



Lee

# THE BLIND GEOMETER

by Kim Stanley Robinson

Mr. Robinson's most recent story in *Asim*—his hilarious novella, "Escape from Kathmandu" (September 1986)—was a Nebula award finalist.

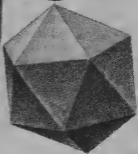
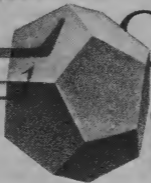
He returns to our pages with a gripping tale of suspense which we doubt you will soon forget.



art: Terry Lee

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When you are born blind, your development is different from that of sighted infants. (I was born blind, I know.) The reasons for this difference are fairly obvious. Much normal early infant development, both physical and mental, is linked to vision, which co-ordinates all sense and action. Without vision reality is . . . (it's hard to describe) a sort of void, in which transitory things come to existence when grasped and mouthed and heard—then when the things fall silent or are dropped, they melt away, they *cease to exist*. (I wonder if I have not kept a bit of that feeling with me always.) It can be shown that this sense of *object permanence* must be learned by sighted infants as well—move a toy behind a screen and very young babies will assume the toy has ceased to exist—but vision (seeing part of a toy [or a person] behind the screen, etc.) makes their construction of a sense of object permanence fairly rapid and easy. With the blind child it is a much harder task, it takes months, sometimes years. And with no sense of an object world, there can be no complementary concept of *self*; without this concept, all phenomena can be experienced as part of an extended “body.” (Haptic space [or tactile space, the space of the body] expanding to fill visual space . . .) Every blind infant is in danger of autism.

“But we also have, and know that we have, the capacity of complete freedom to transform, in thought and phantasy, our human historical existence. . . .”

Edmund Husserl, *The Origin of Geometry*

My first memories are of the Christmas morning when I was some three-and-a-half years old, when one of my gifts was a bag of marbles. I was fascinated by the way the handfuls of marbles felt in my hands: heavy glassy spheres, all so smooth and clickety, all so much the same . . . I was equally impressed by the leather bag that had contained them. It was so pliable, had such a baggy shape, could be drawn up by such a leathery draw string. (I must tell you, from the viewpoint of tactual aesthetics, there is nothing quite so beautiful as well-oiled leather. My favorite toy was my father's boot). Anyway, I was rolling on my belly over the marbles spread on the floor (more contact) when I came against the Christmas tree, all prickly and piney. Reaching up to break off some needles to rub between my fingers, I touched an ornament that felt to me, in my excitement, like a lost marble. I yanked on it (and on the branch, no doubt) and—down came the tree.

The alarm afterward is only a blur in my memory, as if it all were on tape, and parts of it forever fast-forwarded to squeaks and trills. Little unspliced snippets of tape: my memory. (My story.)

\* \* \*

How often have I searched for snippets before that one, from the long years of my coming to consciousness? How did I first discover the world beyond my body, beyond my searching hands? It was one of my greatest intellectual feats—perhaps the greatest—and yet it is lost to me.

So I read, and learn how other blind infants have accomplished the task. My own life, known to me through words—the world become a text—this happens to me all the time. It is what T.D. Cutsforth called entering the world of "verbal unreality," and it is part of the fate of the curious blind person.

I never did like Jeremy Blasingame. He was a colleague for a few years, and his office was six doors down from mine. It seemed to me that he was one of those people who are fundamentally uncomfortable around the blind; and it's always the blind person's job to put these people at their ease, which gets to be a pain in the ass. (In fact, I usually ignore the problem.) Jeremy always watched me closely (you can tell this by voice), and it was clear that he found it hard to believe that I was one of the co-editors of *Topological Geometry*, a journal he submitted to occasionally. But he was a good mathematician, and a fair topologist, and we published most of his submissions, so that he and I remained superficially friendly.

Still, he was always probing, always picking my brains. At this time I was working hard on the geometry of  $n$ -dimensional manifolds, and some of the latest results from CERN and SLAC and the big new cyclotron on Oahu were fitting into the work in an interesting way: it appeared that certain sub-atomic particles were moving as if in a multi-dimensional manifold, and I had Sullivan and Wu and some of the other physicists from these places asking me questions. With them I was happy to talk, but with Jeremy I couldn't see the point. Certain speculations I once made in conversation with him later showed up in one of his papers, and it just seemed to me that he was looking for help without actually saying so.

And there was the matter of his image. In the sun I perceived him as a shifting, flecked brightness. It's unusual I can see people at all, and as I couldn't really account for this (was it vision, or something else?) it made me uncomfortable.

But no doubt in retrospect I have somewhat exaggerated this uneasiness.

The first event of my life that I recall that has any emotion attached to it (the earlier ones being mere snips of tape that could have come from anyone's life, given how much feeling is associated with them) comes from my eighth year, and has to do, emblematically enough, with math.

I was adding columns with my Braille punch, and excited at my new power, I took the bumpy sheet of figures to show my father. He puzzled over it for a while. "Hmm," he said. "Here, you have to make very sure that the columns are in straight vertical rows." His long fingers guided mine down a column. "Twenty-two is off to the left, feel that? You have to keep them all straight."

Impatiently I pulled my hand away, and the flood of frustration began its tidal wash through me (most familiar of sensations, felt scores of times a day); my voice tightened to a high whine: "But *why*? It doesn't *matter*—"

"Yeah it does." My father wasn't one for unnecessary neatness, as I already knew well from tripping over his misplaced briefcase, ice skates, shoes. . . . "Let's see." He had my fingers again. "You know how numbers work. Here's twenty-two. Now what that means, is two twos, and two tens. This two marks the twenty, this two marks the two, even though they're both just two characters, right? Well, when you're adding, the column to the far right is the column of ones. Next over is the column of tens, and next over is the columns of hundreds. Here you've got three hundreds, right? Now if you have the twenty-two over to the left too far, you'll add the twenty in the hundreds column, as if the number were two hundred twenty rather than twenty-two. And that'll be wrong. So you have to keep the columns really straight—"

Understanding, ringing me as if I were a big old church bell, and it the clapper. It's the first time I remember feeling that sensation that has remained one of the enduring joys of my life: *to understand*.

And understanding mathematical concepts quickly led to power (and how I craved that!), power not only in the abstract world of math, but in the real world of father and school. I remember jumping up and down, my dad laughing cheerily, me dashing to my room to stamp out columns as straight as the ruler's edge, to add column after column of figures.

Oh yes: Carlos Oleg Nevsky, here. Mother Mexican, father Russian (military advisor). Born in Mexico City in 2018, three months premature, after my mother suffered a bout of German measles during the pregnancy. Result: almost total blindness (I can tell dark from [bright] light.) Lived in Mexico City until father was transferred to Soviet embassy in Washington, DC, when I was five. Lived in Washington almost continuously since then; my parents divorced when I was fifteen. Mathematics professor at George Washington University since 2043.

One cold spring afternoon I encountered Jeremy Blasingame in the faculty lounge as I went to get a coffee refill—in the lounge, where nobody ever hangs out. "Hello, Carlos, how's it going?"

"Fine," I said, reaching about the table for the sugar. "And you?"

"Pretty good. I've got a kind of an interesting problem over at my consulting job, though. It's giving me fits."

Jeremy worked for the Pentagon in military intelligence or something, but he seldom talked about what he did there, and I certainly never asked. "Oh yes?" I said as I found the sugar and spooned some in.

"Yes. They've got a coding problem that I bet would interest you."

"I'm not much for cryptography." Spy games—the math involved is really very limited. Sweet smell of sugar, dissolving in the lounge's bad coffee.

"Yes, I know," Jeremy said. "But—" An edge of frustration in his voice; it's hard to tell when I'm paying attention, I know. (A form of control.) "But this may be a geometer's code. We have a subject, you see, drawing diagrams."

A *subject*. "Hmph," I said. Some poor spy scribbling away in a cell somewhere. . . .

"So—I've got one of the drawings here. It reminds me of the theorem in your last article. Some projection, perhaps."

"Yes?" Now what spy would draw something like that?

"Yeah, and it seems to have something to do with her speech, too. Her verbal sequencing is all dislocated—words in strange order, sometimes."

"Yes? What happened to her?"

"Well. . . . Here, check out the drawing."

I put out a hand. "I'll take a look."

"And next time you want coffee, come ask me. I do a proper job of it in my office."

"All right."

I suppose I have wondered all my life what it would be like to see. And all my work, no doubt, is an effort to envision things in the inward theater. "I see it *feelingly*." In language, in music, most of all in the laws of geometry, I find the best ways I can to see: by analogy to touch, and to sound, and to abstractions. Understand: to know the geometries fully is to comprehend exactly the physical world that light reveals; in a way one is then perceiving something like the Platonic ideal forms underlying the visible phenomena of the world. Sometimes the great ringing of comprehension fills me so entirely that I feel I *must* be seeing; what more could it be? I believe that I see.

Then comes the problem of crossing the street, of finding my misplaced keys. Geometry is little help; it's back to the hands and ears as eyes, at that point. And then I know that I do not see at all.

Let me put it another way. Projective geometry began in the Renais-

sance, as an aid to painters newly interested in perspective, in the problems of representing the three dimensional world on a canvas; it quickly became a mathematics of great power and elegance. The basic procedure can be described quickly: when a geometrical figure is *projected* from one plane to another (as light, they tell me, projects the image on a slide onto a wall), certain properties of the figure are changed (lengths of sides, measures of angles), while other properties are not: points are still points, lines lines, and certain proportions still hold, among other things.

Now imagine that the visual world is a geometrical figure, which in a way it is. But then imagine that it has been projected inward onto something different, not onto a plane, but onto a Moebius strip or a Klein bottle say, or really, onto a manifold much more complex and strange than those (you'd be surprised). Certain features of the figure are gone for good (color, for instance), but other essential features remain. And projective geometry is the art of finding what features or qualities survive the transformations of projection. . . .

Do you understand me?

A geometry for the self—non-Euclidean, of course; in fact, strictly Nevskyan, as it has to be to help me, as I make my projections from visual space to auditive space, to haptic space.

The next time I met Blasingame he was anxious to hear what I thought of his diagram. (There could be an acoustics of emotion—thus a mathematics of emotion; meanwhile the ears of the blind do these calculations every day.)

"One drawing isn't much to go on, Jeremy. I mean, you're right, it looks like a simple projective drawing, but with some odd lines crossing it. Who knows what they mean? The whole thing might be something scribbled by a kid."

"She's not that young. Want to see more?"

"Well. . ." This woman he kept mentioning, some sort of Mata Hari prisoner in the Pentagon, drawing geometrical figures and refusing to speak except in riddles . . . naturally I was intrigued.

"Here, take these anyway. There seems to be a sort of progression."

"It would help if I could talk to this *subject* who's doing all these."

"Actually, I don't think so—but" (seeing my irritation) "I can bring her by, I think, if these interest you."

"I'll check them out."

"Good, good." Peculiar edge of excitement in his voice, tension, anticipation of . . . frowning, I took the papers from him.

That afternoon I shuffled them into my special Xerox machine, and the stiff reproductions rolled out of it heavily ridged. I ran my hands over the raised lines and letters slowly.

Here I must confess to you that most geometrical drawings are almost useless to me. If you consider it you will quickly see why: most drawings are two-dimensional representations of what a three-dimensional construction *looks* like. This does me no good, and in fact is extremely confusing. Say I feel a trapezoid on the page; is that meant to be a trapezoid, or is it rather a representation of a rectangle not coterminous with the page it lies on? Or the conventional representation of a plane? Only a *description* of the drawing will tell me that. Without a description I can only deduce what the figure *appears* to mean. Much easier to have 3-D models to explore with my hands.

But in this case, not possible. So I swept over the mish-mash of ridges with both hands, redrew it with my ridging pen several times over, located the two triangles in it, and the lines connecting the two triangles' corners, and the lines made by extending the triangles' sides in one direction. I tried to make from my Taylor collection a 3-D model that accounted for the drawing—try that sometime! and understand how difficult this kind of intellectual feat can be. Projective imagination. . . .

Certainly it seemed to be a rough sketch of Desargues' Theorem.

Desargues' Theorem was one of the first theorems clearly concerned with projective geometry; it was proposed by Girard Desargues in the mid-seventeenth century, in between his architectural and engineering efforts, his books on music, etc. It is a relatively simple theorem, showing that two triangles that are projections of each other generate a group of points off to one side that lie on a single line. Its chief interest is in showing the kind of elegant connections that projection so often creates.

(It is also true that this theorem is reciprocal, that is, if you postulate two triangles whose extensions of the sides meet at three collinear points, then it is possible to show that the triangles are projections of each other. As they say in the textbooks, I leave the proof of this as an exercise for the reader.)

But so what? I mean, it is a beautiful theorem, with the sort of purity characteristic of Renaissance math—but what was it doing in a drawing made by some poor prisoner of the Pentagon?

I considered this as I walked to my health club, Warren's Spa (considered it secondarily, anyway, and no doubt subconsciously; my primary concerns were the streets and the traffic. Washington's streets bear a certain resemblance to one of those confusing geometrical diagrams I described [the state streets crossing diagonally the regular gridwork, creating a variety of intersections]; happily one doesn't have to comprehend all the city at once to walk in it. But it is easy to become lost. So as I walked I concentrated on distances, on the sounds of the streets that



tended to remain constant, on smells [the dirt of the park at M and New Hampshire, the hot dog vendor on 21st and K]; meanwhile my cane established the world directly before my feet, my sonar shades whistled rising or falling notes as objects approached or receded. . . . It takes some work just to get from point A to point B without getting disoriented [at which point one has to grind one's teeth and ask for directions] but it can be done, it is one of those small tasks/accomplishments [one chooses which, every time] that the blind cannot escape)—still, I did consider the matter of the drawing as I walked.

On 21st and H I was pleased to smell the pretzel cart of my friend Ramon, who is also blind. His cart is the only one where the hot plate hasn't roasted several pretzels to that metallic burnt odor that all the other carts put off; Ramon prefers the clean smell of freshly baked dough, and he claims it brings him more customers, which I certainly believe. "Change only please," he was saying to someone briskly, "there's a change machine on the other side of the cart for your convenience, thanks. Hot pretzels! Hot pretzels, one dollar!"

"Hey there, Superblink!" I called as I approached him.

"Hey yourself, Professor Superblink," he replied. (*Superblink* is a mildly derogatory name used by irritated sighted social service people to describe those of their blind colleagues who are aggressively or ostentatiously competent in getting around, etc., who make a *display* of their competence. Naturally we have appropriated the term for our own use; sometimes it means the same thing for us—when used in the third person, usually—but in the second person it's a term of affection.) "Want a pretzel?"

"Sure."

"You off to the gym?"

"Yeah, I'm going to throw. Next time we play you're in trouble."

"That'll be the day, when my main mark starts beating me!"

I put four quarters in his calloused hand and he gave me a pretzel. "Here's a puzzle for you," I said. "Why would someone try to convey a message by geometrical diagram?"

He laughed. "Don't ask me, that's your department!"

"But the message isn't for me."

"Are you sure about that?"

I frowned.

At the health club I greeted Warren and Amanda at the front desk. They were laughing over a headline in the tabloid newspaper Amanda was shaking; they devoured those things, and pasted the best headlines all over the gym.

"What's the gem of the day?" I asked.

"How about 'Gay Bigfoot Molests Young Boys?'" Warren suggested.

"Or 'Woman Found Guilty of Turning Husband into Bank President,'" Amanda said, giggling. "She drugged him and did 'bemod' to him until he went from teller to president."

Warren said, "I'll have to do that for you, eh Amanda?"

"Make me something better than a bank president."

Warren clicked his tongue. "Entirely too many designer drugs, these days. Come on, Carlos, I'll get the range turned on." I went to the locker room and changed, and when I got to the target room Warren was just done setting it up. "Ready to go," he said cheerily as he rolled past me.

I stepped in, closed the door, and walked out to the center of the room, where a waist-high wire column was filled with baseballs. I pulled out a baseball, hefted it, felt the stitching. A baseball is a beautiful object: nicely flared curves of the seams, over the surface of a perfect sphere, exactly the right weight for throwing.

I turned on the range with a flick of a switch, and stepped away from the feeder, a ball in each hand. Now it was quite silent, only the slightest whirr faintly breathing through the soundproofed walls. I did what I could to reduce the sound of my own breathing, heard my heartbeat in my ears.

Then a *beep* behind me to my left, and low; I whirled and threw. Dull thud. "Right . . . low," said the machine voice from above, softly. *Beep* I threw again: "Right . . . high," it said louder, meaning I had missed by more. "Shit," I said as I got another two balls. "Bad start."

*Beep*—a hard throw to my left—*clang!* "Yeah!" There is very little in life more satisfying than the bell-like clanging of the target circle when hit square. It rings at about middle C with several overtones, like a small thick church bell hit with a hammer. The sound of success.

Seven more throws, four more hits. "Five for ten," the machine voice said. "Average strike time, one point three five seconds. Fastest strike time, point eight four seconds."

Ramon sometimes hit the target in half a second or less, but I needed to hear the full *beep* to keep my average up. I set up for another round, pushed the button, got quiet, *Beep* throw, *Beep* throw, working to shift my feet faster, to follow through, to use the information from my misses to correct for the next time the target was near the floor, or the ceiling, or behind me (my weakness is the low ones, I can't seem to throw down accurately.) And as I warmed up I threw harder and harder . . . just throwing a baseball as hard as you can is a joy in itself. And then to set that bell ringing! *Clang!* It chimes every cell of you.

But when I quit and took a shower, and stood before my locker and reached in to free my shirt from a snag on the top of the door, my fingers brushed a small metal wire stuck to an upper inside corner, where the

door would usually conceal it from both me and my sighted companions; it came away when I pulled on it. Fingering the short length I couldn't be certain what it was, but I had my suspicions, so I took it to my friend James Gold, who works in acoustics in the engineering department, and had him take a confidential look at it.

"It's a little remote microphone, all right," he said, and then joked: "Who's bugging you, Carlos?"

He got serious when I asked him where I could get a system like that for myself.

"John Metcalf—'Blind Jack of Knaresborough'—(1717-1810). At six he lost his sight through small-pox, at nine he could get on pretty well unaided, at fourteen he announced his intention of disregarding his affliction thenceforward and of behaving in every respect as a normal human being. It is true that immediately on this brave resolve he fell into a gravel pit and received a serious hurt while escaping, under pursuit, from an orchard he was robbing . . . fortunately this did not affect his self-reliance. At twenty he had made a reputation as a pugilist." (!)

Ernest Bramah, Introduction,  
*The Eyes of Max Carrados*

When I was young I loved to read Bramah's stories about Max Carrados, the blind detective. Carrados could hear, smell, and feel with incredible sensitivity, and his ingenious deductions were never short of brilliant; he was fearless in a pinch; also, he was rich, and had a mansion, and a secretary, man-servant and chauffeur who acted as his eyes. All great stuff for the imaginative young reader, as certainly I was. I read every book I could get my hands on; the voice of my reading machine was more familiar to me than any human voice that I knew. Between that reading and my mathematical work, I could have easily withdrawn from the world of my own experience into Cutsforth's "verbal unreality," and babbled on like Helen Keller about the shapes of clouds and the colors of flowers and the like. The world become nothing but a series of texts; sounds kind of like deconstructionism, doesn't it? And of course at an older age I was enamored of the deconstructionists of the last century. The world as text—Husserl's *The Origin of Geometry* is twenty-two pages long, Derrida's *Introduction to the Origin of Geometry* is a hundred and fifty-three pages long—you can see why it would have appealed to me. If, as the deconstructionists seemed to say, the world is nothing but a collection of texts, and I can read, then I am not missing anything by being blind, am I?

The young can be very stubborn, very stupid.

"All right, Jeremy," I said. "Let me meet this mysterious *subject* of yours who draws all this stuff."

"You want to?" he said, trying to conceal his excitement.

"Sure," I replied. "I'm not going to find out any more about all this until I do." My own subtext, yes; but I am better at hiding such things than Jeremy is.

"What have you found out? Do the diagrams mean anything to you?"

"Not much. You know me, Jeremy, drawings are my weakness. I'd rather have her do it in models, or writing, or verbally. You'll have to bring her by if you want me to continue."

"Well, okay. I'll see what I can do. She's not much help, though. You'll find out." But he was pleased.

One time in high school I was walking out of the gym after P.E., and I heard one of my coaches (one of the best teachers I have ever had) in his office, speaking to someone (he must have had his back to me)—he said, "You know, it's not the physical handicaps that will be the problem for most of these kids. It's the emotional problems that tend to come with the handicaps that will be the real burden."

I was in my office listening to my reading machine. Its flat, uninflected mechanical voice (almost unintelligible to some of my colleagues) had over the years become a sort of helpless, stupid friend. I called it George, and was always programming into it another pronunciation rule to try to aid its poor speech, but to no avail; George always found new ways to butcher the language. I put the book face down on the glass; "Finding first line," croaked George, as the scanner inside the machine thumped around. Then it read from Roberto Torretti, quoting and discussing Ernst Mach. (Hear this spoken in the most stilted, awkward, syllable by syllable mispronunciation that you can imagine.)

"Our notions of space are rooted in our *physiological* constitution" (George raises his voice in pitch to indicate italics, which also slow him down considerably). "Geometric concepts are the product of the idealization of *physical* experiences of space.' Physiological space is quite different from the infinite, isotropic, metric space of classical geometry and physics. It can, at most, be structured as a topological space. When viewed in this way, it naturally falls into several components: visual or optic space, tactile or haptic space, auditive space, etc. Optic space is anisotropic, finite, limited. Haptic space or 'the space of our skin corresponds to a two-dimensional, finite, unlimited (closed) Riemannian space.' This is nonsense, for R-spaces are metric while haptic space is not. I take it that Mach means to say that the latter can naturally be

regarded as a two-dimensional compact connected topological space. Mach does not emphasize enough the disconnectedness of haptic from optic space—"

There came four quick knocks at my door. I pressed the button on George that stopped him, and said "Come in!"

The door opened. "Carlos!"

"Jeremy," I said. "How are you."

"Fine. I've brought Mary Unser with me—you know—the one who drew—"

I stood, feeling/hearing the presence of the other in the room. And there are times (like this one) when you *know* the other is in some odd, undefinable way, *different*, or . . . (Our language is not made for the experience of the blind.) "I'm glad to meet you."

I have said that I can tell dark from light, and I can, though it is seldom very useful information. In this case, however, I was startled to have my attention drawn to my "sight"—for this woman was darker than other people, she was a sort of bundle of darkness in the room, her face distinctly lighter than the rest of her (or was that her face, exactly?).

A long pause. Then: "On border stand we  $n$ -dimensional space the," she said. Coming just after George's reading, I was struck by a certain similarity: the mechanical lilt from word to word; the basic incomprehension of a reading machine. . . . Goose-bumps rose on my forearms.

Her voice itself, on the other hand, had George beat hands down. Fundamentally vibrant under the odd intonation, it was a voice with a very thick timbre, a bassoon or a hurdy-gurdy of a voice, with the buzz of someone who habitually speaks partly through the sinuses; this combined with over-relaxed vocal cords, what speech pathologists call *glottal fry*. Usually nasal voices are not pleasant, but pitch them low enough. . . .

She spoke again, more slowly (definitely glottal fry): "We stand on the border of  $n$ -dimensional space."

"Hey," Jeremy said. "Pretty good!" He explained: "Her word order isn't usually as . . . ordinary as that."

"So I gathered," I said. "Mary, what do you mean by that?"

"I—oh—" A kazoo squeak of distress, pain. I approached her, put out a hand. She took it as if to shake: a hand about the size of mine, narrow, strong fat muscle at base of thumb; trembling distinctly.

"I work on the geometries of topologically complex spaces," I said. "I am more likely than most to understand what you say."

"Are within never see we points us."

"That's true." But there was something wrong here, something I didn't like, though I couldn't tell exactly what it was. Had she spoken toward Jeremy? Speaking to me while she looked at him? Bundle of darkness in the dark . . . "But why are your sentences so disordered, Mary? Your

words don't come out in the order you thought them. You must know that, since you understand us."

"Folded—oh!—" Again the double-reed squeak, and suddenly she was weeping, trembling hard, we sat her down on my visitor's couch and Jeremy got her a glass of water, while she quaked in my hands. I stroked her hair (short, loosely curled, wild) and took the opportunity for a quick phrenological check: skull regular and as far as I could tell, undamaged; temples wide, distinct; same for eyesockets; nose a fairly ordinary pyramidal segment, no bridge to speak of; narrow cheeks, wet with tears. She reached up and took my right hand, squeezed it hard, three times fast, three times slow, all the time sobbing and sort of hiccupping words: "Pain it, station, I, oh, fold end, bright, light, space fold, oh, ohhh. . . ."

Well, the direct question is not always the best way. Jeremy returned with a glass of water, and drinking some seemed to calm her. Jeremy said, "Perhaps we could try again later. Although—" He didn't seem very surprised.

"Sure," I said. "Listen, Mary, I'll talk to you again when you're feeling better."

After Jeremy got her out of the office and disposed of her (how? with whom?) he returned to the seventh floor.

"So what the hell happened to her?" I asked angrily. "Why is she like that?"

"We aren't completely sure," he said slowly. "Here's why. She was one of the scientists staffing Tsiolkovsky Base Five, up in the mountains on the back side of the moon, you know. She's an astronomer and cosmologist. Well—I have to ask you to keep this quiet—one day Base Five stopped all broadcasting, and when they went over to see what was wrong, they found only her, alone in the station in a sort of catatonic state. No sign of the other scientists or station crew—eighteen people gone without a trace. And nothing much different to explain what had happened, either."

I *hmped*. "What do they think happened?"

"They're still not sure. Apparently no one else was in the area, or could have been, et cetera. It's been suggested by the Russians, who had ten people there, that this could be first contact—you know, that aliens took the missing ones, and somehow disarranged Mary's thought processes, leaving her behind as a messenger that isn't working. Her brain scans are bizarre. I mean, it doesn't sound very likely—"

"No."

"But it's the only theory that explains everything they found there. Some of which they won't tell me about. So, we're doing what we can to

get Mary's testimony, but as you can see, it's hard. She seems most comfortable drawing diagrams."

"Next time we'll start with that."

"Okay. Any other ideas?"

"No," I lied. "When can you bring her back again?"

As if because I was blind I couldn't tell I was being duped! I struck fist into palm angrily. Oh, they were making a mistake, all right. They didn't know how much the voice reveals. The voice's secret expressivity reveals *so much!*—the language really is not adequate to tell it, we need that mathematics of emotion. . . . In the high school for the blind that I briefly attended for some of my classes, it often happened that a new teacher was instantly disliked, for some falseness in his or her voice, some quality of condescension or pity or self-congratulation that the teacher (and his or her superiors) thought completely concealed, if they knew of it at all. But it was entirely obvious to the students, because the voice (if what I have heard is true) is much more revealing than facial expressions; certainly it is less under our control. This is what makes most acting performances so unsatisfactory to me; the vocal qualities are so stylized, so removed from those of real life. . . .

And here, I thought, I was witnessing a performance.

There is a moment in Olivier Messiaen's *Visions de l'Amen* when one piano is playing a progression of major chords, very traditionally harmonic, while on another piano high pairs of notes plonk down across the other's chords, ruining their harmony, crying out Something's wrong! Something's wrong!

I sat at my desk and swayed side to side, living just such a moment. Something was wrong.

When I collected myself I called the department secretary, who had a view of the hall to the elevator. "Delphina, did Jeremy just leave?"

"Yes, Carlos. Do you want me to try and catch him?"

"No, I only need a book he left in his office. Can I borrow the master key and get it?"

"Okay."

I got the key, entered Jeremy's office, closed the door. One of the tiny pick-ups that James Gold had gotten for me fit right under the snap-in plug of the telephone cord. Then a microphone under the desk, behind a drawer. And out. (I have to be bold every day, you see, just to get by. But they didn't know that.)

Back in my office I closed and locked the door, and began to search. My office is big: two couches, several tall bookcases, my desk, a file cabinet, a coffee table. . . . When the partitions on the seventh floor of the Gelman Library were moved around to make more room, Delphina

and George Hampton, who was chairman that year, had approached me nervously: "Carlos, you wouldn't mind an office with no windows, would you?"

I laughed. All of the full professors had offices on the outer perimeter of the floor, with windows.

"You see," George said, "since none of the windows in the building opens anyway, you won't be missing out on any breezes. And if you take this room in the inner core of the building, then we'll have enough space for a good faculty lounge."

"Fine," I said, not mentioning that I could see sunlight, distinguish light and dark. It made me angry that they hadn't remembered that, hadn't thought to ask. So I nicknamed my office "The Vault," and I had a lot of room, but no windows. The halls had no windows either, so I was really without sun, but I didn't complain.

Now I got down on hands and knees and continued searching, feeling like it was hopeless. But I found one, on the bottom of the couch. And there was another in the phone. Bugged. I left them in position and went home.

Home was a small top-floor apartment up near 21st and N Streets, and I supposed it was bugged too. I turned up Stockhausen's *Telemusik* as loud as I could stand it, hoping to drive my listeners into a suicidal fugal state, or at least give them a headache. Then I slapped together a sandwich, downed it angrily.

I imagined I was captain of a naval sailing ship (like Horatio Hornblower), and that because of my sharp awareness of the wind I was the best captain afloat. They had had to evacuate the city and all the people I knew were aboard depending on me. But we were caught against a lee shore by two large ships of the line, and in the ensuing broadsides (roar of cannon, smell of gunpowder and blood, screams of wounded like shrieking seagulls), everyone I knew fell—chopped in half, speared by giant splinters, heads removed by cannonball, you name it. Then when they were all corpses on the sand-strewn splintered decking, I felt a final broadside discharge, every ball converging on me as if I were point 0 at the tip of a cone. Instant dissolution and death.

I came out of it feeling faintly disgusted with myself. But because it actively defends the ego by eradicating those who attack its self-esteem, Cutsforth calls this type of fantasy in the blind subject healthy. (At least in fourteen year-olds.) So be it. Here's to health. Fuck all of you.

Geometry is a language, with a vocabulary and syntax as clear and precise as humans can make them. In many cases definitions of terms and operations are explicitly spelled out, to help achieve this clarity. For instance, one could say:



Let (parentheses) designate corollaries.

Let [brackets] designate causes.

Let {braces} designate . . .

But would it be true, in this other language of the heart?

Next afternoon I played beepball with my team. Sun hot on my face and arms, spring smell of pollen and wet grass. Ramon got six runs in the at-bat before mine (beepball is a sort of cricket/softball mix, played with softball equipment ["It proves you can play cricket blind" one Anglophobe {she was Irish} said to me once]), and when I got up I scratched out two and then struck out. Swinging *too* hard. I decided I liked outfield better. The beepball off in the distance, lofted up in a short arc, smack of bat, follow the ball up and up—out toward me!—drift in its direction, the rush of fear, glove before face as it approaches, stab for it, off after it as it rolls by—pick it up—Ramon's voice calling clearly, "Right here! Right here!"—and letting loose with a throw—really putting everything into it—and then, sometimes, hearing that beepball lance off into the distance and smack into Ramon's glove. It was great. Nothing like outfield.

And next inning I hit one *hard*, and that's great too. That feeling goes right up your arms and all through you.

Walking home I brooded over Max Carrados, blind detective, and over Horatio Hornblower, sighted naval captain. Over Thomas Gore, the blind senator from Oklahoma. As a boy his fantasy was to become a senator. He read the *Congressional Record*, joined the debate team, organized his whole life around the project. And he became senator. I knew that sort of fantasy as well as I knew the vengeful adolescent daydreams: all through my youth I dreamed of being a mathematician. And here I was. So one could do it. One could imagine doing something, and then do it.

But that meant that one had, by definition, imagined something *possible*. And one couldn't always say ahead of the attempt whether one had imagined the possible or the impossible. And even if one had imagined something possible, that didn't guarantee a successful execution of the plan.

The team we had played was called *Helen Keller Jokes* (there are some good ones, too [they come {of course} from Australia] but I won't go into that). It's sad that such an intelligent woman was so miseducated—not so much by Sullivan as by her whole era: all that treachy Victorian sentimentality poured into her, "The fishing villages of Cornwall are very picturesque, seen either from the beaches or the hilltops, with all their boats riding to their moorings or sailing about in the harbor—When the moon, large and serene, floats up the sky, leaving in the water a long

track of brightness like a plow breaking up a soil of silver, I can only sigh my ecstasy" come on, Helen. Now that is living in a world of texts.

But didn't I live most (all?) of my life in texts as least as unreal to me as moonlight on water was to Helen Keller? These  $n$ -dimensional manifolds . . . I suppose the basis for my abilities in them was the lived reality of haptic space, but still, it was many removes from my actual experience. And so was the situation I found myself confronted with now, Jeremy and Mary acting out some drama I did not comprehend . . . and so was my plan to deal with it. Verbalism, words versus reality. . . .

I caressed my glove, refelt the knock of bat against beepball. Brooded over my plan.

The next time Jeremy brought Mary Unser by my office, I said very little. I got out my "visitor's supply" of paper and pencils, and set her down at the coffee table. I brought over my models: subatomic particles breaking up in a spray of wire lines, like water out of a showerhead; straw-like Taylor sticks for model-making; polyhedric blocks of every kind; and I sat down with the ridged sheets made from her earlier drawings, and the models I had attempted to make of them, and I started asking very limited questions. "What does this line mean? Does it go before or behind? Is this  $R$  or  $R'$ ? Have I got this right?"

And she would honk a sort of laugh, or say "No, no, no, no," (no problem with sequencing there) and draw furiously. I took the pages as she finished them and put them in my Xerox, took out the ridged, bumpy sheets and had her guide my fingers over them. Even so they were difficult, and with a squeak of frustration she went to the straw models, clicking together triangles, parallels, etc. This was easier, but eventually she reached a limit here too. "Need drawing beyond," she said.

"Fine. Write down whatever you want."

She wrote, and then read aloud to me, or I put it through the Xerox machine marked *translation to Braille*. And we forged on, with Jeremy looking over our shoulders the whole time.

And eventually we came very close to the edge of my work, following subatomic particles down into the micro-dimensions where they appeared to make their "jumps." I had proposed an  $n$ -dimensional topological manifold, where  $1 < n < \text{infinity}$ , so that the continuum being mapped fluctuated between one and some finite number of dimensions, going from a curving line to a sort of  $n$ -dimensional Swiss cheese, if you like, depending on the amounts of energy displayed in the area, in any of the four "forms" of electromagnetism, gravity, or the strong and weak interactions. The geometry for this manifold-pattern (so close to the experience of haptic space) had, as I have said, attracted the attention of

physicists at CERN and SLAC—but there were still unexplained data, as far as I could tell, and the truth was *I had not published this work*.

So here I was "conversing" with a young woman who in ordinary conversations could not order her words correctly—who in this realm spoke with perfect coherence—who was in fact speaking about (inquiring about?) the edges of my own private work.

The kind of work that Jeremy Blasingame used to ask me about so curiously.

I sighed. We had been going on for two or three hours, and I sat back on the couch. My hand was taken up in Mary's, given a reassuring squeeze. I didn't know what to make of it. "I'm tired."

"I feel better," she said. "Easier to talk way—this way."

"Ah," I said. I took up the model of a positron hitting a "stationary" muon: a wire tree, trunk suddenly bursting into a mass of curling branches. . . . So it was here: one set of events, a whole scattering of explanations. Still, the bulk of the particles shot out in a single general direction (the truths of haptic space).

She let go of my hand to make one last diagram. Then she Xeroxed it for me, and guided my hands over the ridged copy.

Once again it was Desargues' Theorem.

At this point Mary said, "Mr. Blasingame, I need a drink of water." He went out to the hall water dispenser, and she quickly took my forefinger between her finger and thumb (pads flattening with an inappropriate pressure, until my finger ached)—squeezed twice, and jabbed my finger first onto her leg, then onto the diagram, tracing out one of the triangles. She repeated the movements, then poked my leg and traced out the other triangle. Then she traced down the line off to the side, the one generated by the projection of the two triangles, over and over. What did she mean?

Jeremy returned, and she let my hand go. Then in a while, after the amenities (hard handshake, quivering hand) Jeremy whisked her off.

When he returned, I said, "Jeremy, is there any chance I can talk to her alone? I think she's made nervous by your presence—the associations, you know. She really does have an interesting perspective on the  $n$ -dimensional manifold, but she gets confused when she stops and interacts with you. I'd just like to take her for a walk, you know—down by the canal, or the Tidal Basin, perhaps, and talk things over with her. It might get the results you want."

"I'll see what they say," Jeremy said in an expressionless voice.

That night I put on a pair of earplugs, and played the tape of Jeremy's phone conversations. In one when the phone was picked up he said,

"He wants to talk with her alone now."

"Fine," said a tenor voice. "She's prepared for that."

"This weekend?"

"If he agrees." Click.

I listen to music. I listen to twentieth century composers the most, because many of them made their music out of the sounds of the world we live in now, the world of jets and sirens and industrial machinery, as well as birdsong and woodblock and the human voice. Messiaen, Partch, Reich, Glass, Shapiro, Subotnik, Ligeti, Penderecki—these first explorers away from the orchestra and the classical tradition remain for me the voices of our age, they speak to me. In fact they speak for me; in their dissonance and confusion and anger I hear myself being expressed. And so I listen to their difficult, complex music because I understand it, which gives me pleasure, and because while doing I am participating fully, I am excelling, no one can bring more to the act than I. I am *in control*.

I listened to music.

You see, these  $n$ -dimensional manifolds . . . if we understood them well enough to manipulate them, to tap their energy . . . well, there is a tremendous amount of energy contained in those particles. That kind of energy means power, and power . . . draws the powerful. Or those seeking power, fighting for it. I began to feel the extent of the danger.

She was quiet as we walked across the Mall toward the Lincoln Monument. I think she would have stopped me if I had spoken about anything important. But I knew enough to say nothing, and I think she guessed I knew she was bugged. I held the back of her upper arm loosely in my left hand, and let her guide us. A sunny, windy day, with occasional clouds obscuring the sun for a minute or two. Down by the Mall's lake the slightly stagnant smell of wet algae tinged all the other scents: grass, dust, the double strand of lighter fluid and cooking meat. . . . The sink of darkness swirling around the Vietnam Memorial. Pigeons cooed their weird, larger-than-life coos, and flapped away noisily as we walked through their affairs. We sat on grass that had been recently cut, and I brushed a hand over the stiff blades.

A curious procedure, this conversation. No visuals, for me; and perhaps we were being watched, as well. (Such a common anxiety of the blind, the fear of being watched—and here it was true.) And we couldn't talk freely, even though at the same time we had to say something, to keep Blasingame and friends from thinking I was aware of anything wrong. "Nice day." "Yeah. I'd love to be out on the water on a day like this." "Really?" "Yeah."

And all the while two fingers held one finger. My hands are my eyes, and always have been. Now they were as expressive as voice, as receptive as ever touch can be, and into haptic space we projected a conversation of rare urgency. Are you okay? I'm okay. Do you know what's going on? Not entirely, can't explain.

"Let's walk down to the paddle boats and go out on the Basin, then."

I said, "Your speech is much better today."

She squeezed my hand thrice, hard. False information? "I... had... electroshock." Her voice slid, slurred; it wasn't entirely under control.

"It seems to have helped."

"Yes. Sometimes."

"And the ordering of your mathematical thought?"

Buzzing laugh, hurdy-gurdy voice: "I don't know—more disarranged, perhaps—complementary procedure? You'll have to tell me."

"As a cosmologist did you work in this area?"

"The topology of the micro-dimensions apparently determines both gravity and the weak interaction, wouldn't you agree?"

"I couldn't say. I'm not much of a physicist."

Three squeezes again. "But you must have an idea or two about it?"

"Not really. You?"

"Perhaps... once. But it seems to me your work is directly concerned with it."

"Not that I know of."

Stalemate. Was that right? I was becoming more and more curious about this woman, whose signals to me were so mixed... Once again she seemed a bundling of darkness in the day, a whirlpool where all lightness disappeared, except for around her head. (I suppose I imagine all that I "see," I suppose they are always haptic visions.)

"Are you wearing dark clothes?"

"Not really. Red, beige..."

As we walked I held her arm more tightly. She was about my height. Her arm muscles were distinct, and her lats pushed out from her ribs. "You must swim."

"Weight-lifting, I'm afraid. They made us on Luna."

"On Luna," I repeated.

"Yes," and she fell silent.

This really was impossible. I didn't think she was completely an ally—in fact I thought she was lying—but I felt an underlying sympathy from her, and a sense of conspiracy with her, that grew more powerful the longer we were together. The problem was, what did that feeling mean? Without the ability to converse freely, I was stymied in my attempts to learn more; pushed this way and that in the cross-currents of

her behavior, I could only wonder what she was thinking. And what our listeners made of this mostly silent day in the sun.

So we paddled out onto the Tidal Basin, and talked from time to time about the scene around us. I loved the feel of being on water—the gentle rocking over other boats' wakes, the wet stale smell. . . . "Are the cherry trees blossoming still?"

"Oh yes. Not quite at the peak, but just past. It's beautiful. Here—" she leaned out— "here's one about to drown." She put it in my hand. I sniffed at it. "Do they smell?"

"No, not much," I said. "The prettier people say flowers are, the less scent they seem to have. Did you ever notice that?"

"I guess. I like the scent of roses."

"It's faint, though. These blossoms must be very beautiful—they smell hardly at all."

"En masse they are lovely. I wish you could see them."

I shrugged. "And I wish you could touch their petals, or feel us bouncing about as I do. I have enough sense data to keep entertained."

"Yes . . . I suppose you do." She left her hand covering mine. "I suppose we're out quite a ways," I said. So that we couldn't be seen well from the shore, I meant.

"From the dock, anyway. We're actually almost across the Basin."

I moved my hand from under hers, and held her shoulder. Deep hollow behind her collarbone. This contact, this conversation of touch . . . it was most expressive hand to hand, and so I took her hand again, and our fingers made random entanglements, explorations. Children shouting, then laughing in boats to our left, voices charged with excitement. How to speak in this language of touch?

Well, we all know that. Fingertips, brushing lines of the palm; ruffling the fine hair at the back of the wrist; fingers pressing each other back: these are sentences, certainly. And it is a difficult language to lie in. That cat-like sensuous stretch, under my stroking fingertips. . . .

"We've got a clear run ahead of us," she said after a time, voice charged with humming overtones.

"Stoke the furnaces," I cried. "Damn the torpedoes!" And with a gurgling *clug-clug-clug-clug* we paddle-wheeled over the Basin into the fresh wet wind, sun on our faces, laughing at the release from tension (bassoon and baritone), crying out "Mark twain!" or "Snag dead ahead!" in jocular tones, entwined hands crushing the other as we pedaled harder and harder . . . "Down the Potomac!" "Across the sea!" "Through the gates of Hercules!" "On to the Golden Fleece!" Spray cold on the breeze—

She stopped pedaling, and we swerved left.

"We're almost back," she said quietly.

We let the boat drift in, without a word.

My bugs told me that my office had been broken into, by two, possibly three people, only one of whom spoke—a man, in an undertone: "Try the file cabinet." The cabinet drawers were rolled out (familiar clicking of the runners over the ball bearings), and the desk drawers too, and then there was the sound of paper shuffling, of things being knocked about.

I also got an interesting phone conversation over Jeremy's phone. The call was incoming; Jeremy said "Yes?" and a male voice—the same one Jeremy had called earlier—said, "She says he's unwilling to go into any detail."

"That doesn't surprise me," Jeremy said. "But I'm sure he's got—"

"Yes, I know. Go ahead and try what we discussed."

The break-in, I supposed.

"Okay." Click.

No doubt it never even occurred to them that I might turn the tables on them, or act against them in any way, or even figure out that something was strange. It made me furious.

At the same time I was frightened. You feel the lines of force, living in Washington, D.C.; feel the struggle for power among the shadowy groups surrounding the official government; read of the unsolved murders, of shadowy people whose jobs are not made clear. . . . As a blind person one feels apart from that nebulous world of intrigue and hidden force, on the edge by reason of disability. ("No one harms a blind man.") Now I knew I was part of it, pulled in and on my own. It was frightening.

One night I was immersed in Harry Partch's *Cloud Chamber Music*, floating in those big glassy notes, when my doorbell rang. I picked up the phone. "Hello?"

"It's Mary Unser. May I come up?"

"Sure." I pushed the button and walked onto the landing.

She came up the stairs alone. "Sorry to bother you at home," she buzzed, out of breath. Such a voice. "I looked up your address in the phone book. I'm not supposed . . ."

She stood before me, touched my right arm. I lifted my hand and held her elbow. "Yes?"

Nervous, resonant laugh. "I'm not supposed to be here."

Then you'll soon be in trouble, I wanted to say. But surely she knew my apartment would be bugged? Surely she *was* supposed to be here? She was trembling violently, enough so that I put up my other hand and held her by the shoulders. "Are you all right?"

"Yes. No." Falling oboe tones, laugh that was not a laugh. . . . She

seemed frightened, very frightened. thought, if she is acting she is *very* good.

"Come on in," I said, and led her inside. I went to the stereo and turned down the Partch—then reconsidered, and turned it back up. "Have a seat—the couch is nice." I was nervous myself. "Would you like something to drink?" Quite suddenly it all seemed unreal, a dream, one of my fantasies. Phantasmagoric cloud chamber ringing to things, how did I know what was real?

"No. Or yes." She laughed again, that laugh that was not a laugh.

"I've got some beer." I went to the refrigerator, got a couple of bottles, opened them.

"So what's going on?" I said as I sat down beside her. As she spoke I drank from my beer, and she stopped from time to time to take long swallows.

Well, I feel that the more I understand what you're saying about the transfer of energies between  $n$ -dimensional manifolds, the better I understand what . . . happened to me." But now there was a different sound to her voice—an overtone was gone, it was less resonant, less nasal.

I said, "I don't know what I can tell you. It's not something I can talk about, or even write down. What I can express, I have, you know. In papers." This a bit louder, for the benefit of our audience. (If there was one?)

"Well. . . ." and her hand, under mine, began to tremble again.

We sat there for a very long time, and all during that time we conversed through those two hands, saying things I can scarcely recall now, because we have no language for that sort of thing. But they were important things nevertheless, and after awhile I said, "Here. Come with me. I'm on the top floor, so I have a sort of a porch on the roof. Finish your beer. It's a pleasant night out, you'll feel better outside." I led her through the kitchen to the pantry, where the door to the back stairs was. "Go on up." I went back to the stereo and put on Jarrett's *Köln Concert*, loud enough so we'd be able to hear it. Then I went up the stairs onto the roof, and crunched over the tarred gravel.

This was one of my favorite places. The sides of the building came up to the chest around the edge of the roof, and on two sides large willows draped their branches over it, making it a sort of haven. I had set a big old wreck of a couch out there, and on certain nights when the wind was up and the air was cool, I would lie back on it with a bumpy Braille planisphere in my hands, listening to Scholz's *Starcharts* and feeling that with those projections I knew what it was to see the night sky.

"This is nice," she said.

"Isn't it?" I pulled the plastic sheet from the couch, and we sat.

"Carlos?"



"Yes?"

"I—I—" that double-reed squeak—

I put an arm around her. "Please," I said, suddenly upset myself. "Not now. Not now. Just relax. Please." And she turned into me, her head rested on my shoulder; she trembled. I dug my fingers into her hair and slowly pulled them through the tangles. Shoulder length, no more. I cupped her ears, stroked her neck. She calmed.

Time passed, and I only caressed. No other thought, no other perception. How long this went on I couldn't say—perhaps a half-hour? Perhaps longer. She made a sort of purring kazoo sound, and I leaned forward and kissed her. Jarrett's voice, crying out briefly over a fluid run of piano notes. She pulled me to her, her breath caught, rushed out of her. The kiss became intense, tongues dancing together in a whole intercourse of their own, which I felt all through me in that *chakra* way, neck, spine, belly, groin, nothing but kiss. And without the slightest bit of either intention or resistance, I fell into it.

I remember a college friend once asked me, hesitantly, if I didn't have trouble with my love life. "Isn't it hard to tell when they . . . want to?" I had laughed. The whole process, I had wanted to say, was amazingly easy. The blind's dependence on touch puts them in an advance position, so to speak: using hands to see faces, being led by the hand (being dependent), one has already crossed what Russ calls the border between the world of not-sex and the world of sex; once over that border (with an other feeling protective). . . .

My hands explored her body, discovering it then and there for the first time: as intensely exciting a moment as there is, in the whole process. I suppose I expect narrow-cheeked people to be narrow-hipped (it's mostly true, you'll find), but it wasn't so, in this case—her hips flared in those feminine curves that one can only hold, without ever getting used to (without ever [the otherness of the other] quite believing). On their own my fingers slipped under clothes, between buttons, as adroit as little mice, clever lusty little creatures, unbuttoning blouse, reaching behind to undo bra with a twist. She shrugged out of them both and I felt the softness of her breasts while she tugged at my belt. I shifted, rolled, put my ear to her hard sternum, kissing the inside of one breast as it pressed against my face, feeling that quick heartbeat speak to me. . . . She moved me back, got me unzipped, we paused for a speedy moment and got the rest of our clothes off, fumbling at our own and each other's until they were clear. Then it it was flesh to flesh, skin to skin, in a single haptic space jumping with energy, with the insistent *yes* of caresses, mouth to mouth, four hands full, body to body, with breasts and erect penis crushed, as it were, between two pulsing walls of muscle.

The skin is the ultimate voice.

So we made love. As we did (my feet jabbing the end of the couch, which was quite broad enough, but a little too short) I arched up and let the breeze between us (cool on our sweat), leaned down and sucked on first one nipple and then the other—

(thus becoming helpless in a sense, a needy infant, utterly dependent [because for the blind from birth, mother love is even more crucial than for the rest of us—the blind depend on their mothers for almost *everything*, for the sense of object permanence, for the education that makes the distinction between self and world, for the beginning of language, and also for the establishment of a private language that compensates for the lack of sight {if your mother doesn't know that a sweeping hand means "*I want!*"!} and bridges the way to the common tongue—without all that, which only a mother can give, the blind infant is lost—without mother love beyond mother love, the blind child will very likely go mad] so that to suck on a lover's nipple brings back that primal world of trust and need, I am sure of it)

—I was sure of it even then, as I made love to this strange other Mary Unser, a woman as unknown to me as any I had ever spoken with. At least until now. Now with each plunge into her (cylinder capped by cone, sliding through cylinder into rough sphere, neuron to neuron, millions of them fusing across, so that I could not tell where I stopped and she began) I learned more about her, the shape of her, her rhythms, her whole nerve-reality, spoken to me in movement and touch (spread hands holding my back, flanks, bottom) and in those broken bassoon tones that were like someone humming, briefly, involuntarily. "Ah," I said happily at all this sensation, all this new knowledge, feeling all my skin and all my nerves swirl up like a gust of wind into my spine, the back of my balls, to pitch into her all my self—

When we were done (oboe squeaks) I slid down, bending my knees so my feet stuck up in the air. I wiggled my toes in the breeze. Faint traffic noises played a sort of city music to accompany the piano in the apartment. From the airshaft came the sound of a chorus of pigeons, sounding like monkeys with their jaws wired shut, trying to chatter. Mary's skin was damp and I licked it, loving the salt. Patch of darkness in my blur of vision, darkness bundling in it. . . . She rolled onto her side and my hands played over her. Her biceps made a smooth hard bulge. There were several moles on her back, like little raisins half buried in her skin. I pushed them down, fingered the knobs of her spine. The muscles of her back put her spine in a deep trough of flesh.

I remembered a day my blind science class was taken to a museum, where we were allowed to feel a skeleton. All those hard bones, in just the right places; it made perfect sense, it was exactly as if felt under skin, really—there were no big surprises. But I remember being so upset

by the experience of feeling the skeleton that I had to go outside and sit down on the museum steps. I don't know to this day exactly why I was so shaken, but I suppose (all those hard things left behind) it was something like this: it was frightening to know how *real* we were!

Now I tugged at her, gently. "Who are you, then."

"Not now." And as I started to speak again she put a finger to my mouth (scent of us): "A friend." Buzzing nasal whisper, like a tuning fork, like a voice I was beginning (and this scared me, for I knew I did not know her) to love: "A friend. . . ."

At a certain point in geometrical thinking vision becomes only an obstruction. Those used to visualizing theorems (as in Euclidean geometry) reach a point, in the  $n$ -dimensional manifolds or elsewhere, where the concepts simply *can't* be visualized; and the attempt to do so only leads to confusion and misunderstanding. Beyond that point an interior geometry, a haptic geometry, guided by a kinetic esthetics, is probably the best sensory analogy we have; and so I have my advantage.

But in the real world, in the geometries of the heart, do I ever have any comparable advantage? Are there things we feel that can never be seen?

The central problem for everyone concerned with the relationship between geometry and the real world is the question of how one moves from the incommunicable impressions of the sensory world (vague fields of force, of danger), to the generally agreed-upon abstractions of the math (the explanation). Or, as Edmund Husserl puts it in *The Origin of Geometry* (and on this particular morning George was enunciating this passage for me with the utmost awkwardness): "How does geometrical ideality (just like that of all the sciences) proceed from its primary intrapersonal origin, where it is a structure within the conscious space of the first inventor's soul, to its ideal objectivity?"

At this point Jeremy knocked at my door: four quick raps. "Come in, Jeremy," I said, my pulse quickening.

He opened the door and looked in. "I have a pot of coffee just ready to go," he said. "Come on down and have some."

So I joined him in his office, which smelled wonderfully of strong French roast. I sat in one of the plush armchairs that circled Jeremy's desk, accepted a small glazed cup, sipped from it. Jeremy moved about the room restlessly as he chattered about one minor matter after another, obviously avoiding the topic of Mary, and all that she represented. The coffee sent a warm flush through me—even the flesh of my feet buzzed with heat, though in the blast of air-conditioned air from the ceiling vent I didn't start to sweat. At first it was a comfortable, even pleasant sen-

sation. The bitter, murky taste of the coffee washed over my palate, through the roof of my mouth into my sinuses, from there up behind my eyes, through my brain, all the way down my throat, into my lungs: I breathed coffee, my blood singing with warmth.

... I had been talking about something. Jeremy's voice came from directly above and before me, and it had a crackly, tinny quality to it, as if made by an old carbon microphone: "And what would happen if the Q energy from this manifold were directed through these vectored dimensions into the macrodimensional manifold?"

Happily I babbled, "Well, provide each point P of an  $n$ -dimensional differentiable manifold M with the analogue of a tangent plane, an  $n$ -dimensional vector space  $T_p(M)$ , called the tangent space at P. Now we can define a *path* in manifold M as a differentiable mapping of an open interval of R into M. And along this path we can fit the *whole* of the forces defining K the submanifold of M, a lot of energy to be sure," and I was writing it down, when the somatic effect of the drug caught up with the mental effect, and I recognized what was happening. ("Entirely too many new designer drugs these days"...) Jeremy's breathing snagged as he looked up to see what had stopped me; meanwhile I struggled with a slight wave of nausea, caused more by the realization that I had been drugged than by the chemicals themselves, which had very little "noise." What had I told him? And why, for God's sake, did it matter so much?

"Sorry," I muttered through the roar of the ventilator. "Bit of a headache."

"Sorry to hear that," Jeremy said, in a voice exactly like George's. "You look a little pale."

"Yes," I said, trying to conceal my anger. (Later, listening to the tape of the conversation, I thought I only sounded confused.) (And I hadn't said much about my work, either—mostly definitions.) "Sorry to run out on you, but it really is bothering me."

I stood, and for a moment I panicked; the location of the room's door—the most fundamental point of orientation, remembered without effort in every circumstance—wouldn't come to me. I was damned if I would ask Jeremy Blasingame about such a thing, or stumble about in front of him. I consciously fought to remember: desk faces door, chair faces desk, door therefore behind you. . . .

"Let me walk you to your office," Jeremy said, taking me by the arm. "Listen, maybe I can give you a lift home?"

"That's all right," I said, shrugging him off. I found the door by accident, it seemed, and left him. Down to my office, wondering if I would get the right door. My blood was hot Turkish coffee. My head spun. The key worked so I had found the right door. Locked in I went to my couch and

laid down. I was as dizzy there as standing, but found I couldn't move again. I spun in place helplessly. I had read that the "designer drugs" used for such purposes had almost no somatic effect, but perhaps this was true only for subjects less sensitive to their kinetic reality—otherwise, why was I reacting so? Fear. Or Jeremy had put something beyond the truth drug in me. A warning? Against? Suddenly I was aware of the tight boundaries of my comprehension, beyond it the wide manifold of action I did not understand—and the latter threatened to completely flood the former, so that there would be left nothing at all that I understood about this matter. Such a prospect terrified me.

Some time later—perhaps as much as an hour—I felt I had to get home. Physically I felt much better, and it was only when I got outside in the wind that I realized that the psychological effects of the drug were still having their way with me. Rare, heavy waft of diesel exhaust, a person wearing clothes rank with old sweat: these smells overwhelmed any chance I had of locating Ramon's cart by nose. My cane felt unusually long, and the rising and falling whistles of my sonar glasses made a musical composition like something out of Messiaen's *Catalogue d'Oiseaux*. I stood entranced by the effect. Cars zoomed past with their electric whirrs, the wind made more sound that I could process. I couldn't find Ramon and decided to give up trying; it would be bad to get him mixed up in any of this anyway. Ramon was my best friend. All those hours at Warren's throwing together, and when we played beeper ping-pong at his apartment we sometimes got to laughing so hard we couldn't stand—what else is friendship than that, after all?

Distracted by thoughts such as these, and by the bizarre music of wind and traffic, I lost track of which street I was crossing. The *whoosh* of a car nearly brushing me as I stepped up from a curb. Lost! "Excuse me, is this Pennsylvania or K?" Fuckyouverymuch. Threading my way fearfully between broken bottles, punji-stick nails poking up out of boards on the sidewalk, low-hanging wires holding up tree branch or street sign, dogshit on the curb waiting like banana peel to skid me into the street under a bus, speeding cars with completely silent electric motors careening around the corner, muggers who didn't care if I was blind or paraplegic or whatever, manholes left open in the crosswalks, rabid dogs with their toothy jaws stuck out between the rails of a fence, ready to bite. . . . Oh yes, I fought off all these dangers and more, and I must have looked mad tiptoe-ing down the sidewalk, whapping my cane about like a man beating off devils.

By the time I got into my apartment I was shaking with fury. I turned on Steve Reich's *Come Out* (in which the phrase "Come out to show them" is looped countless times) as loud as I could stand it, and barged around

my place alternately cursing and crying (that stinging of the eyes), all under the sound of the music. I formulated a hundred impossible plans of revenge against Jeremy Blasingame and his shadowy employers. I brushed my teeth for fifteen minutes to get the taste of coffee out of my mouth.

By the next morning I had a workable plan: it was time for some confrontation. It was a Saturday and I was able to work in my office without interruption. I entered the office and unlocked a briefcase, opened my file cabinet and made sounds of moving papers from briefcase to cabinet. Much more silently I got out a big mousetrap that I had bought that morning. On the back of it I wrote, *You're caught. The next trap kills.* I set the trap and placed it carefully behind the new file I had added to the cabinet. This was straight out of one of my adolescent rage fantasies, of course, but I didn't care, it was best way I could think of to both punish them and warn them from a distance. When the file was pulled from the cabinet, the trap would release onto the hand pulling the file out, and it would also break tape set in a pattern only I would be able to feel. So if the trap went off, I would know.

The first step was ready.

In Penderecki's *Threnody For the Victims of Hiroshima*, a moment of deadly stillness, strings humming dissonant strokes as the whole world waits.

Cut shaving; the smell of blood.

Across the road, a carpenter hammering nails on a roof, each set of seven strokes a crescendo: tap-tap-tap-tap-tap-tap-TAP! Tap-tap-tap-tap-tap-tap-TAP!

In that mathematics of emotion, stress calculations to measure one's tension: already there for us to use. Perhaps all of math already charts states of consciousness, moments of being.

She came to me again late at night, with the wind swirling by her through the doorway. It was late, the wind was chill and blustery, the barometer was falling. Storm coming.

"I wanted to see you," she said.

I felt a great thrill of fear, and another of pleasure, and I could not tell which was stronger, or, after a time, which was which.

"Good." We entered the kitchen, I served her water, circled her unsteadily, my voice calm as we discussed trivia in fits and starts. After many minutes of this I very firmly took her by the hand. "Come along." I led her into the pantry, up the narrow musty stairs, out the roof door into the wind. A spattering of big raindrops hit us. "Carlos—" "Never mind that!" The whoosh of the wind was accompanied by the rain smell

of wet dust and hot asphalt, and a certain electricity in the air. Off in the distance, to the south, a low rumble of thunder shook the air.

"It's going to rain," she ventured, shouting a bit over the wind.

"Quiet," I told her, and kept her hand crushed in mine. The wind gusted through our clothes, and mixed with my anger and my fear I felt rising the electric elation that storms evoke in me. Face to the wind, hair pulled back from my scalp, I held her hand and waited: "Listen," I said, "watch, feel the storm." And after a time I felt—no, I saw, I *saw*—the sudden jerk of lightness that marked lightning. "Ah," I said aloud, counting to myself. The thunder pushed us about ten seconds later. Just a couple of miles away.

"Tell me what you see," I commanded, and heard in my own voice a vibrancy that could not be denied.

"It's—it's a thunderstorm," she replied, uncertain of me in this new mood. "The clouds are very dark, and fairly low at their bottoms, but broken up in places by some largish gaps. Kind of like immense boulders rolling overhead. The lightning—there! You noticed that?"

I had jumped. "I can see lightning," I said, grinning. "I have a basic perception of light and darkness, and everything flashes to lightness for a moment. As if the sun had turned on and then off."

"Yes. It's sort of like that, only the light is shaped in jagged white lines, extending from cloud to ground. Like that model you have of subatomic particles breaking up—a sort of broken wire sculpture, white as the sun, forking the earth for just an instant, as bright as the thunder is loud." Her voice rasped with an excitement that had sparked across our hands—also with apprehension, curiosity, I didn't know what. *Light. . . Blam*, the thunder struck us like a fist and she jumped. I laughed. "That was off to the side!" she said fearfully. "We're in the middle of it!"

I couldn't control a laugh. "More!" I shouted. "Pick up the pace!" And as if I were a weathermonger the lightning snapped away the darkness around us, *flash-BLAM . . . flash-BLAM . . . flash-BLAM!*

"We should get down!" Mary shouted over the wind's ripping, over the reverberating crashes of thunder. I shook my head back and forth and back and forth, gripped her by the arm so hard it must have hurt.

"No! This is *my* visual world, do you understand? This is as beautiful as it ever—" *flash-crack-BLAM.*

"Carlos—"

"No! Shut up!" *Flash-flash-flash-BOOM!* Rolling thunder, now, hollow casks the size of mountains, rolling across a concrete floor.

"I'm afraid," she said miserably, tugging away from me.

"You feel the exposure, eh?" I shouted at her, as lightning flashed and the wind tore at us, and raindrops pummeled the roof, throwing up a

tarry smell to mix with the lightning's ozone. "You feel what it's like to stand helpless before a power that can kill you, is that right?"

Between thunderclaps she said, desperately, "Yes!"

"Now you know how I've felt around you people!" I shouted. BLAM! BLAM!! "God damn it," I said, pain searing my voice as the lightning seared the air, "I can go sit in the corner park with the drug dealers and the bums and the crazies and I *know* I'll be safe, because even those people still have the idea that it isn't right to hurt a blind man. But you people!" I couldn't go on. I shoved her away from me and staggered back, remembering it all. *Flash-BLAM! Flash-BLAM!*

"—Carlos—" Hands pulling me around.

"What."

"I didn't—"

"The hell you didn't! You came in and gave me that story about the moon, and talked backwards, and drew stuff, and all to steal my work—how could you do it? How could you do it?"

"I *didn't*, Carlos, I *didn't*!" I batted her hands away, but it was as if a dam had burst, as if only now, charged to it in the storm, was she able to speak: "*Listen to me!*" *Flash-BLAM.* "*I'm just like you.* They made me do it. They took me because I have some math background, I guess, and they ran me through more memory implants that I can even count!" Now the charged buzzing timbre of her desperate voice scraped directly across my nervous system: "You know what they can do with those drugs and implants. They can program you just like a machine. You walk through your paces and watch yourself and can't do a thing about it." BLAM. "And they programmed me and I went in there and spouted it all off to you on cue. But you *know*" BLAM "was trying, you know there's the parts of the mind they can't touch—I fought them as hard as I could, don't you see?"

*Flash-BLAM.* Sizzle of scorched air, ozone, ringing eardrums. That one was close.

"I took TNPP-50," she said, calmer now. "That and MDMA. I just *made* myself duck into a pharmacy on my way to meet you alone, and I used a blank prescription pad I keep, and got them. I was so drugged up when we went to the Tidal Basin that I could barely walk. But it helped me to speak, helped me to fight the programming."

"You were drugged?" I said, amazed. (I know—Max Carrados would have figured it out. But me—)

"Yes!" BOOM. "Every time I saw you after that time. And it's worked better every time. But I've had to pretend I was still working on you, to protect us both. The last time we were up here "BOOM" you *know* I'm with you, Carlos, do you think I would have faked that?"

Bassoon voice, hoarse with pain. Low rumble of thunder, in the dis-



tance. Flickers in the darkness, no longer as distinct as before: my moments of vision were coming to an end. "But what do they *want*?" I cried.

"Blasingame thinks your work will solve the problems they're having getting sufficient power into a very small particle beam weapon. They think they can channel energy out of the microdimensions you've been studying." *Blam*. "Or so I guess, from what I've overheard."

"Those fools." Although to an extent there might be something to the idea. I had almost guessed it, in fact. So much energy. . . . "Blasingame is such a fool. He and his stupid Pentagon bosses—"

"*Pentagon!*" Mary exclaimed. "Carlos, these people are *not* with the Pentagon! I don't know who they are—a private group, from West Germany, I think. But they kidnapped me right out of my apartment, and I'm a statistician for the Defense Department! The Pentagon has nothing to do with it!"

*Blam*. "But Jeremy . . ." My stomach was falling.

"I don't know how he got into it. But whoever they are, they're dangerous. I've been afraid they'll kill us both. I know they've discussed killing you, I've heard them. They think you're on to them. Ever since the Tidal Basin I've been injecting myself with Fifty and MDMA, a lot of it, and telling them you don't know a thing, that you just haven't *got* the formula yet. But if they were to find out you know about them. . . ."

"God I hate this spy shit," I exclaimed bitterly. And the oh-so-clever trap in my office, warning Jeremy off. . . .

It started to rain hard. I let Mary lead me down into my apartment. No time to lose, I thought. I had to get to my office and remove the trap. But I didn't want her at risk, I was suddenly frightened more for this newly revealed ally than for myself—

"Listen, Mary," I said when we were inside. Then I remembered, and whispered in her ear, "Is this room bugged?"

"No."

"For God's sake"—all those silences—she must have thought me deranged! "All right. I want to make some calls, and I'm sure my phones are bugged. I'm going to go out for a bit, but I want you to stay right here. All right?" She started to protest and I stopped her. "Please! *Stay right here*. I'll be right back. Just stay here and wait for me, *please*."

"Okay, okay. I'll stay."

"You promise?"

"I promise."

Down on the street I turned left and took off for my offices. Rain struck my face and I automatically thought to return for an umbrella, then angrily shook the thought away. Thunder still rumbled overhead from time to time, but the brilliant ("brilliant!" I say—meaning I saw a certain

lightness in the midst of a certain darkness) the brilliant flashes that had given me a momentary taste of vision were gone.

Repeatedly I cursed myself, my stupidity, my presumption. I had made axioms out of theorems (humanity's most common logical-syntactic flaw?), never pausing to consider that my whole edifice of subsequent reasoning rested on them. And now, having presumed to challenge a force I didn't understand, I was in real danger, no doubt about it; and no doubt (as corollary) Mary was as well. The more I thought of it the more frightened I became, until finally I was as scared as I should have been all along.

The rain shifted to an irregular drizzle. The air was cooled, the wind had dropped to an occasional gust. Cars hissed by over wet 21st Street, humming like Mary's voice, and everywhere water sounded, squishing and splashing and dripping. I passed 21st and K, where Ramon sometimes set up his cart; I was glad that he wouldn't be there, that I wouldn't have to walk by him in silence, perhaps ignoring his cheerful invitation to buy, or even his specific hello. I would have hated to fool him so. Yet if I had wanted to, how easy it would have been! Just walk on by—he would have had no way of knowing.

A sickening sensation of my disability swept over me, all the small frustrations and occasional hard-learned limits of my entire life balling up and washing through me in a great wave of fear and apprehension, like the flash-Boom of the lightning and thunder, the drenching of the downpour: where was I, where was I going, how could I take even one step more?

This fear paralyzed me. I felt as though I had never come down from the drugs Jeremy had given me, as though I struggled under their hallucinatory influence still. I literally had to stop walking, had to lean on my cane.

And so I heard their footsteps. Henry Cowell's *The Banshee* begins with fingernails scraping repeatedly up the high wires of an open piano; the same music played my nervous system. Behind me three or four sets of footsteps had come to a halt, just a moment after I myself had stopped.

For a while my heart hammered so hard within me that I could hear nothing else. I forced it to slow, took a deep breath. Of course I was being followed. It made perfect sense. And ahead, at my office. . . .

I started walking again. The rain picked up on a gust of wind, and silently I cursed it; it is difficult to hear well when rain is pattering down everywhere, so that one stands at the center of a universal *puh-puh-puh-puh*. But attuned now to their presence, I could hear them behind me, three or four (likely three) people walking, walking at just my pace.

Detour time. Instead of continuing down 21st Street I decided to go west on Pennsylvania, and see what they did. No sound of nearby cars

as I stood still; I crossed swiftly, nearly losing my cane as it struck the curb. As casually, as "accidentally" as I could, I turned and faced the street; the sonar glasses whistled up at me, and I knew people were approaching though I could not hear their footsteps in the rain. More fervently than ever before I blessed the glasses, turned and struck off again, hurrying as much as seemed natural.

Wind and rain, the electric hum and tire hiss of a passing car. Washington late on a stormy spring night, unusually quiet and empty. Behind me the wet footsteps were audible again. I forced myself to keep a steady pace, to avoid giving away the fact that I was aware of their presence. Just a late night stroll to the office. . . .

At 22nd I turned south again. Ordinarily no one would have backtracked on Pennsylvania like that, but these people followed me. Now we approached the university hospital, and there was a bit more activity, people passing to left and right, voices across the street discussing a movie, an umbrella being shaken out and folded, cars passing . . . still the footsteps were back there, farther away now, almost out of earshot.

As I approached Gelman Library my pulse picked up again, my mind raced through a network of plans, all unsatisfactory in different ways. . . . Outdoors I couldn't evade pursuit. Given. In the building—

My sonar whistled up as Gelman loomed over me, and I hurried down the steps from the sidewalk to the foyer containing the elevator to the sixth and seventh floors. I missed the door and adrenaline flooded me, then there it was just to my left. The footsteps behind me hurried down the sidewalk steps as I slipped inside and stepped left into the single elevator, punched the button for the seventh floor. The doors stood open, waiting . . . then mercifully they slid together, and I was off alone.

A curious feature of Gelman Library is that there are no stairways to the sixth and seventh floors (the offices above the library proper) that are not fire escapes, locked on the outside. To get to the offices you are forced to take the single elevator, a fact I had complained about many times before—I liked to walk. Now I was thankful, as the arrangement would give me some time. When the elevator opened at the seventh floor I stepped out, reached back in and punched the buttons for all seven floors, then ran for my office, jangling through my keys for the right one.

I couldn't find the key.

I slowed down. Went through them one by one. Found the key, opened my door, propped it wide with the stopper at its base. Over to the file cabinet, where I opened the middle drawer and very carefully slid one hand down the side of the correct file.

The mousetrap was gone. They knew that I knew.

I don't know how long I stood there thinking; it couldn't have been long, though my thoughts spun madly through scores of plans. Then I

went to my desk and got the scissors from the top drawer. I followed the power cord of the desk computer to its wall socket beside the file cabinet. I pulled out the plugs there, opened the scissors wide, fitted one point into a socket, jammed it in and twisted it hard

*Crack.* The current held me cramped down for a moment—intense pain pulsed through me—I was knocked away, found myself on my knees slumping against the file cabinets.

(For a while, when I was young, I fancied I was allergic to novocaine, and my dentist drilled my teeth without anesthetic. It was horribly uncomfortable, but tangent to normal pain: pain beyond pain. So it was with the shock that coursed through me. Later I asked my brother, who is an electrician, about it, and he said that the nervous system was indeed capable of feeling the sixty cycles per second of the alternating current: "When you get bit you always feel it pumping like that, very fast but distinct." He also said that with my wet shoes I could have been killed. "The current cramps the muscles down so that you're latched onto the source, and that can kill you. You were lucky. Did you find blisters on the bottoms of your feet?" I had.)

Now I struggled up, with my left arm aching fiercely and a loud hum in my ear. I went to my desk. As they beeped fairly loudly, I took my glasses off and put them on a bookshelf facing the door. I tested the radio—it had no power. Wondering if the whole floor was dead, I went into the hall briefly to look into a ceiling light. Nothing. Back at the desk I took stapler and water tumbler, put them beside the file cabinet. Went to the book shelves and gathered all the plastic polyhedral shapes (the sphere was just like a big cue ball), and took them to the file cabinet as well. Then I found the scissors on the floor—

Out in the hall the elevator doors opened. "It's dark—" "Shh." Hesitant steps, into the hall. I tiptoed to the doorway. Here it was possible to tell for sure that there were only three of them. There would be light from the elevator, I recalled: it wouldn't do to be illuminated. I stepped back.

(Once Max Carrados was caught in a situation similar to mine, and he simply announced to his assailants that he had a gun on them, and would shoot the first person to move. In his case it had worked; but now I saw that the plan was insanely risky. . . .)

"Down here," one whispered. "Spread out, and be quiet." Rustling, quiet footsteps, three small clicks (gun safeties?). I retreated into the office, behind the side of the file cabinet. Stilled my breathing, and was silent in a way they'd never be able to achieve. If they heard anything it would be my glasses. . . .

"It's here," the first voice whispered. "Door's open, watch it." Their breathing was quick. They were bunched up outside the door, and one said "Hey, I've got a lighter," so I threw the pulled-open scissors overhand.





"Ah! Ah—" Clatter, hard bump against the hall wall, voices clashing, "What" "threw a knife" "ah"—

I threw the stapler as hard as I could, *wham*—the wall above, I guessed, and threw the dodecahedron as they leaped back. I don't know what I hit. I jumped almost to the doorway, and heard a voice whisper "Hey." I threw the cue-ball sphere right at the voice. *Ponk*. It sounded like—like nothing else I have ever heard. (Although every once in a while some outfielder takes a beepball in the head, and it sounded something like that, wooden and hollow). The victim fell right to the hall floor, making a heavy sound like a car door closing; a metallic clatter marked his gun skidding across the floor. Then CRACK! CRACK! CRACK! another of them shot into the office. I cowered on the floor and crawled swiftly back to the file cabinet, ears ringing painfully, hearing wiped out, fear filling me like the smell of cordite leaking into the room. No way of telling what they were doing. The floor was carpet on concrete, with no vibrations to speak of. I hung my mouth open, trying to focus my hearing on the sound of my glasses. They would whistle up if people entered the room quickly, perhaps (again) more loudly than the people would be on their own. The glasses were still emitting their little beep, now heard through the pulsing wash of noise the gunshots had set off in my ears.

I hefted the water tumbler—it was a fat glass cylinder, with a heavy bottom. A rising whistle—and then, in the hall, the rasp of a lighter flint being sparked—

I threw the tumbler. *Crash*, tinkle of glass falling. A man entered the office. I picked up the pentahedron and threw it—thump of it against far wall. I couldn't find any of the other polyhedrons—somehow they weren't there beside the cabinet. I crouched and pulled off a shoe—

He swept my glasses aside and I threw the shoe. I think it hit him, but nothing happened. There I was, without a weapon, utterly vulnerable, revealed in the glow of a damned cigarette lighter. . . .

When the shots came I thought they had missed, or that I was hit and couldn't feel it; then I realized some shots had come from the doorway, others from the bookcase. Sounds of bodies hit, staggering, falling, writhing—and all the while I cowered in my corner, trembling.

Then I heard a nasal groan from the hall, a groan like a viola bowed by a rasp. "Mary," I cried, and ran into the hallway to her, tripped on her. She was sitting against the wall—"Mary!" Blood on her—"Carlos," she squeaked painfully, sounding surprised.

Fortunately, it turned out that she had only been wounded; the bullet had entered just under the shoulder, wrecking it but doing no fatal damage.

I learned all this later, at the hospital. An hour or more after our

arrival a doctor came out and told me, and the sickening knot of tension in my diaphragm untied all at once, making me feel sick in another way, dizzy and nauseous with relief, unbelievably intense relief.

After that I went through a session with the police, and Mary talked a lot with her employers, and after that we both answered a lot of questions from the FBI. (In fact, that process took days.) Two of our assailants were dead (one shot, another hit in the temple with a sphere) and the third had been stabbed: what had happened? I stayed up all through that first night explaining, retrieving and playing my tapes, and so on, and still they didn't go for Jeremy until dawn; by that time he was nowhere to be found.

Eventually I got a moment alone with Mary, about ten the following morning.

"You didn't stay at my place," I said.

"No. I thought you were headed for Blasingame's apartment, and I drove there, but it was empty. So I drove to your office and came upstairs. The elevator opened just as shots were being fired, so I hit the deck and crawled right over a gun. But then I had a hell of a time figuring out who was where. I don't know how you do it."

"Ah."

"So I broke my promise."

"I'm glad."

"Me too."

Our hands found each other and embraced, and I leaned forward until my forehead touched her shoulder (the good one), and rested.

A couple of days later I said to her, "But what were all those diagrams of Desargues' Theorem about?"

She laughed, and the rich timbre of it cut through me like a miniature of the current from my wall socket. "Well, they programmed me with all those geometrical questions for you, and I was roboting through all that, you know, and struggling underneath it all to understand what was going on, what they wanted. And later, how I could alert you. And to tell you the truth, Desargues' Theorem was the only geometry of my own that I could remember from school. I'm a statistician, you know, most of my training is in that and analysis. . . . So I kept drawing it to try to get your attention to *me*. I had a message in it, you see. You were the triangle in the first plane, and I was the triangle in the second plane, but we were both controlled by the point of projection—"

"But I knew that already!" I exclaimed.

"Did you? But also I marked a little *J* with my thumbnail by the point of projection, so you would know Jeremy was doing it. Did you feel that?"

"No. I Xeroxed your drawings, and an impression like that wouldn't



show up." So my indented copy, ironically enough, had missed the crucial indentation. . . .

"I know, but I was hoping you would brush it or something. Stupid. Well, anyway, between us all we were making the three collinear points off to the side, which is what they were after, you see, determined in this case by point *J* and his projection. . . ."

I laughed. "It never occurred to me," I said, and laughed again, "but I sure do like your way of thinking!"

I saw, however, that the diagram had a clearer symbolism than that.

When I told Ramon about it, he laughed too. "Here you are the mathematician and you never got it! It was too simple for you!"

"I don't know if I'd call it *too simple*—"

"And wait—wait—you say you told this here girlfriend of yours to stay behind at your house, when you knew you were going to run into those thugs at your office?"

"Well, I didn't *know* they'd be there right then. But . . ."

"Now *that* was superblink."

"Yeah." I had to admit it; I had been stupid, I had gone too far. And it occurred to me then that in the realm of thought, of analysis and planning, I had consistently and spectacularly failed. —Whereas in the physical continuum of action, I had (up to a point) (a point that I didn't like to remember [*ponk* of sphere breaking skull, cowering revealed in a lighter's glare]) done pretty well. Though it was disturbing, in the end this reflection pleased me. For a while there, anyway, I had been almost free of the world of texts.

Naturally it took a while for Mary to regain her health; the kidnapping, the behavior programming, the shooting, and most of all the repeated druggings her captors and she had subjected herself to, had left her quite sick, and she was in the hospital for some weeks. I visited every day; we talked for hours.

And naturally, it took quite a while for us to sort things out. Not only with the authorities, but with each other. What was real and permanent between us, and what was a product of the strange circumstances of our meeting—no one could say for sure which was which, there.

And maybe we never did disentangle those strands. The start of a relationship remains a part of it forever; and in our case, we had seen things in each other that we might never have otherwise, to our own great good. I know that years later, sometimes, when her hand touched mine I would feel that primal thrill of fear and exhilaration that her first touches had caused in me, and I would shiver again under the mysterious

impact of the unknown other. . . . And sometimes, arm in arm, the feeling floods me that we are teamed together, in an immense storm of trouble and threat that cracks and thunders all around us. So that it seems clear to me, now, that loves forged in the smithy of intense and dangerous circumstances are surely the strongest loves of all.

I leave the proof of this as an exercise for the reader. ●

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## NEXT ISSUE:

Nebula-and-Hugo winner **Robert Silverberg** returns to these pages next month with our September cover story, "The Secret Sharer." The *Sword of Orion* is an immense, miles-long starship, existing partially in our space and partially in hyperdimensional space, on its way to the distant world of Cul-De-Sac with a cargo of climate nodes, bone banks, communication bubbles, artificial intelligences, skin-and-organ synthesizers, gene replacement kits, and a load of seven thousand sleeping colonists, frozen in cryogenic storage. The *Sword of Orion* is young Captain Adam's first command, and the responsibility weighs heavily on him... but things *can* get worse, for soon, alone in the vastness of interstellar space, he finds that he also has to contend with a bizarre and dangerous kind of stowaway as well... "The Secret Sharer" is sure to be one of the year's most prominent novellas; don't miss it. Hugo-and-Nebula winner **Orson Scott Card** is also on hand for September, and from the far future he takes us back to the early frontier days of 1800's Ohio for a look at two alien cultures in conflict, in the gripping "Carthage City," a novella set in the same milieu as last year's popular "Hatrack River."

Also in September: recent Nebula-winner **Nancy Kress** returns for a look at the consequences of Knowing Too Much, in the sleek and stylish "Glass"; new writer **Tom Maddox** makes his *IASfm* debut with a fast-paced tale of romance and high-tech intrigue, in "Spirit of the Night"; new writer **Brad Ferguson** makes *his* debut in *IASfm* with an evocative sideways look at "The World Next Door," an alternate reality where 1962's Cuban Missile Crisis took an even-more ominous turn; and **Andrew Weiner** returns with "The Alien in the Lake," a wry examination of the sociological and interpersonal consequences of a series of Very Close Encounters. Plus an array of columns and features. Look for the September issue on your newsstands on July 28, 1987.