

RHEA'S TIME

Paul Preuss

The execution was set for March 29th, at 9:00A .M. This delay(whose importance the reader will grasp later) was owing to the desire on the authorities' part to proceed impersonally and slowly, after the manner of vegetables and plants.

—Jorge Luis Borges, *The Secret Miracle*

Rhea K. (a pseudonym) is a geologist in her early thirties with a firm reputation in biostratigraphy, which I gather is a field of study that tries to impose order upon the chaos of the Earth's jumbled rocks by examining the remains of life, if any, that can be detected in them. Her photographs reveal an attractive woman—striking, really—with blue eyes, reddish blond hair in loose curls, a sunburned, lightly freckled complexion; of medium height, slender of build but strongly muscled. In this shot she's wearing lederhosen, a white cotton sleeveless undershirt with no bra, and clumpy boots, and there are some rather frightening mountain peaks in the background, which I suppose she has just climbed or is about to.

Her problems began in what appeared to be a straightforward way. With hindsight, of course, we note that matters were not as simple as they seemed. Her case has come to me because . . .

You're too tired to be precious, Rowan; just write the truth and clean it up later.

DECEMBER 17, 10:30 P.M.

The end of a typically foul New England winter's day, and my distinguished colleague, formerly professor and hetman of neurology, has at last made his getaway—well tanked on very fine old sherry, with handshakes and relieved smiles all around—to that renowned research institution in Manhattan of which he is to be the next president. Rhea was his patient, so-called. After so many months and so little change in her condition, her care has become a matter of rote—if not a silent reproach.

He dumped her on me. He did not fail to let me know, as he left, that he would understand completely if I recommended that she be transferred to custodial care. Free up needed space in the neurology wing, old boy; or in other words, old boy, the record will show that I tried, you failed.

So now the party's over and I've just spent an hour reviewing her medical history. More hole than doughnut.

Patient involved in skiing accident near Geneva, December 29th of last year. No immediate symptoms. Two days later, at New Year's Eve party, patient complained of severe headache, soon lost consciousness. On arrival at ER, patient was in coma; blood pressure and heart rate low, respiration rate low, and (odd note) body temperature elevated to forty degrees C (104°F).

CAT scan, NMR, spinal tap, the full menu. Contusion above left eye, subdural hematoma of minor extent over the right visual cortex, but other than presumed blow to the head, no sign of injury. Brain structure normal. Blood chemistry normal. No tumor. No infection. Neurosurgeon decided against intervention (correctly, for within a few days the hematoma was reabsorbed).

Only the EEG admitted a problem: the electrical activity of her left hemisphere was essentially flat, while that of the right hemisphere was chaotic. I have the plots in front of me now; I can call up the whole eleven-plus months on disk. Never seen anything like it.

Patient remained in coma. After two months, transferred at husband's request. . . .

Thus Rhea was installed in our wing, where she still remains and where I noticed her for the first time, a rag doll of a young woman in a thin hospital gown, whose faintly yellow skin, even though inflated by intravenous fluids, could not disguise her loss of muscle tone. She did not react to light, sound, or touch. She lay in whatever position her nurses arranged her—if they opened her eyes, her eyes remained open and unblinking; if they closed them, they remained closed. I had seen many like her, usually the victims of trauma or drug overdose. I remember glancing at the record: blow to the head . . . cerebral hemorrhage . . . coma. Simple. She was not my patient.

It was mid-March then—springtime, which means nothing, or rather the opposite of what one might think, for like most large buildings on this coast of America, our hospital is a furnace during the cool half of the year, a freezer during the warm half. (The microorganisms love us for it.) Rhea was generally covered only with a sheet, with a light blanket kept folded at the bottom of the bed; on successive mornings the nurse noticed the blanket pulled neatly up to Rhea's chin. Nurse would fold it and return it to the bottom of the bed. After a week of this she thought to ask the night nurse why it was necessary to cover Rhea every night, and learned that the night nurse had not been doing so.

One has to skim the videotape they made that night; it moves like an Andy Warhol film of the Empire State Building. The fluorescent light in Rhea's windowless room is that of a morgue. Her left hand moves at a speed of inches per hour toward the foot of the bed, until her body is bent almost at right angles. She grasps the hem of the blanket and begins pulling it up at the same rate, straightening herself by millimeters, and now using her creeping right hand to smooth the blanket across her chest. Her hands, moving at the speed of glaciers, resume their former position at her sides. This takes eight hours. No one glancing briefly at the monitor or into her room from the hall could have known that she was moving at all.

Against this date I can barely decipher the abbreviated jargon of our former neurological mikado ordering up a new round of tests which, however, reveal no quantifiable change.

Thereafter Rhea is observed shifting the bed clothes constantly, around the clock. Pulls up her blanket, pushes it down again, pushes away her sheet, pulls up her gown, exposing her naked self. At this hint of sex, the local pack of witch doctors becomes highly aroused.

She reverses the process: down with the gown, up with the sheet, up with the blanket, down again. The cycle takes days, and repeats. She's always in motion, the same slow motion, almost too slow to catch. A nurse tries to stop her from pulling up her gown—nurse records astonishment at the juggernaut strength of the wasted woman. The nurses grow impatient with Rhea's immodesty and untidiness and strap her wrists to the bed rail, but so persistently does Rhea strain against the bonds that she is in danger of dislocating a joint. Our maharaja orders her untied—man's been around, he can handle the sight of rumpled bedclothes.

In May, Rhea begins to hum. Or growl, or groan. At any rate, she makes tuneless rumblings deep in her throat, occasionally punctuated by quiet little yelps and gasps. Somebody notices that the EEG has changed: right hemisphere still a chaotic jumble, but the left hemisphere has perked up considerably. It occurs to me—it would not have occurred to them—that the new pattern on this side could be almost normal, for someone in deep hypnosis.

Boards and committees, meetings and consultations. The shamans are given their way with her.

Interventions with various psychoactive drugs have no effect except to precipitate one life-threatening crisis. Husband (wisely, in my opinion) refuses permission for electro-stimulus of his wife's brain, despite assurances that "the procedure would serve to, if not normalize, at least *regularize* her brain wave patterns." Rhea still hums, growls, mutters meaninglessly to herself, still incessantly crumples and stretches, twists and smooths her sheets and blankets and gown. Bursts of fever still bloom on her skin without warning. . . .

Six months of this bring us to the present.

DECEMBER 18, 11:00 A.M.

I've just come from my first interview with Rhea.

Before coming in this morning I called in orders that she was to be helped out of bed and into her clothes. I don't approve of the American custom of coddling patients like infants, and Rhea has been doing isometric exercises for months—no fear of her collapsing on me. I wanted to see her sitting up.

Fuss and mutter, but when I arrived I found it done. Rhea was sitting bolt upright in a steel armchair, looking toward me with wide bright eyes that saw I knew not what. They had dressed her in a plaid wool skirt, a high-collared white blouse, a light wool cardigan, white socks and loafers—done their best to make her look like a schoolgirl, in other words. But her chapped hands were destroying their work, millimeter by millimeter; her skirt was on its way to her waist, and one side of her blouse was already out of the waistband.

"Rhea, can you hear me?"

No answer, of course. I did the usual examination, peering into her eyes, testing her strength and reflexes. Discounting her complete lack of awareness of me, or at any rate her total disregard, she was physically normal.

Next I put the cassette player on the tray table where she could hear it and started a Bach flute sonata. I studied her face, but her expression did not

seem to change. "Rhea, I think you can hear me. I think that at some level my words are making sense to you—but that you can't, mm, put together an answer."

I paused to see if this elicited any response, meanwhile working my grandfather's fat old gold watch free from its waistcoat pocket, where the pressure of my belly secured it. "I'm going to try to help you by hypnotizing you."

My fondness for hypnotism was one of the reasons our once-upon-a-time generalissimo of neurology had liked to call me "old boy," and certainly one of the reasons I was regarded askance by staff, but it had stood me in good stead over the years—even if neither I nor anyone could explain why it worked, any better than my grandfather could. Normally one required an alert and cooperative subject, but I was privately convinced that at least half of Rhea's brain was—for want of a better term—already hypnotized. I hoped merely to introduce specific suggestions.

I let the watch swing before her eyes while I muttered the usual soothing incantations. I kept this up for several minutes, far longer than usual. I thought perhaps Rhea's pupils flickered ever so slightly from side to side, but that may have been wishful thinking.

I put the watch away and introduced myself again, as if I had just walked into the room. "Hello, Rhea. I'm Doctor Rowan. You are able to hear and understand me—and speak whenever you want." So I

hoped. “May I ask you some questions?”

“Yes.”

Fireworks. Church bells. Nobel prizes in physiology or medicine. “Good. That’s very good.” I took a long breath to calm myself. “Now first of all would you mind telling me, what is your name?”

She answered correctly. “And today’s date?”

“We don’t know.” Her voice was dry, toneless, but strong and clear. Her eyes were focused somewhere behind me. Before I could ask the next question, she continued, “The time is approximately one hundred and sixty-nine million, nine hundred and eleven thousand, three hundred years before the present.”

A weirdly paradoxical response—she claimed to experience a time she *knew* to be before the present? Certainly odd enough to make me abandon my script. “What do you mean by the present?”

“The time here.”

“And that is different from some other time?”

“From my time.”

Her left brain was formulating these answers, I reminded myself, acting as a sort of translator for the outside world of language. Apparently “her time” was what she experienced in the inarticulate right brain.

“What is your time . . . like?” Stupidly put; I knew so even as I asked it.

“Inside time, time is time.”

Indeed. What did I really want to know? I watched her hands, which had never ceased their hauling and pushing. “What is happening—where you are?”

“Mountains rise and fall. Rivers flow. I am alive everywhere.”

“What time is it now?”

“Approximately one hundred and sixty-nine million, nine hundred and one thousand, nine hundred years before the present.”

In the minute or so since I’d asked her before, almost nine thousand years had passed in “her time.”

“Can you see yourself?”

“I see and feel myself.”

“What do you see?”

“The land of me is all in front. The water of me is everywhere else. The molten stuff of me pours out in seams, and the land of me has begun to split apart.”

The most extraordinary delusion! Did she believe this, or was she, as her use of the words “here” and “we” suggested, aware of her dreaming half, somehow aware that part of her was consciously creating a fantastic global metaphor? The map of the body can be drawn and redrawn by many agents, of course,

and sophisticated self-knowledge is no defense against illusion. Even such a renowned neurologist as Professor Sacks was capable of seeing his own nerve-damaged leg as a chalky white cylinder, now short and fat, now “a thousand feet long and two millimeters in diameter,” changing size and shape and position many times each second, “a thousandfold switch between successive ‘frames,’ ” as he put it in one of those popular bestsellers of his.

“Do you know what will happen to you next?”

“No. Here we know it, but I live there.”

Something in me recoiled then, and I said, rather sharply, “Rhea, wake up.”

But she did not wake up.

SAME DATE, 7:30 P.M., IN THE MEDICAL SCHOOL LIBRARY.

Time seems to be one of those topics that once generated great philosophical enthusiasm among physiologists but has withered for want of a means of extracting relevant human results from the overwhelming experimental mass. The more recent the work, the less ambitious it is—viz., “Hypothalamic control of circadian rhythms in the hamster,” etc.

Going back a few years one finds Fischer, Cohen, et al. recording that hypnosis, some forms of psychosis, hallucinogenic intoxication, paresis, all give rise to distorted time sense, i.e., scrambled sequence, sense of simultaneity, or overestimate of chronological time. And Pieron, Arrhenius, Hoagland, et al. correlated body temperature with the internal metabolic clock, e.g., elevated temperature corresponds to faster oxidative metabolism, thus a faster internal clock, thus the sensation that (external) time is slowing down; charts were given for increase in alpha wave frequency with increasing body temperature. (But even at 104°F the increase, not much more than one Hertz, could hardly contribute to the persistent chaos in Rhea’s right-brain pattern. If pattern is the word.)

(Perhaps pattern is the word.) There may be a possibility here that no one would have entertained as worthy of investigation even if it had occurred to them. Even I. The notion is absurd on its face.

Back to the bibliographies, on a different tack. Goldberger, Rigney, and West, nonlinear dynamics in physiology: heart rate exhibits self-similarity at different time scales. No such data on brain waves; given specific input, however—Rhea’s chart—it is the sort of question even a precomputer-era fossil like me can pose to an expert system.

Off to my shared office in Neurology to retrieve the disks from the drawer I call my own. I log on to the local network and tap furiously. I get a cheerful display: “Welcome toBIOMATH HELPER . This software system is down until further notice.”

DECEMBER 19, 3:30 P.M.

Another extraordinary conversation with Rhea. After the lightest brush of suggestion she talked readily; yet when I left she was as deep in trance as ever. Questioning her, I became entranced myself; so relentless was the flow of dates that, almost, I was the one hypnotized.

So precise were her descriptions that I sent myself back to the library and dug up stacks of illustrated articles, some technical, some popular—God knows there is no shortage of them—which picture the wanderings of the continents for the past 200 million years or more. It seems we live near the end of only the most recent spreading of the seafloors, which have expanded and recontracted many times before; the Earth might be taken for a thing that breathes. In the course of her career Rhea has mastered these

coordinates and timetables, which to the uninitiated seem so many unrelated numbers, and she now regurgitates them obsessively.

DECEMBER 20, MIDDAY.

It's time to have a talk with Rhea's husband (I'll call him Arthur), and since my rooms are in one of the new colleges, a short walk from Science Hill, I decide to beard him in his den.

I am told that the university's accelerator laboratory is small as such places go, but it has a certain futuristic dignity all its own. Outside, it's a blocklong Neolithic burial mound, geometrically precise, carpeted with clipped green grass; inside, it's a concrete vault, which houses a stainless steel machine as big as a U-boat.

They find Arthur for me and take me to him, down on the floor beside a nest of metal boxes garlanded with black rubberized cables, rooting like a scavenger in a basket of computer printout. He's a compact fellow, mid-forties, his face almost completely obscured by a brushy blond beard, with bristling blond brows and stiff blond hair going to gray. When he finally looks up, dark brown eyes stare out of the thicket through rimless plus-three diopters, giving him the look of a pugnacious sea otter.

I ask him about the ski accident and the New Year's Eve party. He adds a few details to the record—talking a mile a minute in the pained manner of someone explaining the obvious to an idiot. They took their holidays in the mountains near Geneva—the Juras, not the Alps, the Alpine resorts being too expensive and crowded—because he was working for six months at the big European physics laboratory near there. The New Year's party was at the apartment of Arthur's team leader, a Professor Kertesz. When Rhea complained of a blinding headache, nobody did anything at first because they thought she'd simply drunk too much. The ambulance was an hour late because of the holiday mob.

I want to know something about Arthur personally, about his work. He blinks rapidly and tells me he's a theorist; apparently this means his interest in machines is confined to the graphs they excrete. The one nearby is a sort of electromagnetic cannon that pushes the nuclei of large atoms to some significant fraction of the speed of light, thus allowing him to study their interactions.

Mm, I nod sagely. Interactions.

Like these, he says, and shows me a graph which could well be a pen and ink sketch of the Dolomites. He mumbles about the contraction of the t coordinate and shows me another, even more jagged.

The contraction of what?

“Picture a Minkowski diagram in which . . .”

—but he sees that I fail the Snow test and could not distinguish the second law of thermodynamics from the dust of Alexander stopping a bung hole. (Or do they amount to the same thing?) With an elaborate sigh—which leads me to suspect he has often rehearsed what is about to come, doubtless on sophomores in those obligatory Science for Poets classes—Arthur fetches me over to the coffee setup on a table against one chilly concrete wall.

He plops a filter cone into the top of the pot (a Chemex, what else?) and produces an unnaturally sharp pencil from the handkerchief pocket of his tweed jacket, which he stands in the cone, eraser down, point up.

“This is a Minkowski diagram. The t coord . . . uh, *time* is vertical, space is horizontal. The pencil is a worldline, pointing in the direction of increasing time. Right now it's standing straight up—which means

the particle it represents is going nowhere in space; it's just sitting still, getting older. Light paths lie on the surface of the cone. . . . Uh, you know that nothing travels faster than light?"

"So I have heard." Really, Arthur.

"All right then, as I tilt the worldline—the pencil—away from the vertical, what does that say about the speed of the particle it represents?" "Increases. Approaches the speed of light," I croak.

Should I not rejoice in the opportunity to learn something new? Why do I want to scream?

He grunts—"I will omit the subtleties"—and returns the pencil to the vertical. "What, in your experience, is the subjective feeling of the passage of time if one is sitting still, going nowhere, doing nothing?"

"In my experience it passes very slowly indeed, Arthur."

He lets the pencil fall against the cone. "What do you suppose would be the experience of a photon, moving at the speed limit of the universe?"

This question gives me pause. I'm sure I've heard or read it before, and it seems there is a trick answer—no doubt I could find it in that yellowing copy of Hawking's *A Brief History of Time*, which lies unread on my sitting room table.

But I have become intrigued in spite of myself, and actually try to think this out. If nothing travels faster than light, how could a particle of light get news from other parts of the universe? It doesn't seem that it could—it could only experience the universe as it participated in events along its own . . . worldline, as Arthur calls it. Between events, nothing. Therefore everything would seem to happen at once; therefore . . .

"No time," I venture. "It seems there would be no experience of time."

Arthur's eyes gleam hugely behind his glasses, and he nods; I realize that this is as near to congratulations as he is likely to come. How many sophomores get that question right? I wonder, flattering myself.

He moves the pencil back and forth in the coffee filter like an upside-down pendulum. "From our point of view as observers, we simply see something speeding up, slowing down. We can't experience *its* time; certainly our own experience is unaffected. A material object can never actually reach the speed of light." He waves at the great stainless steel machine. "We observe this every day in our accelerators, we are forced to take this into account in our calculations: nuclei grow ever more massive, require ever greater inputs of energy to increase their velocities by ever smaller degrees. I am certain, however, that if such a nucleus were conscious, it would notice nothing unusual about its own state. It would look out at us observers and think how odd that *our* lives were passing so quickly."

Arthur repockets his pencil, and we stare at each other. His bright black button eyes gleam at me out of his grizzled fur.

"You've written rather extensively on the subject of time, have you?" I ask.

He seems genuinely surprised. "I have?"

"I ran down your bibliography on the library computer. 'Quantum Gravity and Space-time,' several titles of that sort."

"Oh. Every physicist wrestles with time. It's nothing, just mathematics." A distracted look has come into Arthur's bespectacled eyes.

Another tack. One learns not even to wonder what people see in each other—in the case of Rhea and Arthur I can't imagine—but I want to know how they met. They'd been married less than two years before her accident.

"In Vermont, on a mountaineering club outing," he says. "We were both rock climbers. We took an interest in each other's work. She had a good understanding of what I have just been telling you."

Better than I do, he does not need to add. "What was of particular interest to you in her work?"

After a moment spent brooding on the question he replies, "Whereas I am concerned with objects with typical half-lives of a few milliseconds up to a few seconds, the shortest time scales of interest to her were a few thousand years; more typically a million years, or a dozen million, or a couple of hundred million."

Though I persist a few minutes longer, Arthur has by now left for some other mental universe and gives me nothing more.

Leaving the accelerator center I notice the natural history museum standing on the flank of Science Hill to the east, almost diffident in its too-appropriate apposition to the nuclear accelerator. It is a miniature Gothic castle of flaking orange sandstone, once the stronghold of our university's famous nineteenth-century robber-baron paleontologist.

I remember my first and only visit to the building, not long after receiving my appointment here—seeing with *anaha!* of delight the murals high up on the walls of the tiny central hall (most of which is taken up by the bones of some long-necked, long-tailed dinosaur, a brontosaurus I suppose, although I'm told there's no such beast anymore; taxonomy marches on). These murals are the originals of the illustrations that entranced me when I saw them in an American picture magazine as a child: toothed, clawed, bone-and-leather-armored monsters (actually rather roly-poly in depiction, if the truth be told) plodding through the mud among thickets of exotic palms and cycads; distant silhouettes of nightmare flying things; lurid volcanoes turning the horizon red with fire, black with smoke; finally the blooming of lush magnolias and rhododendrons—and on the opposite wall, the improbable woolly giants of a later age, rambling across endless grassy plains, nonchalantly fleeing the ice.

The artist had arranged what Arthur would call the *t* coordinate to unscroll continuously from left to right; it was all there at once, as fast as the beam of the eye could flicker across the epochs, dozens of millions of years at next to the speed of light.

DECEMBER 21, A SATURDAY MORNING.

A nagging question remains from my talk with Arthur. With some effort I reach him on the phone. "Arthur, these relativistic atomic nuclei of yours—what exactly makes them . . . interact?"

"Well, uh . . . they smash."

"What?"

"Some calculable proportion of beam nuclei collide with target nuclei. Metal, plastic. Depends on the experiment. We look at what flies out."

"What if you didn't put anything—a target—in their way?"

"Why wouldn't . . . ?" I can almost hear his shrug. "They'd smash anyway. Into the wall, the ground."

"So from our point of view these nuclei appear to live longer the faster they move. But not from theirs."

Then they smash.”

He pauses—debating whether to go all technical, I think—but evidently deciding against. “Yes, essentially. Something like that.”

SAME DATE, EVENING.

Our expert system has come back on-line. I load my precious data and ask for analysis. The program probes with a few pertinent questions; luckily I can now specify the key factor with some precision. The machine runs swiftly and gives me . . . nothing. A set of absolutely flat curves, rows of parallel lines of Euclidean perfection. Instead of the structure within chaos I had led myself to expect, I get the encephalogram of a dead woman.

I’m hardly superstitious, but before quitting for the day I decide to look in on Rhea. The floor at night has its customary air of busy quiet, that of an air-raid watch, abuzz with stifled jokes and whispered confessions in anticipation of the crises that come at dawn. Even the blinking red and yellow and blue bulbs on the floor’s solitary, wobbly Christmas tree have the look of warning lights.

With half its overhead fluorescent lamps off, Rhea’s room is only symbolically dim, far from dark. I step to within a foot of her bedside. She is on her left side, back arched, right arm cocked, pushing the sheet slowly down over her breast toward the blanket-clutching left hand that moves up from her ribs. Her eyes are closed. Her tongue clicks and her cheeks suck into hollows. Her breathing is long and deep, the air sighing in and out of her like the wind of a thousand winters.

Closer. Her right ear is feverishly suffused with blood, glowing like a red neon sign. I am a few inches from her side, watching the blanket collide with the sheet under the inexorable force of her shifting hands, the sheet sliding under the more pliable, less dense blanket, a ridge of olivedrab material rising and crumpling upon itself—one fold, then another, a range of parallel folds.

In the rustle of cloth I hear grinding cataclysms.

SAME DATE.

Almost midnight now, in my rooms—a fragrant oak fire in the grate, a balloon of old French brandy in my hand, and beneath the casement, undergraduate males howling at a winter moon. I have just realized that at normal amplitudes the energy required to produce the EEG frequencies I have been toying with wouldn’t have simply elevated Rhea’s temperature, it would have exploded her head.

No wonder the curves were flat. But in fact there may be a signal there. Are the EEG machine’s skin contacts sensitive enough to detect as weak a signal as the one I suspect?

DECEMBER 22.

“Good morning, Rhea. Can you hear me?”

“Yes.”

“I would like to perform some simple tests. They shouldn’t take long. And a little Mozart on the cassette player. I’ll try to make sure you aren’t uncomfortable.”

She said nothing.

“Is that all right with you?”

“Yes.”

I personally implanted the sheathed-needle contacts in her scalp while a technician looked on, disapproving—nothing wrong with my technique, but I certainly was not putting them where he would have. Half an hour later I came away with a scroll of paper in one hand—five minutes of Rhea’s actual right-brain encephalogram—and a fan of computer printout the size of a telephone book in the other, showing the same data reworked by multiplying the amplitude and dividing the frequency by a factor of 4.5×10^8 . The approximate age of the Earth in years.

The book-sized printout looked like an encephalogram all right. Not a mere five minutes’ worth, though. It might just as easily have been taken for a forty-five thousand-year-long seismogram.

DECEMBER 23.

I convinced Arthur to take an hour and visit his wife; he’d got out of the habit in recent months. He remembered to bring a Christmas present; from the shape of the box I guessed it was a nightgown. (It was, floor-length flannel with pink ribbons.) I walked with him to her room, trying to prepare him for what he would see.

He listened to me distractedly. “She was obsessed with gaining a feeling for the eons she dealt with,” he said when I paused. “We were talking about it the day we . . . we went skiing. She seemed very unhappy with the old calendar cliché—you know, compressing Earth’s geological record into a single year. ‘If the Earth formed a second after midnight on the first of January . . .’” Arthur stopped, his open mouth forming a hole in his fur. “Oh dear,” he said. “Is that . . . ?”

“Mm,” I grunted. “Why did she seem unhappy with the calendar metaphor?” An odd thing to get upset about.

“She said it was hard enough to remember onetime scale; having to convert it to another was a waste of mental energy,” he murmured, distracted. “You know, the dinosaurs evolved in the Triassic—or was it in November? That sort of thing.”

Rhea sat upright in her chair, dressed in a long cotton print dress buttoned down the front. Her hands threatened to tear it open over her abdomen, but the process would require hours.

Arthur sat close in front of her. Where I was standing I could not see his face, but he was quiet for an unusually long time. Finally he put out his hand and laid it cautiously over one of hers. While a Bach canon unrolled endlessly on the cassette player, her hand moved, undeterred, beneath his.

I cleared my throat and said, in a loud, formal voice, “What time is it, Rhea?”

“One hundred and seven million, two hundred and seventy-one thousand, six hundred years before the present.”

“And what do you see?” I was like a trainer putting a tame animal through its paces, but I told myself it was necessary for Arthur to understand the whole truth.

“Laurasia has rotated about its center and the western part is high above my equator. What we call the North Atlantic has opened to the west, by an average of twenty degrees of latitude. The Tethys Sea is narrow and closing. Gondwanaland is split by the rift that will become the South Atlantic. To the east, the

India plate . . .”

“I don’t want you to tell me about all of you,” I said, interrupting the detailed recitation. “Go closer to the surface. I want you tell me about what is happening in the center—in the center of you.”

Arthur jerked his bushy head around and looked at me with a frightening gleam in his eye. I wondered what I had said. His burning gaze rested on me a moment longer before he turned back to Rhea and leaned close to her. “Where we might stand and watch together,” he said.

“I glisten under the moon and sun. The shallow water comes and goes over me.”

“Do you remember when we went skiing in the Juras last year?” he demanded.

“No.”

“Do you remember going to Professor Kertesz’s apartment on New Year’s Eve?”

“No.”

“What do you remember about last year in the . . . in the center of you?”

“In the shallow waters that come and go, the myriad creatures are born and die.”

With effort, I kept my mouth shut. There were more basic questions I thought Arthur ought to be asking her, but I was loath to interfere.

He thought of one of them on his own. “Do you know who I am, Rhea?”

“Here you are our husband.”

“Here.” He nodded. “Can you take me *there* ?”

“You cannot go there.”

“I mean, can you tell me about it? Tell me about one single minute, one single hour?”

“No. The years flow like water. The sun and moon spiral and spin in the sky—the stars and the blue sky follow one upon the other, so quickly that they are one. In my clear shallow waters the uncountable microscopic creatures of me die and sink and turn swiftly to smooth layered rock. Here in this place my clear waters recede; my silver rivers braid themselves across the featureless plain of silt. The land of me tries to rise. Before our eyes the twisting rivers grind down the folded schist, smooth and flat. Still the deep rock strains toward the sky, riding up over diving Africa. The roots of my mountains sink and their roofs rise and are stripped bare almost as fast as they rise, but still they rise, and all the clay and sand that wash down from them are spread smooth upon my fine mud, and soon there are layers upon layers of fine mud, which press themselves together and make the fine stone of me, press themselves upon the beaks and bones and scales and footprints and feathers of my myriad creatures. Still the granite and the dolomite are forced up out of me and rise, faster than they can be planed away. My waters recede farther. Black earth covers me, and green plants grow thick over me, and blue ice collects on my high glittering rock”

Arthur seems willing to let this go on forever, but I can take it no longer. “Rhea, wake up!”

She stops talking, but she does not wake up.

DECEMBER 29.

I don't know why Arthur is so fascinated by these obsessively detailed products of Rhea's unconscious imagination. Having learned to ask the triggering questions, he listens to her recite for hours at a time. I could restrict him to visiting hours, but what would anyone gain by it?

Arthur pulled strings with the computing center and got me help in analyzing the year's worth of her EEG, a process which has taken most of the week. The evidence is conclusive, enough to persuade even my most unimaginative colleagues; her case, when it appears in the journals, will make me famous for a week, perhaps for several months. For in Rhea's encephalogram can be read the rift of the Earth's crust, the outpouring of magma, the spread of sea floors, the drift of continents, the rise of mountain ranges—correlated absolutely with the best geological evidence, a topic Rhea had not only mastered but to which she herself had contributed significantly. When she is asked to speak, her running narrative tells the details—at any desired spatial scale, as if her perspective were that of a powerful spy satellite. Her coordinate system is apparently centered on a spot that today is in the Jura mountains northwest of Geneva, the place of her accident.

But her relative time scales are fixed. Therein resides the unanswerable question.

DECEMBER 31.

Within the last half hour, genus Homo has taken to its collective feet, chipped its stone tools, painted the caves of the Pyrenees. Asia and North America have parted and come together again on opposite shores, and humans spill into new continents, extinguishing Quaternary fauna as they go. In a few seconds the Parthenon will be erected, Constantine will see a sign in the sky, Gabriel will speak to Mohammed in the desert, the Americas will be discovered once or twice again, we shall have invented modern warfare, and midnight will be upon us.

From somewhere outside comes the muffled distant noise of car horns and firecrackers. Arthur looks at me, full of apprehension. When my watch chimes softly, I push the key on the cassette player and freeze Bach in the midst of a cantata.

“Rhea, wake up.”

Her suddenly limp hands fall like dead birds to lie motionless in her lap. When she lifts her weary head to look at Arthur, I imagine the hint of a twinkle in her eye.

POSTSCRIPT

Since a more literate version of this account was first published (*The New York Review of Books*, August 199_), Rhea has continued her slow recovery. I persist in thinking of her year-long enchantment as a form of selfhypnosis, triggered by physical circumstances but making use of the emotional and intellectual content of whatever was between her and Arthur, who after all do seem to be following rather different worldlines. She retains a vivid memory of her experience and says she can no longer look at a landscape without imagining it flowing and bending like soft ice cream. She reports that at times in her dreams she finds herself in long-vanished places—on a placid shore under a humid gray sky, perhaps, with dragonflies the size of condors buzzing among the horsetails, and scaly things rippling the oily waters—and she wonders if she will ever waken. Curiously, this prospect, which to me would be a nightmare, bothers her not at all.

She is pregnant and obviously pleased about it. Arthur is pleased too, engagingly so. Rhea—to my mild surprise, given how verbal she could be in trance—has turned out to be a woman of few words; when I

asked her how she felt about the prospect of having a baby, she said simply, “I feel confident.”

There is much Rhea has not told me, perhaps having to do with what really happened on that ski trip—and why it took so long for someone to call an ambulance on New Year’s Eve. What transpired in the sixty hours between the accident and her collapse? I can’t help but wonder if *this is* her first pregnancy—if some disappointment or tragedy in that line had previously robbed her of the confidence she now expresses so firmly. Whatever may have happened before that fateful New Year’s Eve, however, in the twelve months that followed Rhea was granted a profound vision, unique in the long history of the Earth.