

IAN WATSON\_\_\_\_\_.

## Immune Dreams

Adrian Rosen returned from Thibaud's sleep laboratory with a stronger presentiment than ever that he was about to develop cancer. He wasn't so much anxious about this as simply convinced of it as a truth—and certain, too, that in some as yet ill-defined way he was partly in control of these events about to take place inside his body . . .

"It's obsessional," Mary Strobe grieved. "You're receding—from me—from reality. I wish you'd give up this line of research. This constant brooding is vile. It's ruining you."

"Maybe this recession into myself is one of the onset symptoms," Rosen meditated. "A psychological swabbing-down and anesthetizing before the experience?" He lit another of the duty-free Gitanes he'd brought back from France and considered the burning tip. The smoke had no time to form shapes, today. It was torn away too quickly by the breeze, which seemed to be smoking the cigarette on his behalf—as though weather, landscape, and his own actions concurred perfectly. The hood was down, the car open to the sky.

They sat in silence and watched the gliders being launched off the hilltop, this red-haired, angular woman (fiery hair sprouting upon a gawky frame, like a match flaring) and the short burly man with heavy black-framed sunglasses clamped protectively to his face as though he had become fragile suddenly.

The ground fell away sharply before them, to reappear as the field-checked vale far below. The winch planted a hundred yards to their right whined as it dragged a glider towards it and lofted it

into the up-currents, to join two other gliders soaring a mile away among the woolpack clouds. As the club's Land-Rover drove out from the control caravan to retrieve the fallen cable, Rosen stared at the directional landing arrows cut in the thin turf, exposing the dirty white chalk—in which the ancient horse, a few miles away, was also inscribed. Beyond, a bright orange wind sock fluttered. Pointers . . .

"You don't even inhale," Mary snapped. "You could give up overnight if you were really worried."

"I know. But I won't. I'm seeing how near a certain precipice I can edge before . . . the lip gives way. It needn't be lung cancer, you know. It needn't have anything to do with cigarettes . . ."

How could he explain? His smoking was only metaphorical now. Cigarettes were a clock; a pacemaker of the impending catastrophe. In fact, he was fairly sure that it wouldn't be a smoker's cancer at all. But it sounded absurd whenever he tried to explain this.

Then there were the dreams . . .

Rosen stood before the blackboard in the seminar room of the Viral Cancer Research Unit attached to St. David's Hospital and sketched the shape of catastrophe upon it with a stick of squeaky chalk that reminded him irresistibly of school days and algebra lessons . . . The difficulty he'd had at first in comprehending  $x$  and  $a$  and  $b$ ! His childish belief that they must equal some real number—as though it was all a secret code, and he the cryptographer! But once presented as geometry, mathematics had become crystal clear. He'd been a visualizer all along . . .

On the blackboard was the cusp catastrophe of René Thom's theorem: a cliff edge folding over, then under itself, into an overhang impossible on any world with gravity, before unfolding and flattening out again on a lower level. The shape he'd graphed was stable in two phases: its upper state and its lower state. But the sinusoidal involution of the cliff would never allow a smooth transition from the upper to the lower state; no smooth gradient of descent, in real terms. So there had to be discontinuity between the top and the bottom lines of the S he'd drawn—an abrupt flip from State A to State B; and that was, mathematically speaking, a "catastrophe."

(There is no gravity in dreams . . .)

He waved a cigarette at his colleagues: Mary Strobe, looking bewildered but defiant; Oliver Hart, wearing a supercilious expression; senior consultant Daniel Geraghty, looking frankly outraged.

"Taking the problem in its simplest mathematical form, is this a fair representation of the onset of cancer?" Adrian demanded. "This abrupt discontinuity, here? Where we fall off the cliff—"

Rapping the blackboard, he tumbled Gitane ash and chalk dust down the cliff. The obsession with this particular brand had taken hold of him even before his trip to France, and he'd borrowed so many packs from the smoking room downstairs (where a machine was busily puffing the fumes from a whole range of cigarettes into rats' lungs) that Dr. Geraghty complained he was sabotaging the tests and Oliver Hart suggested flippantly that Adrian should be sent to France *tout de suite*, Thibaud-wards, if only to satisfy his new craving . . .

"I suggest that, instead of a progressive gradient of insult to our metabolism, we abruptly flip from one mode to the other: from normal to malignant. Which is perfectly explicable, and predictable, using catastrophe theory. Now the immune system shares one major formal similarity with the nervous system. It too observes and memorizes events. So if we view the mind—the superior system—as a mathematical network, could it predict the onset of cancer mathematically, *before* we reach the stage of an actual cellular event, from this catastrophe curve? I believe so."

He swiveled his fist abruptly so that the stick of chalk touched the blackboard rather than the cigarette. Yet it still looked like the same white tube. Then he brought the chalk tip screeching from the cliff edge down to the valley floor.

Their eyes saw the soft cigarette make that squeal—a scream of softness. Adrian smiled, as his audience winced in surprise.

"But how can the mind voice its suspicions? I suggest in dreams. What are dreams for, after all?"

"Data processing," replied Oliver Hart impatiently. "Sorting information from the day's events. Seeing if the basic programs need modifying. That's generally agreed—"

"Ah, but Thibaud believes they are more."

Oliver Hart was dressed in a brash green suit; to Adrian he appeared not verdant and healthy, but coated in pond slime.

"For example, to quote my own case, I am approaching a cancer—"

Deftly, with sleight of hand, Adrian slid the cigarette off the cliff edge this time, amused to see how his three listeners braced themselves for a repeat squeal, and shuddered when it didn't come.

"I shall have the posterior pons brain area removed in an operation. Then I can act out my dreams as the slope steepens towards catastrophe—"

Mary Strobe caught her breath. She stared, horrified.

"Enough of this rubbish, man!" barked Geraghty. "If this is the effect Thibaud's notions have on you, I can only say your visit there was a disaster for the unit. Would you kindly explain what twisted logic leads you to want part of your brain cut out like one of his damn cats? If you can!"

"If I can . . . No, I couldn't have it done in France itself," reflected Adrian obliquely. "Probably it'll have to be in Tangier. The laws are slacker there. Thibaud will see to the arrangements . . ."

Mary half rose, as though to beat sense into Adrian, then sank back helplessly and began crying, as Geraghty bellowed:

"This is a disgrace! Don't you understand what you're talking about any more, man? With that part of the brain destroyed there'd be no cutoff in signals to the muscles during your dreams. You'd be the zombie of them! Sleepwalking may be some temporary malfunction of the pons—well, sleepwalking would be nothing to the aftermath of such an operation! Frankly, I don't for one instant believe Thibaud would dare carry it out on a human being. That you even imagine he would is a sorry reflection on your state of mind! Stop sniveling, Mary!"

"Adrian's been overworking," whimpered Mary apologetically, as though she was to blame for his breakdown, whereas she had only been offering love, sympathy, comradeship.

"Then he shall be suspended, *pro tem*. D'you hear that, Rosen? No more waltzing off to France, making fools of us."

"But I shan't be living long," Adrian said simply. "You forget the cancer—"

"So there, we have located it," Jean-Luc Thibaud had declared proudly, "the mechanism that stops nerve signals from the dream state being passed on as commands to the body. Essentially the pons is a binary switching device. The anterior part signals that dreams may now take place, while the posterior part blocks off dream signals to the muscles . . ."

Thibaud seemed a merry, pleasant enough fellow, with a twinkle in his eye and the habit of raising his index finger to rub the side of his nose, as though bidding for cattle at some country auction. His father was a farmer, Adrian remembered him saying. And now his son farmed cats, not cattle.

"Thus we can remain relatively limp during our nightly dance with the instinctual genotype which psychologists so maladeptly label the unconscious mind . . ."

A hall of cats.

Each cat was confined in its own spacious pen, the floor marked off by a bold grid of black lines like graph paper. Lenses peered down, recording every movement the animals made on video tape.

Most cats were asleep, their eyes closed.

Most cats were also on the move. Scratching. Spitting. Arching their backs. Lapping the floor. Fleeing. Acting out their dreams in blind mute ritual dances of flight, rage, hunger, sexuality . . .

And a few, a very few, were only dozing, not dreaming. These didn't move. They hadn't drifted far enough down the sleep gradient yet. Soon they too would rise, and pace, and fight. Soon they too would lap the floor and flee. Till they dreamed themselves to death, from sheer exhaustion. It was tiring work, dreaming, down on Thibaud's cat farm.

From each cat's shaven skull a sheaf of wires extended to a hyper-mobile arm, lightly balanced as any stereo pickup, relaying the electrical rhythms of the brain to be matched against this dream ballet taped by the video machines.

"And still I am dissatisfied, M'sieur Rosen! Still, we see only the genetic messages for the most basic activities being reinforced. That's what this is, you realize? A genetic reinforcement. Errors creep in from one cell generation to the next. Too many errors, and—pouf! An error catastrophe. Death. So dreams strive to reinforce the purity of the genotype—like the athlete trying to keep himself fit by exercises. Dreams are error correction tapes manufactured out of each day's new experiences. But gradually we begin to dream out of the past, as the years go by. Increasingly we scavenge yesteryear. Soon, we are scavenging yesteryear's dreams themselves—using bygone, frayed correction tapes. We lose the capacity to make new ones. We dream vividly of childhood and it seems we are re-entering paradise as we sleep. Alas, that's all too true. We're

about to leave the world, literally—for the cold clay of the cemetery.”

“Yet I wonder, Dr. Thibaud, what if error is an essential part of our life process? What if, in order to be able to grow, we must also be able to die?”

“Yes, indeed—the cruel dialectic of nature!”

“Well then, what part has the cancer cell to play? It’s the only truly immortal cell. It alone copies itself perfectly, without any error. And it kills us by doing so.”

“The difference between cell replication and cell differentiation is a knife edge we must all balance on, M’sieur Rosen.”

“Yet we all have cancer, potentially. Viral cancer lurks in everyone’s cells in a latent form, did you know? I want to know why. Doctors perpetually set themselves up to cure cancer—to cure polio, to cure everything else they label as disease. And that’s supposed to be the whole work of medicine. But how many doctors ever trouble to glance at the whole system of life and evolution that a ‘disease’ functions in? None whatever!”

A cat—a mangy, skinny alley tabby—pounced on the invisible prey that it had been wriggling its way towards all the time they talked. But almost at once it leaped away again. Its fur stood on end, its tail bushed out, as it backed cowering into the corner of its pen.

“Did you see that, M’sieur Rosen? You could call it a catastrophe, in your terms—that sudden switch from fight to flight. The mouse becoming a monster in its mind. Yet how much do we really see? It’s as you say about medicine—scratching the surface. Examining the arc of the circle and thinking that’s all there is to the figure! But the inner landscape of the dream must be just as important as the actions. If not more so! In fact, I’m inclined to think the full subtleties of the genotype can only be coded into the dream as environment. Yet how to show that? Still, we’re only starting on our journey inwards. Come, see the darkroom. We raise some other cats in black light and isolation from birth, so that they display the perfect archetype of a dream . . .”

The alley tabby awoke, as they retraced their steps, and whined from the fretful exhaustion of having slept.

“Presumably, in an archetypal setting . . .”

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Their glider bounded over the turf as the winch driver heeded the blinking of the aldis lamp from the control caravan, then slid smoothly into the air, climbing gently towards and upward of the winch gear. Mary pulled back softly on the stick, increasing the angle of climb to balance the downpull of the cable, till at eighty degrees to the winch and an altitude of a thousand feet she dipped the nose briefly, pushed the cable release knob, then climbed away.

"What if it doesn't let go?"

"It disconnects automatically, if you're at a right angle to the winch—which you shouldn't let happen."

"It could jam."

"There's a weak link in the chain, Adrian. By design. It's fail-safe." But she sounded exasperated.

The hill up-current sent the glider climbing towards scattered woolly cumulus in a sky which was the blue of a pack of French cigarettes, as Mary manipulated the controls efficiently, banking, centralizing, and taking off rudder, then repeating the same turning maneuver with a minimum of slip and skid. And so they spiraled aloft.

Her hair blazed back in the wind when the glider did slip to the right briefly on one turn, uncovering the firm rhombus of her cheekbones, and a number of small brown moles just in front of the hairline. For a redhead her skin was only lightly freckled. It resembled the grain of an old photograph more than distinct freckles. Adrian loved touching and stroking those few hidden blemishes when they were in bed together, but it generally took a strong wind to whip the bonfire of hair back from them.

"So you're set on going to France?" she said at last. "I think Geraghty would rather Oliver went."

"Oliver doesn't have my special interest."

"What interest? It's nonsense!"

"You know very well."

"I know nothing of the sort! You're perfectly healthy. Why else do you refuse to take a medical? It would show how wrong you are."

"I can . . . examine myself. The dreams, you see. It would spoil everything to have some silly checkup. It would ruin the experience. I must keep perfectly clear and neutral."

The glider skidded badly then, as Mary angrily used a bootful of

rudder, and the nose began hunting, pitching to and fro.

"You realize you're wrecking our relationship? Your scientific credibility too! If that matters to you!"

"My dreams have a shape to them. I have to . . . live them out."

Correcting the trim of the machine, Mary spiraled the glider through the woolpack, avoiding entering cloud. They soared above the snow cocoons into open sky; the clouds swept by below them now like detergent froth on rivers of the air—the vale and downs being the soft clefted base of this surge of translucent streams. They continued a stable upward helix for another few hundred feet till uplift weakened and Mary swung the machine away towards a thermal bubble on which another pilot was rising a mile away, in company with dark specks of swifts and swallows catching the insects borne up along with the air.

But if they'd entered cloud, reflected Adrian, and if another pilot had also done so, and the curves of the two gliders intersected in the woolly fog, then there'd have been . . . discontinuity: a catastrophe curve.

Marguerite Ponty accepted the infrared goggles back from Thibaud and Rosen to hang on the hook outside the second of two doors labeled *Défense d'éclairage!*

The slim woman's dark glossy eyes were heavily accented by violet eye shadow which made huge pools of them; as though, having spent too many hours in null-light conditions tending to the darkroom cats, her senses were starting to adapt.

Her hair was short and spiky, gamine style. She wore dirty plim-solls, blue jeans, and a raggy sweater under her white labcoat, the loops of the knitting pulled and unraveled by cats' claws. From her ears hung magnificent golden Aztec pyramids of earrings. Her scent was a strange mix of patchouli and cat urine: clotted sweetness and gruelly tartness grating piquantly together.

"The pons area is lesioned at one year old," Thibaud commented. "They've never seen anything. Never met any other cat but their mother. Yet in their dreams they prowl the same basic genetic landscape. The computer tells us how they show the same choreography—only purified, abstracted. What is it, I wonder? A Paul Klee universe? A Kandinsky cosmos? Has anyone unwittingly painted the genetic ikons?"



"Let's hope not Mondrian," laughed Marguerite. "What a bore!"

"Blind people dream," Rosen reminded him. "Surely they don't visualize. They smell, they hear, they touch."

"And out of this construct their landscape, yes. Same thing. It's the putting together that matters. The shaping."

"Topology."

"Exactly. I was only using a metaphor. Let me use another: our blacklight cats are dancing to the same tune as our sighted tribe. Yet they experience next to nothing in their lives."

Rosen couldn't help glancing pointedly at Marguerite Ponty's looped and ragged sweater. They experienced her.

"Which proves that dreams are control tapes for the genes, not ways of processing our daily lives. But come. It is time to show you our cancer ward. We use nitrosoethylurea to induce tumors of the nervous system—thus the immune battle is fought out within the memory network itself! The basic instinctive drives yield right of way to a more urgent metabolic problem. You'll see the shape of catastrophe danced. That's what you came for."

Rosen grinned.

"Immune dreams, yes. But what landscape do they dance them in?"

"Ah, there you ask the vital question."

Another day. Another flight. Another landing. And Rosen had been to France, by now.

Mary pointed the glider down steeply towards the two giant chalk arrows cut in the field.

It struck him that she was diving too steeply; but not so, apparently, for she raised the nose smartly to bring them out of the dive flying level a few feet above the ground, the first arrow passing underneath them, then the second. They slowed as she closed the air brakes, pulling the stick right back to keep the nose level, till they practically hovered to a touchdown so perfect that there was no perceptible transition between sky and ground. She threw the air brakes fully open, and they were simply stationary.

Cursorily she rearranged her hair.

"Nature's so bloody conservative," Adrian persisted. "It has to be, damn it, or there wouldn't be any nature! You can't have constant random mutations of the genotype. Or you'd always be losing

on the swings what you won on the roundabouts. So once a particular coding gets fixed, it's locked rigidly in place. All the code shifts that have led from the first cells through to cabbages and kings, have operated upon redundant DNA, not the main genome. Look around, Mary. How diverse it all seems! Sheep. Grass. Birds, insects, ourselves. So much variety. Yet genetically speaking it's almost an illusion. Quality control is too strict for it to be any other way. Just think of the Histone IV gene for DNA protein binding. That's undergone hardly any change since people and vegetables had a common ancestor a billion and a half years ago. Biological conservatism, that's the trick! But what's the most conservative cell we know?"

"Cancer, I suppose," admitted Mary. "What are you driving at now?"

"Quality control to the nth degree!" he rhapsodized. "That's cancer. And now we know there's viral cancer lying latent in everyone's cells. It's part of our genetic inheritance. Why, I ask you?"

"To warn the immune system," Mary replied brightly. "When a cell goes cancerous, the virus has a chance to show its true colors as an alien. Our immune system couldn't possibly recognize cancer as hostile tissue otherwise."

"Very plausible! Then why's the system so damned inefficient, if we've got these built-in alarms? Why do so many people still die of cancer? Have medical researchers ever asked that, eh? Of course not! They never think about the whole system of life, only about correcting its supposed flaws."

"Maybe more cancers get stopped early on than we realize?"

Adrian laughed.

"So you think we may be having low-level cancer attacks all the time—as often as we catch a cold? There's an idea! But I fancy that viral cancer's not locked up in our cells to warn the immune system at all. The reason's quite different. And it's so obvious I'm surprised no one's thought of it. Cancer's there to control the quality of replication of the genotype—because cancer's the perfect replicator."

"That's preposterous!"

"Cancer isn't the alien enemy we think. It's an old, old friend. Part of the Grand Conservative Administration presiding over our whole genetic inheritance, keeping it intact! It's a bloody-minded administration, I'll grant you that. It has to be, to keep in power

for a billion years and more. Thibaud was fascinated when I outlined my theory. It casts a whole new light on his genetic dream idea—particularly on the class we're calling 'immune dreams.' Cancer's catastrophe for the individual, right enough. But for the species it's the staff of life."

"Your health," Thibaud grinned broadly: a farmer clinching a cattle deal. Marguerite Ponty smiled more dryly as she raised her glass, clicking her fingernails against it in lieu of touching glasses. Her earpieces shone in the neon light, priestesslike. Were they genuine gold? Probably. Her joke about Mondrian referred to her father's private collection, it transpired. Rich bourgeois gamine that she was, she'd chosen the role of a latter-day Madame Curie of the dream lab—as someone else might have become a Party member, rather than a partygoer. There was something cruelly self-centered in the way she regarded Rosen now. Of the two, Thibaud was much more vulgarly persuasive . . .

Thibaud also looked genuinely embarrassed about the wording of his toast when the words caught up with him.

"A figure of speech," he mumbled. "Sorry."

"It doesn't matter," said Rosen. "It's the logic of life—the cruel dialectic, as you say. Thesis: gene fixation. Antithesis: gene diversification. Synthesis: *ma santé*—the sanity of my body, my cancer."

"Yours is such a remarkable offer," Thibaud blustered, beaming absurd, anxious goodwill. "You say that an English specialist has already confirmed your condition?"

"Of course," Rosen produced the case notes and passed them over. He'd experienced no difficulty forging them. It was his field, after all. And if Thibaud suspects anything odd, thought Adrian, odds are he's only too willing to be fooled . . .

Still, Thibaud spent an unconscionably long time studying the file; till Marguerite Ponty began flicking her gold earpieces impatiently, and tapping her foot. Then Rosen understood who had paid for much of Thibaud's video-tape equipment and computer time. He and the woman regarded one another briefly, eye to eye, knowingly and ruthlessly. Finally, hesitantly, Thibaud raised the subject of the clinic in Morocco.

"It will take a little time to arrange. Are you sure you have time—to revisit England before you come back here?"

"Certainly," nodded Rosen. "I need to explain some more details

of the theory to my colleagues. The cancer isn't terminal yet. I have at least two months . . ."

They sat in Mary's convertible, watching other gliders being winched into the air: close enough to receive a friendly wave from one of the pilots, with whom Mary had been out to dinner lately. A surveyor or estate agent or some such. Adrian hadn't paid much attention when she told him.

Or was he a chartered accountant?

The winch hummed like a swarm of bees, tugging the man up and launching him over the vale. Geologically speaking you'd classify it as a "mature" valley. In a few more tens of thousands of years, weather action would have mellowed it beyond the point where gliders could usefully take advantage of its contours. But at this point in time there was still a well-defined edge: enough to cut the vale off from the hill, discontinuing, then resuming as the landscape below.

Mary lounged in the passenger seat. She was letting Adrian drive the car today. It was the least she could do, to show some residual confidence—since Geraghty's suspension of him; though it was some while since they'd actually been up in a glider together.

Softly, without her noticing, he reached down and released the handbrake.

Once she realized the car was moving of its own volition towards the edge, he trapped her hands and held them.

"Look," he whispered urgently, "the genetic landscape."

"Adrian! This isn't a dream, you fool. You aren't asleep!"

"That's what they always say in dreams, Mary."

He pinned her back in her seat quite easily with dreamlike elastic strength while she cursed and fought him—plainly a dream creature.

Soon the ground leapt away from the car's tires; and he could twist round to stare back at the face of the hill.

As he'd suspected, it betrayed the infolded overhang of catastrophe. The shape of a letter S. Naturally no one could freewheel down such a hill. . . .

Later, he woke briefly in hospital, his head turbaned in bandages, as seemed only reasonable after an operation to excise the posterior pons area of the brain. He found himself hooked up to rather more

equipment than he'd bargained for: catheters, intravenous tubing, wires and gauges proliferating wildly round him.

He stared at all this surgical paraphernalia, curiously paralyzed. Funny that he couldn't seem to move any part of him.

The nurse sitting by his bedside had jet-black hair, brown skin, dark eyes. He couldn't see her nose and mouth properly—a yashmaklike mask hid the lower part of her face. She was obviously an Arab girl. What else?

He shut his eyes again, and found himself dreaming: of scrambling up a cliff face only to slide down again from the overhang. Scrambling and sliding. A spider in a brandy glass.