steady as a businessman, fearful of his supervisor, begins to doubt a decision he

made earlier today. A woman wears a mantle of simulated sophistication, but it slips when it brushes past the genuine article.

As always, the roles one plays become recognizable only with greater maturity. To me, these people seem like children on a playground; I'm amused by their earnestness, and embarassed to remember myself doing those same things. Their activities are appropriate for them, but I couldn't bear to participate now; when I became a man, I put away childish things. I will deal with the world of normal humans only as needed to support myself.

I acquire years of education each week, assembling ever-larger patterns. I view the tapestry of human knowledge from a broader perspective than anyone ever has before; I can fill gaps in the design where scholars never even noticed a lack, and enrich the texture in places that they felt were complete.

The natural sciences have the clearest patterns. Physics admits of a lovely unification, not just at the level of fundamental forces, but when considering its extent and implications. Classifications like "optics" or "thermodynamics" are just straitjackets, preventing physicists from seeing countless intersections. Even putting aside aesthetics, the practical applications that have been overlooked are legion; years ago engineers could have been artifically generating spherically symmetric gravity fields.

Having realized this, however, I won't build such a device, or any other. It would require many custom-built components, all difficult and time-consuming to procure. Furthermore, actually constructing the device wouldn't give me any particular satisfaction, since I already know it would work, and it wouldn't illuminate any new gestalts.

I'm writing part of an extended poem, as an experiment; after I've finished one canto, I'll be able to choose an approach for integrating the patterns within all the arts. I'm employing six modern and four

ancient languages; they include most of the significant worldviews of human civilization. Each one provides different shades of meaning and poetic effects; some of the juxtapositions are delightful. Each line of the poem contains neologisms, born by extruding words through the declensions of another language. If I were to complete the entire piece, it could be thought of as *Finnegans Wake* multiplied by Pound's *Cantos*.

The CIA interrupts my work; they're baiting a trap for me. After two months of trying, they've accepted that they can't locate me by conventional methods, so they've turned to more drastic measures. The news services report that the girlfriend of a deranged murderer has been charged with aiding and abetting his escape. The name given is Connie Perritt, someone I was seeing last year. If it goes to trial, it's a foregone conclusion that she'll be sentenced to a lengthy prison term; the CIA is hoping that I won't allow that. They expect me to attempt a maneuver that will expose me to capture.

Connie's preliminary hearing is tomorrow. They'll ensure that she's released on bail, through a bondsman if necessary, to give me an opportunity to contact her. Then they'll saturate the area around her apartment with undercover agents to wait for me.

I begin editing the first image onscreen. These digital photos are so minimal compared to holos, but they serve the purpose. The photos, taken yesterday, show the exterior of Connie's apartment building, the street out front, and nearby intersections. I move the cursor across the screen, drawing small crosshairs in certain locations on the images. A window, with lights out but curtains open, in the building diagonally opposite. A street vendor two blocks from the rear of the building.

I mark six locations altogether. They indicate where CIA agents were waiting last night, when Connie went back to her apartment.

Having been cued by the videotapes of me in the hospital, they knew what to look for in all male or ambiguous passersby: the confident, level gait. Their expectations worked against them; I simply lengthened my stride, bobbed my head up and down a bit, reduced my arm motion. That and some atypical clothes were sufficient for them to ignore me as I walked through the area.

At the bottom of one photo I type the radio frequency used by the agents for communication, and an equation describing the scrambling algorithm employed. Once I've finished, I transmit the images to the Director of the CIA. The implication is clear: I could kill his undercover agents at any time, unless they withdraw.

To have them drop charges against Connie, and for a more permanent deterrent against the CIA's distractions, I shall have to do some more work.

Pattern recognition again, but this time it's of a mundane variety. Thousands of pages of reports, memos, correspondence; each one is a dot of color in a pointillist painting. I step back from this panorama, watching for lines and edges to emerge and create a pattern. The megabytes that I scanned constituted only a fraction of the complete records for the period I investigated, but they were enough.

What I've found is rather ordinary, far simpler than the plot of a spy novel. The Director of the CIA was aware of a terrorist group's plan to bomb the Washington, D.C., metro system. He let the bombing occur, in order to gain congressional approval for the use of extreme measures against that group. A congressman's son was among the casualties, and the CIA Director was given a free hand in handling the terrorists. While his plans aren't actually stated in CIA records, they're implied quite clearly. The relevant memos make only oblique references, and they float in a sea of innocuous documents; if an investigating committee were to read all of the records, the evidence would be drowned out by the noise. However, a distillation of the incriminating memos would certainly convince the press.

I send the list of memos to the Director of the CIA, with a note: *Don't bother me, and I won't bother you.* He'll realize that he has no alternative.

This little episode has reinforced my opinion of the affairs of the world; I could detect clandestine ploys everywhere if I kept informed about current events, but none of them would be interesting. I shall resume my studies.

Control over my body continues to grow. By now I could walk on hot coals or stick needles in my arm, if I were so inclined. However, my interest in Eastern meditation is limited to its application to physical control; no meditative trance I can attain is nearly as desirable to me as my mental state when I assemble gestalts out of elemental data.

I'm designing a new language. I've reached the limits of conventional languages, and now they frustrate my attempts to progress further. They lack the power to express concepts that I need, and even in their own domain, they're imprecise and unwieldy. They're hardly fit for speech, let alone thought.

Existing linguistic theory is useless; I'll reevaluate basic logic to determine the suitable atomic components for my language. This language will support a dialect coexpressive with all of mathematics, so that any equation I write will have a linguistic equivalent. However, mathematics will be only a small part of the language, not the whole; unlike Leibniz, I recognize symbolic logic's limits. Other dialects I have planned will be coexpressive with my notations for aesthetics and cognition. This will be a time-consuming project, but the end result will clarify my thoughts enormously. After I've translated all that I know into this language, the patterns I seek should become evident.

I pause in my work. Before I develop a notation for aesthetics, I must establish a vocabulary for all the emotions I can imagine.

I'm aware of many emotions beyond those of normal humans; I see how limited their affective range is. I don't deny the validity of the love and angst I once felt, but I do see them for what they were: like the infatuations and depressions of childhood, they were just the forerunners of what I experience now. My passions now are more multifaceted; as self-knowledge increases, all emotions become exponentially more complex. I must be able to describe them fully if I'm to even attempt the composing tasks ahead.

Of course, I actually experience far fewer emotions than I could; my development is limited by the intelligence of those around me, and the scant intercourse I permit myself with them. I'm reminded of the Confucian concept of *ren*: inadequately conveyed by "benevolence," that quality which is quintessentially human, which can only be cultivated through interaction with others, and which a solitary person cannot manifest. It's one of many such qualities. And here am I, with people, people everywhere, yet not a one to interact with. I'm only a fraction of what a complete individual with my intelligence could be.

I don't delude myself with either self-pity or conceit: I can evaluate my own psychological state with the utmost objectivity and consistency. I know precisely which emotional resources I have and which I lack, and how much value I place on each. I have no regrets.

My new language is taking shape. It is gestalt oriented, rendering it beautifully suited for thought, but impractical for writing or speech. It wouldn't be transcribed in the form of words arranged linearly, but as a giant ideogram, to be absorbed as a whole. Such an ideogram could convey, more deliberately than a picture, what a thousand words cannot. The intricacy of each ideogram would be commensurate with the amount of information contained; I amuse myself with the notion of a colossal ideogram that describes the entire universe.

The printed page is too clumsy and static for this language; the only serviceable media would be video or holo, displaying a time-evolving graphic image. Speaking this language would be out of the question, given the limited bandwidth of the human larynx.

My mind seethes with expletives from ancient and modern languages, and they taunt me with their crudeness, reminding me that my ideal language would offer terms with sufficient venom to express my present frustration.

I cannot complete my artificial language; it's too large a project for my present tools. Weeks of concentrated effort have yielded nothing usable. I've attempted to write it via bootstrapping, by employing the rudimentary language that I've already defined to rewrite the language and produce successively fuller versions. Yet each new version only highlights its own inadequacies, forcing me to expand my ultimate goal, condemning it to the status of a Holy Grail at the end of a divergent infinite regress. This is no better than trying to create it ex nihilo.

What about my fourth ampule? I can't remove it from my thoughts: every frustration I experience at my present plateau reminds me of the possibility for still greater heights.

Of course, there are significant risks. This injection might be the one that causes brain damage or insanity. Temptation by the Devil, perhaps, but temptation nonetheless. I find no reason to resist.

I'd have a margin of safety if I injected myself in a hospital, or, failing that, with someone standing by in my apartment. However, I imagine the injection will either be successful or else cause irreparable damage, so I forego those precautions.

I order equipment from a medical supply company, and assemble an apparatus for administering the spinal injection by myself. It may take days for the full effects to become evident, so I'll confine

myself to my bedroom. It's possible that my reaction will be violent; I remove breakables from the room and attach loose straps to the bed. The neighbors will interpret anything they hear as an addict howling.

I inject myself and wait.

My brain is on fire, my spine burns itself through my back, I feel near apoplexy. I am blind, deaf, insensate.

I hallucinate. Seen with such preternatural clarity and contrast that they must be illusory, unspeakable horrors loom all around me, scenes not of physical violence but of psychic mutilation.

Mental agony and orgasm. Terror and hysterical laughter.

For a brief moment, perception returns. I'm on the floor, hands clenched in my hair, some uprooted tufts lying around me. My clothes are soaked in sweat. I've bitten my tongue, and my throat is raw: from screaming, I surmise. Convulsions have left my body badly bruised, and a concussion is likely, given the contusions on the back of my head, but I feel nothing. Has it been hours or moments?

Then my vision clouds and the roar returns.

.....

Critical mass.

.....

Revelation.

I understand the mechanism of my own thinking. I know precisely how I know, and my understanding is recursive. I understand the infinite regress of this self-knowing, not by proceeding step by step endlessly, but by apprehending the *limit*. The nature of recursive cognition is clear to me. A new meaning of the term "self-aware."

Fiat logos. I know my mind in terms of a language more expressive than any I'd previously imagined. Like God creating order from chaos with an utterance, I make myself anew with this language. It is meta-self-descriptive and self-editing; not only can it describe

thought, it can describe and modify its own operations as well, at all levels. What Godel would have given to see this language, where modifying a statement causes the entire grammar to be adjusted.

With this language, I can see how my mind is operating. I don't pretend to see my own neurons firing; such claims belong to John Lilly and his LSD experiments of the sixties. What I can do is perceive the gestalts; I see the mental structures forming, interacting. I see myself thinking, and I see the equations that describe my thinking, and I see myself comprehending the equations, and I see how the equations describe their being comprehended.

I know how they make up my thoughts.

These thoughts.

Initially I am overwhelmed by all this input, paralyzed with awareness of my self. It is hours before I can control the flood of self-describing information. I haven't filtered it away, nor pushed it into the background. It's become integrated into my mental processes, for use during my normal activities. It will be longer before I can take advantage of it, effortlessly and effectively, the way a dancer uses her kinesthetic knowledge.

All that I once knew theoretically about my mind, I now see detailed explicitly. The undercurrents of sex, aggression, and self-preservation, translated by the conditioning of my childhood, clash with and are sometimes disguised as rational thought. I recognize all the causes of my every mood, the motives behind my every decision.

What can I do with this knowledge? Much of what is conventionally described as "personality" is at my discretion; the higher-level aspects of my psyche define who I am now. I can send my mind into a variety of mental or emotional states, yet remain ever aware of the state and able to restore my original condition. Now that I understand the mechanisms that were operating when I attended to two tasks at once, I can divide my consciousness, simultaneously devoting

almost full concentration and gestalt recognition abilities to two or more separate problems, meta-aware of all of them. What can't I do?

I know my body afresh, as if it were an amputee's stump suddenly replaced by a watchmaker's hand. Controlling my voluntary muscles is trivial; I have inhuman coordination. Skills that normally require thousands of repetitions to develop, I can learn in two or three. I find a video with a shot of a pianist's hands playing, and before long I can duplicate his finger movements without a keyboard in front of me. Selective contraction and relaxation of muscles improve my strength and flexibility. Muscular response time is thirty-five milliseconds, for conscious or reflex action. Learning acrobatics and martial arts would require little training.

I have somatic awareness of kidney function, nutrient absorption, glandular secretions. I am even conscious of the role that neurotransmitters play in my thoughts. This state of consciousness involves mental activity more intense than in any epinephrine-boosted stress situation; part of my mind is maintaining a condition that would kill a normal mind and body within minutes. As I adjust the programming of my mind, I experience the ebb and flow of all the substances that trigger my emotional reactions, boost my attention, or subtly shape my attitudes.

And then I look outward.

Blinding, joyous, fearful symmetry surrounds me. So much is incorporated within patterns now that the entire universe verges on resolving itself into a picture. I'm closing in on the ultimate gestalt: the context in which all knowledge fits and is illuminated, a mandala, the music of the spheres, *kosmos*.

I seek enlightenment, not spiritual but rational. I must go still further to reach it, but this time the goal will not be perpetually retreating from my fingertips. With my mind's language, the distance

between myself and enlightenment is precisely calculable. I've sighted my final destination.

Now I must plan my next actions. First, there are the simple enhancements to self-preservation, starting with martial arts training. I will watch some tournaments to study possible attacks, though I will take only defensive action; I can move rapidly enough to avoid contact with even the fastest striking techniques. This will let me protect myself and disarm any street criminals, should I be assaulted. Meanwhile, I must eat copious amounts of food to meet my brain's nourishment requirements, even given increased efficiency in my metabolism. I shall also shave my scalp, to allow greater radiative cooling for the heightened blood flow to my head.

Then there is the primary goal: decoding those patterns. For further improvements to my mind, artificial enhancements are the only possibility. A direct computer-mind link, permitting mind downloading, is what I need, but I must create a new technology to implement it. Anything based on digital computation will be inadequate; what I have in mind requires nanoscale structures based on neural networks.

Once I have the basic ideas laid out, I set my mind to multiprocessing: one section of my mind deriving a branch of mathematics that reflects the networks' behavior; another developing a process for replicating the formation of neural pathways on a molecular scale in a self-repairing bioceramic medium; a third devising tactics for guiding private industrial R & D to produce what I'll need. I cannot waste time: I will introduce explosive theoretical and technical breakthroughs so that my new industry will hit the ground running.

I've gone into the outside world to reobserve society. The sign language of emotion I once knew has been replaced by a matrix of interrelated equations. Lines of force twist and elongate between people,

objects, institutions, ideas. The individuals are tragically like marionettes, independently animate but bound by a web they choose not to see; they could resist if they wished, but so few of them do.

At the moment I'm sitting at a bar. Three stools to my right sits a man, familiar with this type of establishment, who looks around and notices a couple in a dark corner booth. He smiles, motions for the bartender to come over, and leans forward to speak confidentially about the couple. I don't need to listen to know what he's saying.

He's lying to the bartender, easily, extemporaneously. A compulsive liar, not out of a desire for a life more exciting than his own, but to revel in his facility for deceiving others. He knows the bartender is detached, merely affecting interest—which is true—but he knows the bartender is still fooled—which is also true.

My sensitivity to the body language of others has increased to the point that I can make these observations without sight or sound: I can smell the pheromones exuded by his skin. To an extent, my muscles can even detect the tension within his, perhaps by their electric field. These channels can't convey precise information, but the impressions I receive provide ample basis for extrapolation; they add texture to the web.

Normal humans may detect these emanations subliminally. I'll work on becoming more attuned to them; then perhaps I can try consciously controlling my own expressions.

I've developed abilities reminiscent of the mind-control schemes offered by tabloid advertisements. My control over my somatic emanations now lets me provoke precise reactions in others. With pheromones and muscle tension, I can cause another person to respond with anger, fear, sympathy, or sexual arousal. Certainly enough to win friends and influence people.

I can even induce a self-sustaining reaction in others. By associating a particular response with a sense of satisfaction, I can create a positive reinforcement loop, like biofeedback; the person's body will

strengthen the reaction on its own. I'll use this on corporate presidents to create support for the industries I'll need.

I can no longer dream in any normal sense. I lack anything that would qualify as a subconscious, and I control all the maintenance functions performed by my brain, so normal REM sleep tasks are obsolete. There are moments when my grasp on my mind slips, but they cannot be called dreams. Meta-hallucinations, perhaps. Sheer torture. These are periods during which I'm detached: I understand how my mind generates the strange visions, but I'm paralyzed and unable to respond. I can scarcely identify what I see; images of bizarre transfinite self-references and modifications that even I find nonsensical.

My mind is taxing the resources of my brain. A biological structure of this size and complexity can just barely sustain a self-knowing psyche. But the self-knowing psyche is also self-regulating, to an extent. I give my mind full use of what's available, and restrain it from expanding beyond that. But it's difficult: I'm cramped inside a bamboo cage that doesn't let me sit down or stand up. If I try to relax or try to extend myself fully, then agony, madness.

I'm hallucinating. I see my mind imagining possible configurations it could assume, and then collapsing. I witness my own delusions, my visions of what form my mind might take when I grasp the ultimate gestalts.

Will I achieve ultimate self-awareness? Could I discover the components that make up my own mental gestalts? Would I penetrate racial memory? Would I find innate knowledge of morality? I might determine whether mind could be spontaneously generated from matter, and understand what relates consciousness with the rest of the universe. I might see how to merge subject and object: the zero experience.

Or perhaps I'd find that the mind gestalt cannot be generated, and some sort of intervention is required. Perhaps I would see the

soul, the ingredient of consciousness that surpasses physicality. Proof of God? I would behold the meaning, the true character of existence.

I would be enlightened. It must be euphoric to experience . . .

My mind collapses back into a state of sanity. I must keep a tighter rein over my self. When I'm in control at the metaprogramming level, my mind is perfectly self-repairing; I could restore myself from states that resemble delusion or amnesia. But if I drift too far on the metaprogramming level, my mind might become an unstable structure, and then I would slide into a state beyond mere insanity. I will program my mind to forbid itself from moving beyond its own reprogramming range.

These hallucinations strengthen my resolve to create an artificial brain. Only with such a structure will I be able to actually perceive those gestalts, instead of merely dreaming about them. To achieve enlightenment, I'll need to exceed another critical mass in terms of neuronal analogs.

I open my eyes: it's two hours, twenty-eight minutes, and ten seconds since I closed my eyes to rest, though not to sleep. I rise from bed.

I request a listing of my stocks' performance on my terminal. I look down the flatscreen, and freeze.

The screen shouts at me. It tells me that there is another person with an enhanced mind.

Five of my investments have demonstrated losses; they're not precipitous, but large enough that I'd have detected them in the body language of the stockbrokers. Reading down the alphabetical list, the initial letters of the corporations whose stock values have dropped are: C, E, G, O, and R. Which, when rearranged, spell GRECO.

Someone is sending me a message.

There's someone else out there like me. There must have been another comatose patient who received a third injection of hormone K. He erased his file from the FDA database before I accessed it, and supplied false input to his doctors' accounts so that they wouldn't

notice. He too stole another ampule of the hormone, contributing to the FDA's closing of their files, and with his whereabouts unknown to the authorities, he's reached my level.

He must have recognized me through the investment patterns of my false identities; he'd have to have been supercritical to do that. As an enhanced individual, he could have effected sudden and precise changes to trigger my losses, and attract my attention.

I check various data services for stock quotes; the entries on my listing are correct, so my counterpart didn't simply edit the values for my account alone. He altered the selling patterns of the stock of five unrelated corporations, for the sake of a word. It makes for quite a demonstration; I consider it no mean feat.

Presumably his treatment began before mine did, meaning that he is farther along than I, but by how much? I begin extrapolating his likely progress, and will incorporate new information as I acquire it.

The critical question: is he friend or foe? Was this merely a good-natured demonstration of his power, or an indication of his intent to ruin me? The amounts I lost were moderate; does this indicate concern for me, or for the corporations which he had to manipulate? Given all the harmless ways he could have attracted my attention, I must assume that he is to some degree hostile.

In which case, I am at risk, vulnerable to anything from another prank to a fatal attack. As a precaution, I will leave immediately. Obviously, if he were actively hostile, I'd be dead already. His sending a message means that he wishes us to play games. I'll have to place myself on equal terms with him: hide my location, determine his identity, and then attempt to communicate.

I pick a city at random: Memphis. I switch off the flatscreen, get dressed, pack a travel bag, and collect all the emergency cash in the apartment.

In a Memphis hotel, I begin working at the suite's datanet terminal. The first thing I do is reroute my activities through several dummy

terminals; to an ordinary police trace, my queries will appear to originate from different terminals all over the state of Utah. A military intelligence facility might be able to track them to a terminal in Houston; continuing the trace to Memphis would try even me. An alarm program at the Houston terminal will alert me if someone has successfully traced me there.

How many clues to his identity has my twin erased? Lacking all FDA files, I'll begin with the files of courier services in various cities, looking for deliveries from the FDA to hospitals during the time of the hormone K study. Then a check of the hospital's brain-damage cases at that time, and I'll have a place to start.

Even if any of this information remains, it's of minor value. What will be crucial is an examination of the investment patterns, to find the traces of an enhanced mind. This will take time.

His name is Reynolds. He's originally from Phoenix, and his early progress closely parallels mine. He received his third injection six months and four days ago, giving him a head start over me of fifteen days. He didn't erase any of the obvious records. He waits for me to find him. I estimate that he's been supercritical for twelve days, twice as long as I've been.

I now see his hand in the investment patterns, but the task of locating Reynolds is Herculean. I examine usage logs across the datanet to identify the accounts he's penetrated. I have twelve lines open on my terminal. I'm using two single-hand keyboards and a throat mike, so I can work on three queries simultaneously. Most of my body is immobile; to prevent fatigue, I'm ensuring proper blood flow, regular muscle contraction and relaxation, and removal of lactic acid. While I absorb all the data I see, studying the melody within the notes, looking for the epicenter of a tremor in the web.

Hours pass. We both scan gigabytes of data, circling each other.

His location is Philadelphia. He waits for me to arrive.

I'm riding in a mud-splattered taxi to Reynolds's apartment.

Judging by the databases and agencies Reynolds has queried over the past months, his private research involves bioengineered microorganisms for toxic waste disposal, inertial containment for practical fusion, and subliminal dissemination of information through societies of various structures. He plans to save the world, to protect it from itself. And his opinion of me is therefore unfavorable.

I've shown no interest in the affairs of the external world, and made no investigations for aiding the normals. Neither of us will be able to convert the other. I view the world as incidental to my aims, while he cannot allow someone with enhanced intelligence to work purely in self-interest. My plans for mind-computer links will have enormous repercussions for the world, provoking government or popular reactions that would interfere with his plans. As I am proverbially not part of the solution, I am part of the problem.

If we were members of a society of enhanced minds, the nature of human interaction would be of a different order. But in this society, we have unavoidably become juggernauts, by whose measure the actions of normals are inconsequential. Even if we were twelve thousand miles apart we couldn't ignore each other. A resolution is necessary.

Both of us have dispensed with several rounds of games. There are a thousand ways we could have attempted to kill the other, from painting neurotoxin-laced DMSO on a doorknob to ordering a surgical strike from a military killsat. We both could have swept the physical area and datanet for each of the myriad possibilities beforehand, and set more traps for each other's sweeps. But neither of us has done any of that, has felt a need to check for those things. A simple infinite regression of second-guessing and double-thinking has dismissed those. What will be decisive are those preparations that we could not predict.

The taxi stops; I pay the driver and walk up to the apartment building. The electric lock on the door opens for me. I take off my coat and climb four flights.

The door to Reynolds's apartment is also open. I walk down the entryway to the living room, hearing a hyperaccelerated polyphony from a digital synthesizer. Evidently it's his own work; the sounds are modulated in ways undetectable to normal hearing, and even I can't discern any pattern to them. An experiment in high-information-density music, perhaps.

There is a large swivel chair in the room, its back turned toward me. Reynolds is not visible, and he is restricting his somatic emanations to comatose levels. I imply my presence and my recognition of his identity.

<Reynolds.>

Acknowledgment. <Greco.>

The chair turns around smoothly, slowly. He smiles at me and shuts off the synthesizer at his side. Gratification. <A pleasure to meet you.>

To communicate, we are exchanging fragments from the somatic language of the normals: a shorthand version of the vernacular. Each phrase takes a tenth of a second. I give a suggestion of regret. <A shame it must be as enemies.>

Wistful agreement, then supposition. <Indeed. Imagine how we could change the world, acting in concert. Two enhanced minds; such an opportunity missed.>

True, acting cooperatively would produce achievements far outstripping any we might attain individually. Any interaction would be incredibly fruitful: how satisfying it would be simply to have a discussion with someone who can match my speed, who can offer an idea that is new to me, who can hear the same melodies I do. He desires the same. It pains us both to think that one of us will not leave this room alive.

An offer. <Do you wish to share what we've learned in the past six months?>

He knows what my answer is.

We will speak aloud, since somatic language has no technical vocabulary. Reynolds says, quickly and quietly, five words. They are more pregnant with meaning than any stanza of poetry: each word provides a logical toehold I can mount after extracting everything implicit in the preceding ones. Together they encapsulate a revolutionary insight into sociology; using somatic language he indicates that it was among the first he ever achieved. I came to a similar realization, but formulated it differently. I immediately counter with seven words, four that summarize the distinctions between my insight and his, and three that describe a nonobvious result of the distinctions. He responds.

We continue. We are like two bards, each cueing the other to extemporize another stanza, jointly composing an epic poem of knowledge. Within moments we accelerate, talking over each other's words but hearing every nuance, until we are absorbing, concluding, and responding, continuously, simultaneously, synergistically.

Many minutes pass. I learn much from him, and he from me. It's exhilarating, to be suddenly awash in ideas whose implications would take me days to consider fully. But we're also gathering strategic information: I infer the extent of his unspoken knowledge, compare it with my own, and simulate his corresponding inferences. For there is always the awareness that this must come to an end; the formulation of our exchanges renders ideological differences luminously clear.

Reynolds hasn't witnessed the beauty that I have; he's stood before lovely insights, oblivious to them. The sole gestalt that inspires him is the one I ignored: that of the planetary society, of the biosphere. I am a lover of beauty, he of humanity. Each feels that the other has ignored great opportunities.

He has an unmentioned plan for establishing a global network of influence, to create world prosperity. To execute it, he'll employ a number of people, some of whom he'll give simple heightened

intelligence, some meta-self-awareness; a few of them will pose threats to him. <Why assume such a risk for the sake of the normals?>

<Your indifference toward the normals would be justified if you were enlightened; your realm wouldn't intersect theirs. But as long as you and I can still comprehend their affairs, we can't ignore them.>

I can measure the distance between our respective moral stances precisely, see the stress between their incompatible radiating lines. What motivates him is not simply compassion or altruism, but something that entails both those things. On the other hand, I concentrate only on understanding the sublime. <What about the beauty visible from enlightenment? Doesn't it attract you?>

<You know what kind of structure would be required to hold an enlightened consciousness. I have no reason to wait the time it would take to establish the necessary industries.>

He considers intelligence to be a means, while I view it as an end in itself. Greater intelligence would be of little use to him. At his present level, he can find the best possible solution to any problem within the realm of human experience, and many beyond. All he'd require is sufficient time to implement his solution.

There's no point in further discussion. By mutual assent, we begin.

It's meaningless to speak of an element of surprise when we time our attacks; our awareness can't become more acute with forewarning. It's not affording a courtesy to each other when we agree to begin our battle, it's actualizing the inevitable.

In the models of each other that we've constructed from our inferences, there are gaps, lacunae: the internal psychological developments and discoveries that each has made. No echoes have radiated from those spaces, no strands have tied them to the world web, until now.

I begin.

I concentrate on initiating two reinforcing loops in him. One is very simple: it increases blood pressure rapidly and enormously. If it were to continue unchecked for over a second, this loop would raise

his blood pressure to stroke levels—perhaps 400 over 300—and burst capillaries in his brain.

Reynolds detects it immediately. Though it's clear from our conversation that he never investigated the inducement of biofeedback loops in others, he recognizes what is happening. Once he does, he reduces his heart rate and dilates the blood vessels throughout his body.

But it is the other, subtler reinforcing loop that is my real attack. This is a weapon I've been developing ever since my search for Reynolds began. This loop causes his neurons to dramatically overproduce neurotransmitter antagonists, preventing impulses from crossing his synapses, shutting down brain activity. I've been radiating this loop at a much higher intensity than the other.

As Reynolds is parrying the ostensible attack, he experiences a slight weakening of his concentration, masked by the effects of the heightened blood pressure. A second later, his body begins to amplify the effect on its own. Reynolds is shocked to feel his thoughts blurring. He searches for the precise mechanism: he'll identify it soon, but he won't be able to scrutinize it for long.

Once his brain function has been reduced to the level of a normal, I should be able to manipulate his mind easily. Hypnotic techniques can make him regurgitate most of the information his enhanced mind possesses.

I inspect his somatic expressions, watching them betray his diminishing intelligence. The regression is unmistakable.

And then it stops.

Reynolds is in equilibrium. I'm stunned. He was able to break the reinforcing loop. He has stopped the most sophisticated offensive I could mount.

Next, he reverses the damage already done. Even starting with reduced capabilities, he can correct the balance of neurotransmitters. Within seconds, Reynolds is fully restored.

I too was transparent to him. During our conversation he deduced that I had investigated reinforcing loops, and as we

communicated, he derived a general preventative without my detecting it. Then he observed the specifics of my particular attack while it was working, and learned how to reverse its effects. I am astonished at his discernment, his speed, his stealth.

He acknowledges my skill. <A very interesting technique; appropriate, given your self-absorption. I saw no indication when—> Abruptly he projects a different somatic signature, one that I recognize. He used it when he walked behind me at a grocery store, three days ago. The aisle was crowded; around me were an old woman, wheezing behind her air filter, and a thin teenager on an acid trip, wearing a liquid crystal shirt of shifting psychedelic patterns. Reynolds slipped behind me, his mind on the porn mag stands. His surveillance didn't inform him of my reinforcing loops, but it did permit a more detailed picture of my mind.

A possibility I anticipated. I reformulate my psyche, incorporating random elements for unpredictability. The equations of my mind now bear little resemblance to those of my normal consciousness, undermining any assumptions Reynolds may have made, and rendering ineffectual any psyche-specific weapons of his.

I project the equivalent of a smile.

Reynolds smiles back. <Have you ever considered—> Suddenly he projects only silence. He is about to speak, but I can't predict what. Then it comes, as a whisper: "self-destruct commands, Greco?"

As he says it, a lacuna in my reconstruction of him fills and overflows, the implications coloring all that I know about him. He means the Word: the sentence that, when uttered, would destroy the mind of the listener. Reynolds is claiming that the myth is true, that every mind has such a trigger built in; that for every person, there is a sentence that can reduce him to an idiot, a lunatic, a catatonic. And he is claiming he knows the one for me.

I immediately tune out all sensory input, directing it to an insulated buffer of short-term memory. Then I conceive a simulator of my own consciousness to receive the input and absorb it at reduced speed. As a metaprogrammer I will monitor the equations

of the simulation indirectly. Only after the sensory information has been confirmed as safe will I actually receive it. If the simulator is destroyed, my consciousness should be isolated, and I'll retrace the individual steps leading to the crash and derive guidelines for reprogramming my psyche.

I get everything in place by the time Reynolds has finished saying my name; his next sentence could be the destruct command. I'm now receiving my sensory input with a one-hundred-and-twenty-millisecond time lag. I reexamine my analysis of the human mind, explicitly searching for evidence to verify his assertion.

Meanwhile I give my response lightly, casually. <Hit me with your best shot.>

<Don't worry; it's not on the tip of my tongue.>

My search produces something. I curse myself: there's a very subtle back door to a psyche's design, which I lacked the necessary mind-set to notice. Whereas my weapon was one born of introspection, his is something only a manipulator could originate.

Reynolds knows that I've built my defenses; is his trigger command designed to circumvent them? I continue deriving the nature of the trigger command's actions.

<What are you waiting for?> He's confident that additional time won't allow me to construct a defense.

<Try to guess.> So smug. Can he actually toy with me so easily?

I arrive at a theoretical description of a trigger's effects on normals. A single command can reduce any subcritical mind to a tabula rasa, but an undetermined degree of customization is needed for enhanced minds. The erasure has distinctive symptoms, which my simulator can alert me to, but those are symptoms of a process calculable by me. By definition the destruct command is that specific equation beyond my ability to imagine; would my metaprogrammer collapse while diagnosing the simulator's condition?

<Have you used the destruct command on normals?> I begin calculating what's needed to generate a customized destruct command.

<Once, as an experiment on a drug dealer. Afterward I concealed the evidence with a blow to the temple.>

It becomes obvious that the generation is a colossal task. Generating a trigger requires intimate knowledge of my mind; I extrapolate what he could have learned about me. It appears to be insufficient, given my reprogramming, but he may have techniques of observation unknown to me. I'm acutely aware of the advantage he's gained by studying the outside world.

<You will have to do this many times.>

His regret is evident. His plan can't be implemented without more deaths: those of normal humans, by strategic necessity, and those of a few enhanced assistants of his, whose temptation by greater heights would interfere. After using the command, Reynolds may reprogram them—or me—as savants, having focused intentions and restricted self-metaprogrammers. Such deaths are a necessary cost of his plan.

<I make no claims of being a saint.>

Merely a savior.

Normals might think him a tyrant, because they mistake him for one of them, and they've never trusted their own judgment. They can't fathom that Reynolds is equal to the task. His judgment is optimal in questions of their affairs, and their notions of greed and ambition do not apply to an enhanced mind.

In a histrionic gesture, Reynolds raises his hand, forefinger extended, as if to make a point. I don't have sufficient information to generate his destruct command, so for the moment I can only attend to defense. If I can survive his attack, I may have time to launch another one of my own.

With his finger upraised, he says, "Understand."

At first I don't. And then, horrifyingly, I do.

He didn't design the command to be spoken; it's not a sensory trigger at all. It's a memory trigger: the command is made out of a string of perceptions, individually harmless, that he planted in my brain like time bombs. The mental structures that were formed as a

result of those memories are now resolving into a pattern, forming a gestalt that defines my dissolution. I'm intuiting the Word myself.

Immediately my mind is working faster than ever before. Against my will, a lethal realization is suggesting itself to me. I'm trying to halt the associations, but these memories can't be suppressed. The process occurs inexorably, as a consequence of my awareness, and like a man falling from a height, I'm forced to watch.

Milliseconds pass. My death passes before my eyes.

An image of the grocery store when Reynolds passed by. The psychedelic shirt the boy was wearing; Reynolds had programmed the display to implant a suggestion within me, ensuring that my "randomly" reprogrammed psyche remained receptive. Even then.

No time. All I can do is metaprogram myself over randomly, at a furious pace. An act of desperation, possibly crippling.

The strange modulated sounds that I heard when I first entered Reynolds's apartment. I absorbed the fatal insights before I had any defenses raised.

I tear apart my psyche, but still the conclusion grows clearer, the resolution sharper.

Myself, constructing the simulator. Designing those defense structures gave me the perspective needed to recognize the gestalt.

I concede his greater ingenuity. It bodes well for his endeavor. Pragmatism avails a savior far more than aestheticism.

I wonder what he intends to do after he's saved the world.

I comprehend the Word, and the means by which it operates, and so I dissolve.

Division by Zero

1

Dividing a number by zero doesn't produce an infinitely large number as an answer. The reason is that division is defined as the inverse of multiplication; if you divide by zero, and then multiply by zero, you should regain the number you started with. However, multiplying infinity by zero produces only zero, not any other number. There is nothing which can be multiplied by zero to produce a nonzero result; therefore, the result of a division by zero is literally "undefined."

1A

Renee was looking out the window when Mrs. Rivas approached.

"Leaving after only a week? Hardly a real stay at all. Lord knows I won't be leaving for a long time."

Renee forced a polite smile. "I'm sure it won't be long for you." Mrs. Rivas was the manipulator in the ward; everyone knew that her attempts were merely gestures, but the aides wearily paid attention to her lest she succeed accidentally.

"Ha. They wish I'd leave. You know what kind of liability they face if you die while you're on status?"

"Yes, I know."