ON THE REEF DARKLY

by Kenneth Brower

He's an expert on seashells, one of the most knowledgeable in the world. He works with the disadvantage of never having seen the objects he studies.

Geerat Vermeij sat in a spare, termite-ridden apartment built above a small biology laboratory in the Palau Archipelago of Micronesia, seven degrees north of the equator. The room was littered with shells of all descriptions, some loose on the tabletops like spare change, others wet and drying on the sink, still more wrapped in toilet paper and jammed by the dozen into plastic bags. Vermeij found two snails to demonstrate the problems in distinguishing species. He held up the first.

"Here's a shell that superficially, to me, looks very much like a young morula," he said. "In fact, when I picked it up the first time, I thought it was a young morula. But I know that it isn't. It's a nassarius. It's a young Nassarius graniferus. It has very, very similar sculpture on top to a young morula."

The morula in Vermeij's palm was black. The nassarius was white.

"Of course someone with eyesight would know right away," I suggested.

"Of course," he agreed. "The morula is dark, and the nassarius is white."

Vermeij is twenty-eight years old. He is lean and in a fragile way handsome. His face in thought is ascetic. It's a Dutch face, and in Palau, not far from the old Netherlands New Guinea, it seemed to have a historical rightness. It was a face from Joseph Conrad. It looked correct under coconut palms and trade-wind cumuli. Vermeij's goatee is sparse and boyish, his features youthful in their enthusiasms. He moves with a trace of the brittleness of the blind, forever anticipating a bump. He has a questing stride with just a hint of reserve to it. He will gladly show you how far he can broad-jump, if you point him in a safe direction. The legs are full of spring and they take him an amazing distance.

Vermeij's was the first juvenile case of glaucoma in his province of the Netherlands. He was born blind, or nearly so. He could see colors and vague outlines until he was three, then the light went out. It will never come back; his present set of eyes are plastic. The last color he saw was yellow.

The Vermeij family left the Netherlands when Geerat was eight, partly for his sake. "At that time," he says, "Holland did not have particularly good education for the blind. They made you go to one of these hideous institutions. The discipline was awful. I spent three years in such places. I think if I stayed I would have gone nuts."

In Holland Vermeij did have one teacher, a Miss Mooij, whom he remembers as extraordinary. She took Geerat and his classmates into the heath and showed them things. He began collecting acorns, shells, leaves, and such, with the approval of his father, an avid amateur naturalist. When the Vermeij family moved to New Jersey, one of the three states then known for enlightened programs for the blind, Miss Mooij's place was taken by Mrs. Caroline Colberg. Geerat was a ten-year-old in Mrs. Colberg's fourth-grade class when she brought in some shells from Florida. They were semitropical, like nothing he had felt before. His fingers traced the extravagant sculpture, the glassy involutions, and encountered there the first intimations of their genius.

"I got to see helmet shells," he says. "Helmet
shells are very different from anything you see in Holland. The smoothness. It's nice smooth stuff with good, even sculpture on it. I thought it was gorgeous. Most shells in Holland are kind of rough and calcareous. All northern shells are that way."

The sensation was epochal. Vermeij's consuming interest, since the helmet shells, has been the tropics.

The town of Koror, Palau's capital, woke at six-thirty to the sirens on top of the police station. Geerat Vermeij was up forty minutes before that to take his morning shower, because at six o'clock the public works shuts the water off. The shower was cold, a fine way to start the tropical day. Afterward Vermeij sat and waited for breakfast, listening to the town waking. There was no glass in the windows, and the morning sounds entered through the screens easily.

Somewhere below a child asked a question. Sleepy, rising inflection. A woman answered irritably. A rooster crowed. Conversation began to stir, a question here, a declaration there. A pig squealed, then subsided. Tires crunched on the crushed-coral road surface. They rolled over the tips of staghorn corals, the tubes of pipe-organ corals, the convolutions of a brain coral, half-buried, a memento mori of the reef. Alas, poor brain coral. They rolled too over mollusks that came up with the corals in the dredge. Cone shells are imbedded in Koror's roads, Conus magus and imperialis and tessulatus and textile, their patterns long since faded. The fluted shells of Tridacna, the giant clam, curve above the earth like the tips of buried boulders. The tires rolled over trochus, thais, murexes, mitrids. The car slowed to take the corner, then the coralline-molluscian mumble of the tires diminished. Another rooster crowed. A shorebird skimmered the laboratory lawn, braked, and gave a cry as it landed. A group of children were on the move, the locus of their voices traveling downhill. Several dogs got very excited about something. The siren sounded. "Breakfast!" said Dr. Edith Vermeij, and Dr. Geerat Vermeij bounded up from his chair.

Vermeij earned his B.S. in three years and his Ph.D. in three. He is now an associate professor at the University of Maryland. In recent years he has collected shells in Jamaica, Puerto Rico, Netherlands Antilles, Guadeloupe, Panama, Costa Rica, Ecuador, Peru, Chile, Brazil, Senegal, Ivory Coast, Ghana, Sierra Leone, Kenya, Madagascar, Singapore, Philippines, Hawaii, Guam, Saipan, and Palau. He has become a bio-

Clockwise from the top: two branched murex (Murex ramosus), two textile cones (Conus textilis), an episcopal mitre (Mitra episcopalis), and tessellate cone (Conus tessulatus).
geographer. The patterns that interest him are global.
When he refers, shell in hand, to his mental
globe, his journey there is tactile and auditory. In
Vermeij's geography, all continents are dark. When
he thinks of Senegal, he remembers the dryness,
the sounds and smells of the city of Dakar, and a
couple of large limpets. When he thinks of Israel
he remembers the dry heat, the friendliness, and a
couple of species of _Drupa_. The features that leap
at Vermeij from his mental globe are not land
masses but shorelines. His world is littoral.

"How do you do it?" I asked Vermeij one morn-
ing. "Show me exactly how you tell them apart."

He agreed to try, and picked up two unwrapped
shells at random from the table. They were reason-
ably similar. One was _Thais armigera_, the other
_Vasum turbinellus_. He held up the thais.

"Okay," he said. "The first thing you notice
about _Thais armigera_ is that it’s knobby." He hesi-
tated. "But so is _Vasum_. What do I do when I pick
up a shell? I sort of know right away. For one
thing, the thais has a widish aperture." He began
again. This time he lifted the _Vasum_.

"Okay. _Vasum_ and _Thais_. They’re similar. They
both have big knobs. _Thais_ has a wide aperture,
_Vasum_ has a narrow aperture. They both have
short spines, they both have knobs. But with the
knobs on the _Vasum_, at least the Palauan _Vasum_,
by far the largest knobs are closer to the suture be-
tween adjacent whorls."

He picked up the thais again.

"Whereas on this shell it’s . . . it’s true also, but
much less so. Somewhat less so. This second row
of spines is still pretty strong, I’ll admit."

He began again.

"_Vasum turbinellus_ has the posterior row of
knobs much the strongest. And they gradually be-
come smaller as you go anterior, except for this
very anterior set of knobs, which is again longer.
Whereas on the thais it’s . . . it’s a little different.
The description actually would be the same, be-
cause here again the anterior knobs get continu-
ously shorter. But there’s a difference. The large spines
on the thais point backward, a little bit." He lifted
the _Vasum_. "On this one . . . on this one they . . .
they point backward too. So that doesn’t work ei-
ther. It’s just a . . ."

He paused, perplexed.

"You seemed to know them right away . . . as
soon as you touched them," I offered. "What was
the first clue?"

"It was probably the more triangular nature of
this _Vasum_. As opposed to the somewhat more ex-
panded aperture of the thais."

I waited, but Vermeij didn’t seem to want to say
more on the subject. "I’m amazed that they’re in
different genera," I said.

"Families," he answered. "In fact, I think they’re
in different suborders."

I decided, then, not to ask him about subspecies.
On Ilha Fernando de Noronha, off the coast of
Brazil, he had discovered a new subspecies of
_pearite_, distinguishing it from the subspecies that were
its cousins. I was doubtful now that he could tell
me how.

The smell of dead mollusks was strongest outside
Vermeij’s kitchen door. It was there, in a deep out-
door sink, that he gave his shells their first wash-
ing. The larger shells never came inside. They re-
mained by the back door, propped against the
walls. Vermeij spent hours each day removing the
inhabitants with pins and washing out their houses.
As he handled the shells, he thought about them.
"There’s a lot of drudgery," he admitted once,
"but there’s also a lot of learning. I get to see the
shells in detail again."

Dr. Vermeij had spent so much time at the
splashing sink, up to his elbows in the phylum,

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Mollusca, that he smelled of it. He was redolent of
dying gastropods. And of fish stomachs, which he
opened regularly for evidence of fish predation of
mollusks. The apartment’s aroma of molluscan
death reached its apogee not in the scattered piles
of mollusks, but in the malacologist.

When a shell falls into Geerat Vermeij’s hand,
at the sink or elsewhere, it is caught up in a kind
of dance. It revolves, flips, cant one way or an-
other as his fingertips count whorls, gauge thick-
nesses, measure spires.

Most mollusks are identifiable by shape, accord-
ing to Vermeij. Cone shells present problems for
him, because color pattern distinguishes them more
than their forms, which are all very similar. But
cones are hard for everyone, he says. Their designs
are often obscured by growths. Vermeij has
trouble, too, with shells smaller than five millimeter-
ers. With shells approaching that limit he uses his
thumbnail instead of his fingertips. His chitinous
nail, sending up a private Morse code of clicks
from the minute landscape of calcium carbonate,
tells him what he’s holding.

“I’ve been handling shells for twenty years, and
I’ve never gotten tired of it,” Vermeij mused as he
handled still another. Through the intermediaries
of his fingers, he rolled and rolled the shell with
his mind, wondering what the shape meant. What,
Vermeij asks himself continually, is the adaptive
significance?

“This is *Fragum fragum*, a sand-dwelling bi-
valve,” he told me. “Run your hand from the
umbo—which is this thing on top—down to this
edge here, and then back again. You’ll notice it’s
sharper one way.” I did as he advised. In one di-
rection the shell was rough, like a cat’s tongue; in
the other it was smooth. “When it burrows,” said
Vermeij, “and it’s a very fast burrower, its foot
goes down and forward. It is exactly in that direc-
tion that the spines are least resistant. The most
resistance is when you try to pull them out. It’s a
wonderful adaptation that an awful lot of sand
animals have.”

This was, of course, a Dick and Jane exercise in
shell contemplation. Vermeij’s more serious
thoughts run to the geometry of shell shape and
the adaptive function of that. He considers himself
foremost a shell geometrician. The angle of eleva-
tion of the coiling axis relative to the plane of the
aperture and a host of other angles and figures pre-
occupy him.

Vermeij applies the word “geometry” broadly.
(“Organ music is the only loud music I like. It has
a whole different geometrical effect for me. You sit
in a room and you’re entirely surrounded by mu-
ic.”) For Vermeij geometry has become more than
a science.

One day he set a shell down on the apartment
table and leaned back proudly.
"Logarithmic spiral," he said. "This is the figure that is generated when shape does not change with size. It's the most beautiful shape in nature, I think."

The nearly perpetual splashing of the outdoor sink, then, though it sounded tedious to me, for Vermeij was not. For him it was drowned out by organ music. At the sink he was lost in his digital ruminations. The shapes of shells were his sunsets.

Quietly, so quietly that I suspected Vermeij had not heard, one, then two, then three small Palauan boys began pulling themselves in slow motion up onto the ledge outside his window. They pressed black faces to the screen—seven of them, finally—and they watched Vermeij from three feet away.

"You have some spectators," I informed him.

"I know," he said.

The room had suddenly become dark. The boys, jammed as they were in the window, shut out the light. That made no difference to Vermeij, of course. Expressionless, the boys watched him work. There wasn't a clue on their faces as to what they made of him. After five minutes they began conferring among themselves, exchanging short sentences in the Palauan tongue, a polysyllabic and often guttural language. Their voices had the pleasant huskiness common to Palauan children. The Palauan language is full of changes in pitch, and Vermeij likes it. Monotonous languages and voices irritate him.

"What's this?" asked one boy finally, in English.

"It's writing. It's braille," said Vermeij, eager at the chance to communicate. He held up the heavy brown braille paper, the stylus, and the braille slate, and he showed the boys how he wrote from right to left. The boys watched him gravely and said nothing more.

Vermeij worked on for five minutes. Then the boys' silence at last got to him, and he began to feel like something in a zoo. Decisively he set his writing things aside. "All right, that's all," he said. "I'm done. All finished. Why don't you go play somewhere else." The boys did not get the idea at first, but when they did, they departed as silently as they had come.

Vermeij moved to the kitchen sink and began washing shells. An electronic noise made by some insect came, as usual, from a tree outside the kitchen window. The tree hummed as if a transformer were hidden in the epiphytes that bearded its branches. Below the hilltop a girls' softball game was in progress, and the shrieks of the players and of the audience carried up. The shrieks came regularly, like breathing. It sounded like the most exciting softball game in history, but in truth Palauan girls scream at the softest grounder, the shallowest fly, the most routine play at first.

The tree hummed, the girls screamed, Vermeij's sink splashed, the noon siren sounded.

To date, Vermeij's principal contribution to his science has been, he believes, his discovery of certain differences between Pacific and Atlantic shells. He has found that Pacific shells are more heavily armored than Atlantic. They show a higher incidence of antipredatory devices—obstructed apertures, inflexible opercula, low spires, and strong external shell sculpture. The reason, Vermeij believes, is that the Pacific has had a longer history without major geological perturbation. Predator-prey relationships have evolved without as much interruption in the Pacific and have become more complex. Survival for mollusks there has become a neater trick.

Vermeij does not want to spend the rest of his career developing this theory, as he probably should. He is leery of specialization. Until his final year of graduate school, his preoccupation with mollusks was total, but in that last year he broadened his reading. He is now a student of all invertebrates, and of biochemistry. He has written a paper on vines. He is interested in slow muscle and fast muscle in the claws of crabs.

In Palau one evening we watched him root through the garbage and come up with a fish head that Edith, his wife, had boiled for soup. He knew little about fish, but he was fascinated by the teeth. He kept running his fingers over the strange, rounded molars, indulging in pure, uninformed speculation. Though he remains most knowledgeable about mollusks, especially snails and nerites, he likes to think it may not always be so. He is one of those scientists who want to be free—as Newton was, and as Newton put it—to pick up "a smoother pebble or prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me."

The reef curved away to either side of where we stood. Long white combers broke on it, marking it as far as I could see. On the arco to the south was a distant wreck. The tide was low. Our shins were awash.

Vermeij turned and started north along the slight ridge of coral stones that made the spine of the reef. He stepped carefully among the reef's ir-
regular vertebrae, hunting the line that divides lagoon from ocean. The surf broke forty yards offshore, and the Pacific, its energy spent, lapped the rocks in a gentle current and rippled past our ankles. The sun was radiant on our shoulders, though a cool wind allowed us to believe it wasn't. The sea smell was strong.

Vermeij soon tired of the higher rocks, left the reef's spine, and walked toward the ocean. The reef shelved very gradually under sea, in that direction. He collected for a time in knee-deep water, turning stones and searching their bottom surfaces. When his fingers encountered a snail, they pulled it off and dropped it in the bucket. They rolled the snail in transit, identifying it somewhere along its parabola to the pail.

"A new species of Thais," he said, bucketing a specimen. "New for this trip, anyway."

He crouched in the water and began collecting on his haunches, so that his arms could sweep a wider area. His loins were in the Pacific. He heard the incoming waves and avoided them with a water-ousel motion, straightening his knees but dipping his torso, so that the work of his hands could go on uninterrupted. He moved in nice synchrony with the waves, rising just in time, with a shorebird's sense of the sea's rhythm.

He brought up a cobalt-blue, slender-armed starfish. He tucked his pail between his knees to free his hands, and he patted down the undersides of the animal's rays, two at a time, from base to tip, feeling for any molluscan parasites. The starfish was clean, and he tossed it away. "Blue starfish," he said, and he gave the Latin name.

He moved on. For a time he worked in silence. Then I saw him smile tightly. "Fire coral here," he said.

"Sting you?" I asked.

"A little, on the knuckle."

The hydroid corals, called fire corals or stinging corals, are common on Indo-Pacific reefs. Their tentacles, forming saucers, blades, and branches. They encrust other corals, taking their shape, or grow over old bottles and wrecks, rendering these rich and strange, but disguising themselves in the process. For this reason, and because they vary in color, they are hard to recognize, but Vermeij knows instantly when he has found one.

The pressure of his knuckle had tripped the triggers of thousands of nematocysts, or stinging cells, on the coral's surface. Within the capsule of each nematocyst was a coiled tube armed with folded barbs. The opercula of the capsules sprang open, the tubes uncoiled, their barbs unfolded and stabbed Vermeij. The poison-filled hollow in which each tube had reposed emptied its contents into him. The poison contained 5-hydroxytryptamine, a potent pain-producer and histamine-releaser, which worked directly on pain receptors in his skin. Vermeij made the identification even faster than with the gastropods he knows so well. The problem was never presented formally to his brain; it was intercepted by his sympathetic nervous system, which mindlessly gave its readout. "Fire coral," it said.

Vermeij is stung regularly by fire corals, and he accepts their nettlesomeness casually, as a mild reprimand. There are worse things around. The seas Vermeij has chosen for his work are the most venomous in the world. He has been stung by fireworms, hydroids, sea urchins, Portuguese men-of-war.

"See this coral here?" Vermeij asked. "Jesus! Lovely!"

He didn't linger at the lovely coral, but left it and moved on. He found something he could not identify. It was under a rock, and he was unable to scrape it off. He smelled his fingers, making use of another sense.

"What is it?" I asked.

"I don't know. But it has a very peculiar smell, like iodine."

He moved on again, without having resolved the problem. The sun was hot on our shoulders and I shifted the shirt that I had draped across mine. I realized that I was a little sunsick. Vermeij worked on, dark, like Samson, amid the blaze of noon. He turned rocks and shifted them. If a rock did not move easily, he abandoned it for the next.

"I never look in the sand underneath the rocks, after turning them over," he said. "There are a lot of dangerous things down there. Cones. Some very dangerous fish."

Despite his precaution, Vermeij occasionally does pick up a cone shell. He knows instantly what he has found, and the knowledge is electric, but he does not drop his catch. He quickly shifts his fingers to the apex, where the cone's proboscis cannot immediately find them, and he deposits the animal in his bucket.

The teeth of a cone are long, fine, chitinous, and hollow. In the species Conus striatus they are designed exactly like Eskimo harpoons, but are perfectly transparent, and as lovely as harpoons by Steuben. Cone teeth are miniatures on a scale that no glass-cutter could achieve. Their barbs are as sharp as ice crystals, and for the tropical worms, snails, small fish, and shell collectors that they strike, the teeth do have an arctic chill. An early symptom of their venom is numbness.

One night in Palau Vermeij dreamed he was
stung by a cone he had collected. The numbness spread from his hand to his arm and shoulder, and then he woke up. Symptoms are, as in Vermeij's dream, first a stinging sensation, then numbness, then a spreading paralysis. The victim loses sensation in his limbs and has difficulty speaking and swallowing. If he is to live, his recovery begins after about six hours. Otherwise his sight is affected, his respiratory muscles begin to fail, he loses consciousness, and he dies.

I put on my face mask, lay in the water, and watched Vermeij's fingers work. They were ghostly underwater and they moved ceaselessly, meandering, then marching over the coral stones, pausing in crannies, moving on. They completed their scans so quickly that I found them hard to follow. When fingers met something animate, they retracted for a cautious instant, then returned, and in a flurry of touches they felt the thing out. Sometimes, after heavy collecting, Vermeij's fingers are so roughened that they slow his reading to a crawl. Scanning braille notes with fingers full of sponge spicules and coral cuts is like reading by moonlight through a bad prescription.

Vermeij turned over rocks for fifteen minutes without either of us speaking. For all he knew, he was alone on the reef. He did not care.

"Nice coral here. Pretty," he said at last. He directed his words to the reef at large, for he no longer knew where I stood.

Lying in perfect camouflage along Palau's reefs, in places just like this, was Synanceia horrida, the stonefish. Sluggish, big-mouthed, bug-eyed, covered with warts and debris, abysmally ugly, the stonefish is armed with spines that produce probably the most excruciating pain known to man. Swimming slowly among the same corals, all lace and frills and bands of color, wildly beautiful, is Pterois volitans, the lionfish. A victim of the lionfish, like that of the stonefish, thrashes, screams, and loses consciousness. His skin reddens, swells, and sloughs away. "Cardiac failure," writes Bruce Halstead, a student of marine venoms, "delirium, convulsions, various nervous disturbances, nausea, vomiting, lymphangitis, lymphadenitis, joint aches, fever, respiratory distress and convulsions may be present, and death may occur."

Yellow sea snakes, yellow-tipped sea kraits, annulated sea snakes, reef sea snakes, banded small-headed sea snakes, graceful small-headed sea snakes, elegant sea snakes, wandering sea snakes, beaked sea snakes, Darwin's, Gray's, Grey's, blue-banded, broad-banded sea snakes, and thirty-odd other species hunt the tropical waters where Vermeij collects. The sea snakes have the most toxic venom in the snake kingdom. Their poison works with an odd gentleness. The fangs are painless, or nearly so. If the victim realizes at all that he has been bitten, it is in a slight stinging sensation. There is no swelling or unusual bleeding. The affected part may become sensitive to touch briefly, then a local anesthesia sets in. There is a latent period of an hour or two. Then the victim begins to feel sluggish. He has increasing difficulty moving his limbs and special trouble opening his mouth. His urine turns red. His tendon reflexes diminish, then disappear. The muscles of his eyelids become paralyzed. He feels a kind of false drowsiness, then a real drowsiness. Soon he is motionless, eyes closed, and he appears to be sleeping. He is not. Survivors report that they remained conscious but unable to move, or to open their eyes or mouths. For many victims, of course, the false sleep becomes real and final.

On the sandy patches of reef where Vermeij probes for the long-spired snails that live buried in sand, stingrays, too, lie buried. When stepped upon or handled, stingrays whip their tails across their backs and strike with the retro-barbed sawblades of their stings. The venom works directly on the heart and vascular system.

"Look at all this Caulerpa," Vermeij said.

He was running his fingers through a green patch of the edible algae that Palauans sometimes come to the reef to gather. Caulerpa sways in the current like soft coral, but it is not. It's a real plant in a realm of animals that masquerade as such. In the midst of the reef's sharp edges it felt soft and wonderful. But Vermeij moved on.

He worked his way steadily deeper, toward the breaking surf. He was thigh-deep now, heading southwest. In that direction there was nothing but ocean, and, five hundred miles away, New Guinea. He continued still deeper, until he was collecting with his cheek beside the swells, his arm extended full length, his fingers exploring. The secondary waves rolled in bigger here, and Vermeij, warned by the sound they made as they began to break, straightened just ahead of them, with his shorebird's distaste for wasted motion. He left off his hunting not a moment too soon.

The wave that finally hit him was arrhythmic. It did not break, and followed closely a wave that did. It hid from him in the noise of its predecessor and socked him in the chest. He regained his balance, with a small smile of surprise.

The ocean threw several more sneak punches at him in the course of the day. The collecting pail
never went under, I noticed. He bore it like a standard, and the ocean never trod on it.

Night was coming on, the tree frogs were warming up their instruments, the rice was cooking on the stove. Edith Vermeij went to the cupboard and poured rum and Coke for everyone. Vermeij broke off his work. He washed up, left the sink, and crossed to his chair, his arms held slightly out before him. When he had located the chair with a shin, he turned and fell back into it with abandon, as was his habit. He sat with his heels on the edge of the seat, knees under chin, and he began to smile oddly.

The malacologist's mind, when it is not in gear professionally, keeps itself idling in plays on words. When he has nothing to do, as on airplane trips—an especially deadly time for him—he does simple anagrams, "top" becoming "opt" and so on, or he plays similar games of his own invention. He was playing some such game tonight, or working on a pun. Vermeij puns compulsively and with a crazy delight.

Outside the frogs sang like strident battalions of telegraphers all sending the same message. A toad soloed against it. The rapid mellow drumming was a jungle-movie sound, like someone beating a tattoo on a long slender log. The first toad stopped and another began. The toads sometimes seemed to respect each other's songs and not interrupt, but now two toads started drumming together, making a single noise with a resonating pulse.

A gecko on the screen made its scolding noise, as if with a mechanical birdcall. Three of the high-pitched barks, Palauans say, mean that someone is to visit. Tonight the geckos all made long speeches, and no one called on us. Now and again the squeak of a bat came down from the dark, slipping to a pitch that our human ears could register. The high note was a reminder that we were hearing only a slice of the night. Hundreds of bats were hunting the air above the laboratory hilltop. In full spectrum the night must have truly roared.

A squall approached, sending ahead of it a gust that buffeted the screen. Vermeij had moved already to the window, sensing some sort of insensible gust before the gust, and he stood ready for the wind's cool benediction. I had seen him do that several times before. The gust rattled the screen, bringing with it for a moment, in its coolness and its smell of distance, the recollection of another latitude. The first scattered drops hit, then the sky dumped and the tin roof thundered.

Vermeij nodded upward at the violence on the roof.

"I've been in the tropics for years now, and I've never got used to it," he said.

The nine o'clock siren sounded. The rain fell harder and soon it seemed to beat a circular pattern on the tin. The toads, wet and happy, all began to drum together, their percussion pulsing, and the whole night swirled and eddied with sound.

The sun of a new day was directly overhead.

It was not yet ten, but the white ball had raced already to zenith, where it would hang until late afternoon, then plunge precipitously. I studied Vermeij in the perfect saturation of its light.

He crouched chest-deep in the lagoon, his back to me. He was perfectly still and listed slightly to one side, like a statue undermined by the sea. I knew from experience that underwater he was moving, working tirelessly, scanning the sand and corals at his sides, then circling behind to scan what lay at his heels. I had watched it often enough to see without watching. His fingers now were walking palely through the most lavish colors in nature. There are no hues on earth like those of a tropical coral reef. A school of opalescent fusiliers turned away in perfect unison, deflected by the motion of his hand. An angelfish outlined in electric blue, as if struck just now by lightning, studied his forearm and moved on. Feather worms buried in coral heads snapped their circular fans shut as his fingers drew near. A clown fish, painted for the circus, ran from him to its anemone and did its dance among the tentacles. Cleanerfish with blue-green stripes that glowed like neon, bold with the privilege of their office, hunted his toes for parasites. They gave him tiny, insensible, fishy kisses, were disappointed, and moved on. A Spanish mackerel circled in from deeper water, then out again, and as it turned the light scattered prismatically from its sides.

Vermeij moved sideways to a new spot and became a statue again. In front of him the shallows were turquoise, the deeper passages dark blue and serpentine. Across the channel, the adjacent island rose mountainous and green. Against the green two white terns, blinding in the sun, spiraled upward, then dropped a little, but above the island's summit a great tropical cumulus continued their ascent, climbing up and up, as tropical clouds do, all banners and battlewands, with the albedo nearly of the birds, into a blue sky.

"Here's a coral I've never seen before," Vermeij said, to his wife, or to himself, or to the great ocean of truth that lay all undiscovered before him.