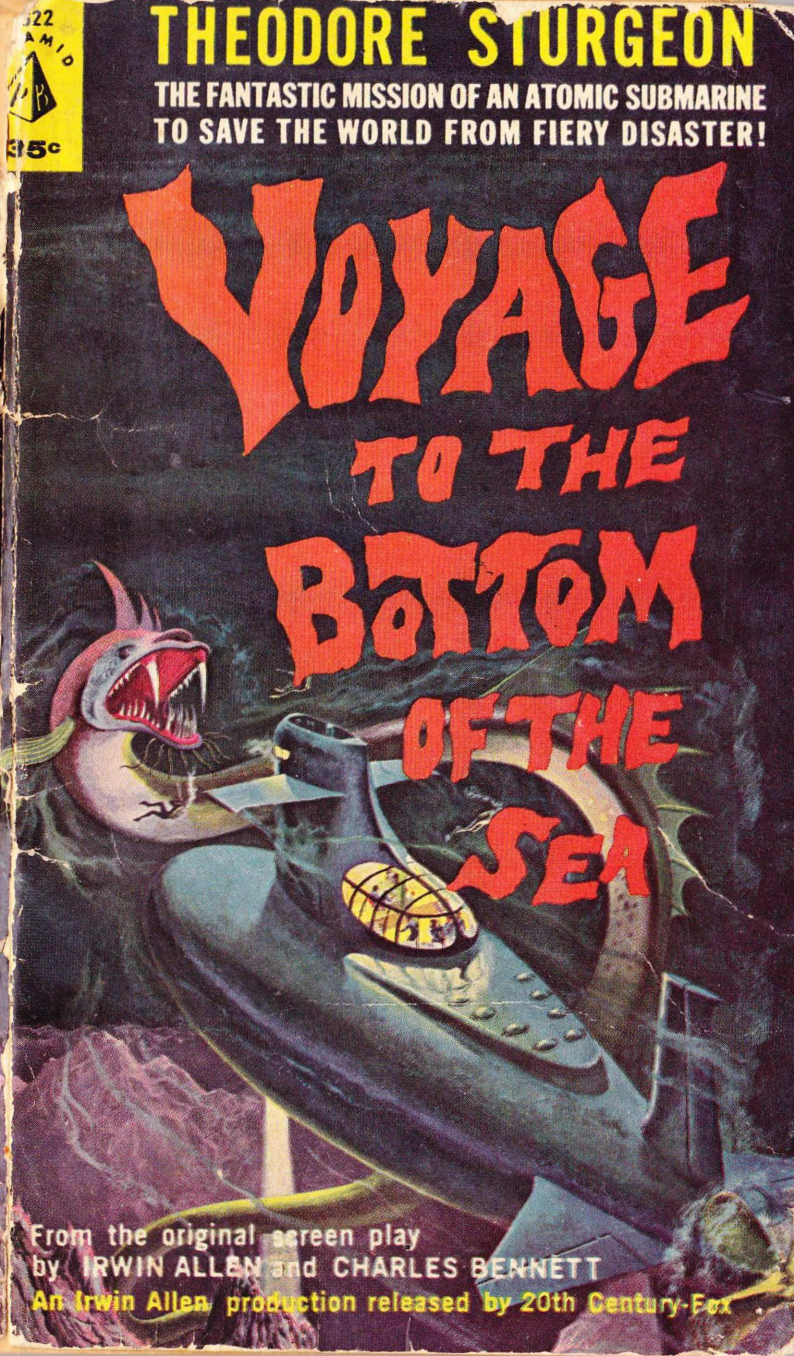
THEODORE STURGEON

THE FANTASTIC MISSION OF AN ATOMIC SUBMARINE
TO SAVE THE WORLD FROM FIERY DISASTER!

VOYAGE TO THE BOTTOM OF THE SEA



From the original screen play
by IRWIN ALLEN and CHARLES BENNETT
An Irwin Allen production released by 20th Century-Fox

THE ADMIRAL—was he mad?

THE CAPTAIN—would he meet the test of command?

THE FANATIC—why did he hope the world would end?

THE DOCTOR—whom did she love? Which side was she on?

They met on the most fantastic voyage ever attempted—a

VOYAGE TO THE BOTTOM OF THE SEA

—and the fate of the world hung on the outcome of their mission!

In a mighty epic of undersea adventure, the giant atomic submarine *Seaview* probes the ocean deeps—fights sea monsters on their own ground—and introduces the reader to the fabulous world beneath the the surface of the sea.

VOYAGE TO THE BOTTOM OF THE SEA

by Theodore Sturgeon

from the screenplay by
Irwin Allen and Charles Bennett
based on an original story by Irwin Allen

PYRAMID BOOKS, 444 Madison Avenue, New York 22, New York

VOYAGE TO THE BOTTOM OF THE SEA, *by* ***Theodore Sturgeon*** **from the screenplay "Voyage To The Bottom Of The Sea" written by Irwin Allen and Charles Bennett and based on an original story by Irwin Allen.**

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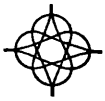


AT THE END, THE BOTTOM, THE VERY WORST of it, with the world afire and hell's flame-winged angels calling him by name, Lee Crane blamed himself. The youngest sub skipper in history blamed himself for the burning sky and the floods, the droughts and dangers of that terrible August when the devil himself brought his face to the Earth's crust and breathed on it, laughed and said, Die. It's my fault, Captain Crane told himself, which is probably why he did what he did. That he should feel this thing is only a measure of the man.

It's my fault because I was at the top, that day, and knew it, and told myself so. That was it: he had let himself tell himself so. Well . . . it takes a big man to be where he was, that day, and only a big man, with such a big brag in his heart, could have kept it to himself. And it was like him to react with horror so huge when he caught himself at it; and only a sizable soul could shoulder so much guilt for a moment of glory.

In his terror and agony, there near the end, he gave himself again the moment of the brag, not so much to relive the pleasure, but to flagellate himself with his sense of sin and the extremities of his penitence. Forgive him that. It was a time for extremities.

The Day of the Brag was a sunny day, and they stood in the wardroom of the U.S.O.S. *Seaview*, stood, sat, lounged and, as it became one or two of them, postured. The vistors had only just come aboard from an aircraft carrier lying just off the brim of Earth's ice hat. A huge turbine-powered whirlybird had gentled them off the flat-top and eased their precious and important presences on to the broad shoulders of the *Seaview* just aft of the conning tower, and from there they were conveyed up and over and down inside with the smoothness of eggs through a candler.

And with exquisite timing, if you're building a brag, they were no sooner arranged in the wardroom with their heart's desire in welcoming drinks in their hands, when the after

bulkhead, between the doors to the Captain's galley and the radio shack, a wall nine feet wide and six feet high, lit up in a blaze of color and presented to them a TV news show featuring themselves and their adventure and, oh yes, their importance. Captain Lee Crane, resplendent in dress blues (a tailor had once remarked of him "the guy's got one-and-a-half the shoulders and only half the hips!") and with pleasure watched the show on the screen, and the show of the people who watched the show. The image on the new wide-screen TV was perfect, the sound was stereophonic, the submarine idled along with a greased kind of gentleness, the drink was excellent and so was the weather.

The man on the screen said,

"Today's top of the news comes from the top of the world. The unpredictable Admiral Harriman Nelson has done it again! Since his retirement from the Navy some four years ago to enlist in the newly created Bureau of Marine Exploration, the Admiral has been secretly at work constructing the first submarine ever built outside the Navy Department. Into it has gone his entire personal fortune—you will recall that the Nelsons, with all their past glories in the form of college presidents, Congressmen, State governors and philanthropists, have been an investment banking family for three generations—and every penny he could scrape up from sources as widely separated as Foundation grants and collections of school-children's pennies. His brainchild, a fantastic—"

Here the commentator's well-barbered head gave way to a picture of a detailed model of the *Seaview*, which in due course dissolved to a montage of the keel-laying ceremonies, the launching, and the commissioning ceremonies of the craft.

"—a fantastic atomic submarine with an amazing glass nose—is undergoing final tests in Arctic waters, where it will follow the trail blazed twenty years ago by the first atomic submarine—under the ice and across the Pole.

"This sub of the future," the commentator went on, becoming visible again and, Captain Lee Crane thought, having run a comb through his faultless waves while off camera, "this child of determined imagination out of the Age of the Computer, is the world's largest mobile oceanographic laboratory. It was designed to search out the mysteries of the deep as well as to be a research center to test the miracle weapons of tomorrow. To operate this awesome robot, the Admiral has enlisted a hand-picked crew from former Navy men with long experience on atomic subs. To sit in judgment on these final tests, the Bureau of Marine Exploration has sent its

top officer, the former Vice Admiral B. J. Crawford and the congressional watchdog of the budget, Congressman Llewellyn Parker, by carrier and 'copter to rendezvous with the submarine *Seaview.*"

Lee Crane, lounging against the forward bulkhead, and behind most of the watchers, was amused to see the slight twitch and erection of the head, the reddening of the ears of the visiting admiral and the visiting penny-pincher, as each in turn their names were called. In his mind's eye he could see the imp called Vanity winging about overhead, ready to swoop down at the public mention of any name, to seize its owner by the ears (hence the reddening) and pull (hence the twitch and straightening of the neck). The commentator permitted himself to be replaced by a full-color portrait of Crane's "boss," the driving force behind the *Seaview* and all it stood for, Admiral Harriman Nelson. And sure enough, the Admiral's ears, here in the flesh, pinkened, and the great bull's head, terror of the china-shop, twitched and rose.

"And so the question of the day comes to this," said the now disembodied commentator, "Will the final test on the U.S.O.S. *Seaview* turn it into 'Nelson's Folly,' or will it be another triumph of an already great man—a great scientist and inventor, who in spite of what some call an odd-ball reputation, may yet emerge as the predominant scientific genius of our time."

Admiral Nelson let his gray eaves of eyebrows come up a notch, and otherwise held his face as if it had been carved there by Gutzon Borglum. But Captain Crane saw the slight turn his right hand gave to the signet ring on his left, a mannerism he had watched for ever since he was a boot at Annapolis and Nelson headed the Science Department; it meant he was annoyed. Fair enough. Chest-tones and the safety of a studio four thousand miles away did not qualify a guy with marcelled hair to call the likes of Nelson an odd-ball.

Now, Crane thought, comes the dessert. It's time for a seductive portrait of Dr. Susan Hiller, some arch remarks about how high this brilliant woman had risen in the ranks of medicine and psychiatry, and how extraordinary that she should yet be so beautiful—and why the hell not, thought Crane in irritation: when would the beautiful-but-dumb, brilliant-but-dowdy legend curl up and die? Could it be that most of the world wanted it alive, and if so, why? And in addition, Crane predicted, there would be a polite joke (masking some not only impolite, but downright disgusting impli-

cations) about Dr. Hiller's being the only woman aboard (which she wasn't).

"So," said the commentator, "*Bon voyage*, Admiral Nelson . . . his crew, and their illustrious visitors Congressman Parker and Admiral Crawford. We will hear nothing of them while they are submerged, of course, for however many hours, days or even weeks the tests take. They will likewise hear nothing from us; therefore, if they are listening to me now, I'd like to speak for all the world, its people, its scientists, young and old, knowing that they share my admiration. High ideals, high courage, and high adventure are their lot, though they find them in a voyage to the bottom of the sea."

He glanced down and up, wet his careful lips, and began, "In other news around the world, a dispatch—"

Captain Crane made a slight motion with his finger and Sparks, standing in the door of the radio shack, ducked back out of sight. The screen shrank abruptly to a polychrome dot which winked out.

Everyone breathed as if breathing had been forgotten for a while, everyone found that there was after all a glass in hand, everyone drank. Nelson rumbled—self-consciously because all his life he had been doing more important things than learning the formalities—"Well, gentlemen . . . Doctor . . . modesty forbids me adding anything to *that*."

"Chivalry," said a smooth baritone on the port side, "suggests a sorry omission." It was "Chip" Morton, Crane's Executive Officer. Classmates, roommates at the Academy, they had entered the submarine service together and come all the way. It was no one's fault—certainly not Lee Crane's—that they had proceeded single file, with Chip in the rear. Chip's tone just now was as glossy as his sharply trimmed black hair. He leaned toward Dr. Hiller and said, "He never even mentioned Dr. Hiller."

"By her wish and my specific request," said old "B.J."—Admiral B. J. Crawford, head of the Bureau of Marine Exploration, an old turtleback who, they said, bit the heads off three ensigns each day before breakfast.

"I've had quite all the publicity I could possibly want," said the doctor in a well-modulated contralto. "In this special case, I'm here to observe men under stress, to compare their reactions with men in other vessels differently equipped. It's a job that's best done quietly."

"You're quite right, Doctor," Crane said quickly, to nip off anything further Chip might have to offer: un-nipped, he would, too, thick, with a broad trowel.

"Let's take her down, Captain."

"Aye aye, sir," said Crane briskly. He wheeled to the bulkhead, palmed the bridge tweeter, and said, "Any time you're ready, Mr. O'Brien." The Dive Officer's voice came back at him out of the grille as if by speaking Crane had released a spring: "Aye sir!" Crane said, "Shall we all go up to the bridge?"

Drinks were finished, set aside, and Crane led the way forward, followed by Chip, who stepped over the high sill of the water-tight door and immediately turned to help Dr. Susan Hiller over it, saying, in that I'll-take-care-of-you-cookie voice of his, "Ship's etiquette sometimes looks mighty rude to a landlubber, ma'am. But an officer never lets a lady precede him. I guess because it's too easy to step over one of these sills into a bucket."

"I have been aboard a ship before, Commander," said the psychiatrist, not smiling at all, which almost made the Captain laugh out loud. He stepped aside and let them all come through and mill around, then touched a stud, and the curtain-wall behind him slid right and left away, and they found themselves standing at the aft end of the submarine's unique transparent nose. Like any small boy with new trains to show, like any girl with a two-carat diamond to flash, like —well, any human with something wondrous to display, he smiled and soaked up the three gasps that came from the guests. He glanced at Admiral Nelson, and saw him eating it with as much relish as he was.

And it was a sight to come upon without warning. What was called the bridge was the extreme bows of the huge sub. A single gigantic curved beam connected keel with backbone, swelling at the dead-forward point to a great escutcheon of steel, which formed the ram prow up ahead. Transversely, this was braced by two more curved beams, so that dead ahead one saw a cross of steel with the escutcheon at their joining, and the spaces between the arms were filled with what at first seemed to be nothing at all. Since the hull was nearly eighty feet high, and the waterline just below the arms of the cross, one might look down into thirty feet of water, up at the sky, and have sea level about at one's shins.

"By . . . golly," mumbled Admiral Crawford. "Nelson, I've lived with this thing about half as long as you have, blueprints on up, and I thought I knew what it would be like. But . . . you've got to be here to believe it."

"Those . . . ports? windows? They're so big!" said the svelte psychiatrist, wonderstruck as any child.

"Structurally, they're not windows or ports or anything else but just plain hull," said Admiral Nelson.

"X-tempered herculite," said the captain. "A process Admiral Nelson developed. And that *is* the right description. They're just oversized hull plates which happen to be transparent." He stepped to a console and touched a control. "Deck's clear, Mr. O'Brien?"

"All clear, sir!"

"Check your hatch."

"Dogged down, sir."

"Make it ninety feet as a start, and hold it."

"Ninety feet, sir."

The Congressman was still staring slackjawed at the herculite nose. When he found something to say, it was, "But the cost of a thing like that . . ."

The grizzled old Bureau head laughed aloud. "The cost was met by Admiral Nelson here, and his ways and means boys, and several million school kids, and his own patent and process holdings. She's bought and paid for, Mr. Parker, and was before he asked to have her commissioned by the government. We had to start a new Bureau to accommodate her. She's non-Navy, but federal. She's available for weapons testing, and for that alone she's worth her maintenance times fifty—just her availability. Her real business is research."

"Research," said the Congressman, at last able to fix on something he knew he disliked. He made the two syllables speak a whole paragraph about blue-sky puttering with useless chemicals resulting in useless mixtures, invoices for elaborate testing devices to determine the molecular changes in bread as it's toasted.

"Oh—look!" said Dr. Susan Hiller. She pointed downward, and a great shimmering cloud of mullet writhed past.

"Research," said Nelson, and his two syllables had a sound like a key opening an old lock. "We'll ride herd on those mullet some day, the way old timers did sheep. Maybe some day folks'll live down there under herculite domes, ranching the fish and farming sea plants. On a planet that's 74 per cent sea-floor, Congressman, there's an awful lot to be researched out. Research can make this a bigger world than ever you thought it was. There's mines for us down there, and oil wells, and hot-vents for power; there's food there and work and study for generations to come."

Without appreciable tilting, for this was not a crash dive, the ship began to go down. So smooth and silent were the mighty engines that their presence was only a vague steady tremble. The waterline crept upward over the giant panes,

and the light in the huge chamber took on the blue-green cast of the silent world. Susan Hiller clasped her slim hands together and stood breathless, moving her head from side to side in something like disbelief. The captain, now well on the way to what he later called to himself The Big Brag, affected a studied professional boredom which he hardly felt, so acutely did the awe of the visitors communicate itself. He stood with his back to the wonder of the surging water ahead, and his eyes flicked alertly over the "Christmas Tree"—the banks of lights and repeaters on his console.

"Run the ship from here, do you?" asked Congressman Parker, whose capacity for awe was apparently reached.

"Yes, sir," said the Captain. "That is, we can, or it can be run from a rather more conventional control room directly under the conning tower. There are automatics for every function from pumping sewage to changing stereo tapes —and manuals to override them."

"Deck's awash," said O'Brien's voice from the console, and a moment later, "Stern gone."

"Periscope depth," ordered the Captain. O'Brien responded and the strange light darkened a shade. The Captain moved some controls. A large screen lit up, and showed a seascape, the sparkling blue-green of sunlit, deep-water. He turned a wheel, and a grid, marked in degrees, began marching past the picture. "This is how we get away from the greasy stick that hangs down in the middle of most subs," he explained. "We have one 'midships, of course, but this repeater magnifies the periscope image. Standing right here I can turn it any way including up, without marching around it in a circle like a blind camel pulling buckets out of a well. And if we want it to, it'll lock on to an object by light or infra-red or radar or sonar, and keep the image right there no matter which way we jump."

"Must've cost—"

"It did," said the Captain with pleasure, "and it's paid up."

"What's your floor?" asked the Admiral.

"A thousand, sir."

"Would that be a thousand feet?"

"Fathoms, Mr. Parker. More than a mile." The Congressman peered downward through the herculite and looked as if he was suddenly afraid of falling.

"Take her down to two hundred feet," said the Admiral. "All ahead two-thirds, course zero."

"That's due North, isn't it?" asked the psychiatrist, shaking herself awake at last.

Chip Morton answered her; all this time he had been gazing at her in much the same way as she had been gazing at the ocean, and was apparently as bemused. "Oh you are a sailor, aren't you?" he said fatuously, as if he were talking to an exceptionally clever five-year-old. She passed him a chill brief glance of barely aroused irritation, which only made him grin at her—a lost grin, for she was already looking the other way.

"Two hundred feet," said the console.

"Trim her, then two-thirds ahead, course zero."

"Aye-aye, sir."

"And O'Brien—set loran and asdic alarms for 200 plus and 400 minus. We'll have a roof over our heads PDQ. And hang 'em on the mike."

"Aye-aye, sir."

"I heard what you said," said Parker, "but what did you say?"

"Told him to go under the ice, set our detectors to operate at anything 200 feet over us or 400 feet under, and use them to operate the mike—'Iron Mike,' that is—pet name for automatic pilot. She'll run herself now until she encounters something she can't handle. She'll think it over for a couple of millionths of a second and then yell."

"This must've cost—"

But this time the Captain only smiled at him.

"Doctor . . . gentlemen . . . would you like to go on with the tour?"

They moved aft. The captain murmured into a grille that he was leaving the bridge, and joined the group. They crossed the wardroom, rounded the TV bulkhead and went aft down the central corridor. The Admiral, in the lead, turned to a door on the starboard side and opened it. "Watch your step," he cautioned, and went in. His warning was useful for on the other side of the usual shin-hungry high sill was a steep flight of steps, virtually a ladder, which twisted downwards into greenish dimness.

Blinking, they found themselves in a cavernous chamber, standing on a steel catwalk which ran about six feet over what at first seemed to be a shiny floor but which, as their eyes adjusted, they were able to see was water, because there was a man on it, about chest deep, wearing a rubber suit and walking slowly. "Hey, Lu!" barked the Admiral.

"Lu?" echoed Admiral B. J. Crawford. "That's not—that wouldn't be old Lucius? Lucius Emery?"

"Well, B.J., goddam!" cried the man in the tank. "Beg pardon, ma'am. Didn't see you."

"Think nothing of it," said Dr. Hiller calmly.

"Dr. Hiller, Commander Lucius Emery," said Nelson. "When better ichthyologists are built, they won't find the likes of old Lu. Come on up and shake everybody's hand, Lu."

"Can't," said the man in the tank. "You wouldn't want my buddy here to drown, would you?"

Dr. Hiller bent over the catwalk rail and peered. "What's he doing?" she whispered to the captain.

"Walking a shark," he replied.

"Oh," she said. She concentrated, and as the man passed under the catwalk, they could make out the dark shape he propelled through the water, the tall dorsal fin like the sail of a good-sized toy boat . . . it must have been all of nine and a half feet. "*What?*" she cried.

Lucius Emery looked up and smiled cheerfully at her. "Put him to sleep to make some tests," he called up. "Now I got to walk him until he wakes up, to keep some water going through his gills till he snaps out of it. Who's your other friend, B. J.?"

"I beg your pardon, Parker. Congressman Parker, Lu. Come to see how we handle government money."

"Just like throwing it into the ocean, eh, Congressman? I heard of you." And he laughed—a good laugh, echoing round and round the big tank.

"What," asked the Congressman tautly, "do you do when he—uh—'snaps out of it'?"

"Go some place else," said the ichthyologist.

Admiral Nelson laughed. "That Lu . . . he'd rather make friends with a fish than be remembered as one of the world's great physical chemists, which he also happens to be."

" 'Remembered' is probably the word," said Parker sweatily.

"Is he *that* Emery?" breathed Dr. Hiller.

The Bureau chief began to move down the catwalk. "Look me up later, Lu. We'll chew over some old times. I'll buy the beer."

"That don't sound like old times," said Emery. And the great, the granite-faced, the cold-eyed Admiral B. J. Crawford, Chief of the Bureau of Undersea Exploration and nightmare to a thousand frightened cadets and j.g.'s, laughed and called him a name, took the impertinence and walked on.

Out again in the central corridor, Dr. Hiller paced in puzzled silence for a time and then said, with extreme care, "Commander Emery is . . . uh . . . very informal, isn't he?"

"What you're asking, ma'am," rasped B. J. Crawford, "is where does a lowly superannuated Commander get off talking

to the high brass that way, isn't it? Or: why isn't the man disciplined for the way he conducts himself with his superiors? Or: doesn't a man like that eat away at the discipline of the other men? Is that what you wanted to know?"

Dr. Hiller was obviously not cowed, and perhaps could not be. "Yes," she said.

"All right," said Crawford (approvingly, the Captain thought). "I'll tell you in case you want to put it in a psychology book some time. I was forty-three years in the Navy before I retired and now three years in the Bureau, which is as much Navy as I can make it. And I like what they call a taut ship, I believe rank has its privileges, I believe the man who ranks you is God and the man you rank is dirt, even by one half a temporary stripe. I believe all that because when an emergency comes up, that's the way you've got to have it or a lot of otherwise good men get dead. And the only way you can have it that way in emergencies is to have it that way all the time. Men just don't un-relax and tighten up fast enough; you got to keep them tight all the time."

Dr. Hiller looked perplexed. "But then Commander Emery—"

"Lu," said Admiral Crawford, "he unrelaxes fast enough. Statistics being what they are, the law of averages and all that; and men being what they are, there never has been one like him before and there never will again. Right, Nelson?"

"Right," chuckled the other.

"I think," said the psychiatrist with a kind of dogged primness, "that you have covered everything with the possible exception of his effect on the others."

"They love 'im," said the craggy old Admiral astonishingly, "which is one other thing I don't believe in but I'm glad it happened once so it can never happen again. Somehow or other anyone who ever runs into Lucius Emery knows he can't act like Lucius Emery unless he *is* Lucius Emery, and Lu already got that slot filled. Right, Nelson?"

"Right," said Nelson.

"Right," said Dr. Hiller sharply, and then smiled quite the most engaging smile they had yet shipped aboard that submarine. The two Admirals shared a chuckle, and Crawford, pre-empting the Captain and outflanking the Executive Officer, Chip Morton, who panted close by, helped her over the sill into the magazine.

"Reminds you a little of the Ol' Souf, don't it?" drawled Chip Morton, managing at last to corner the pretty doctor, and pointing to the close-ranked columns on each outboard bulkhead of the wide magazine. "I mean those old plantation

houses with the rows of columns holding up all that-all you-all prestige."

"What are they?" she asked, sticking to facts.

"Missile tubes. We could lie on the bottom of the Mindanao Deep, six miles down, and lob one of those things into orbit, or drop it down the smoke-hole of a Navajo wigwam."

Homing on the warm drone of Chip's voice, Lee Crane came over to interrupt. "Here's something new," he said, holding out a small curved device. "Magnetic hand primers, to fire these Polaris X's in case all this spaghetti—" he waved his hand around at the computer systems—"should get itself tangled on someone's fork."

"It's so tiny!"

"It provides exactly the right amount of exactly what's needed. 'Course, you have to go outside. You hang it on the warhead, slap her on the nose, and back off a little. In six seconds, off she goes."

With a what'll-they-think-of-next gesture she handed it back, just in time to see Chip Morton tossing something to her underhanded. "Here's something new, too," he said.

Reflexively, she caught it, turned it over. "Some kind of baseball?"

"Well, for real short games. One hit, no ball park. It's an underwater demolition bomb."

An expression of distaste, absolutely uncolored by fear, crossed her face. "Commander Morton," she said quietly, handing the bomb back to him, "I don't like sadistic jokes and I don't like sadists." Amid a thundering silence she added, "I understand them very well, of course, but I don't like them."

Without a word, Chip Morton turned away and went to put the bomb away. The girl raised her unflickering eyes and looked at Captain Lee Crane, as if to accept, quite without challenge, any remark he might make and store it away without actually touching it. He said "It couldn't possibly go off if dropped. It takes a fairly difficult two-handed manipulation to arm it."

"That was perfectly obvious, or he wouldn't have thrown it to me."

"You don't scare easily."

"I do if something comes up that's genuinely frightening. For anything else, I've simply developed a reflex for analyzing what situations are before I react to what they might be."

"All the same . . . he will of course be disciplined for that kind of childishness."

"He has been," she said without smiling, but with an unmistakable twinkle in her eye. "You may do as you like with him, Captain, and of course you will. We each have our own theory of discipline. With some it's pain for the offender. With others it's correction, whether or not pain should be involved." She paused and then said, with a recurrence of that twinkle, "In my opinion Commander Morton stands corrected. He will never do anything like that to me again, and very probably not to anyone else. So much for correction. As for punishment—"

The captain laughed suddenly. "I'd hate to make any crime of mine fit one of your punishments, doctor."

Across the compartment, Congressman Parker heaved heartily on a door dog, which refused to move. "What's in here?"

"Davy Jones' locker," said Nelson. "That's the escape hatch."

The Congressman let go the handle as if it had turned into a live mule's hind foot, and stepped back smartly. The two Admirals did not smile, but knowing them as well as he did, Crane could see that it was not easy. "And that?" asked the Congressman, pointing briskly to cover his embarrassment.

"Minisub," said Nelson, looking upward at the stubby craft. "When you have to go outside and you're too deep for—" he waved his hand at a neat, comprehensive row of racks of diving gear—everything from simple snorkels to heated wet-suits with self-contained air recirculators—"those. You enter from below, there, that hatch, see it? and then it goes up through the 'roof'—a lock just forward of the conning tower."

And as they looked up at the sub, the small round hatch swung downward and ejected a pair of feet, followed by the legs, torso and flaming red head of the young sailor who swung down out of the Minisub, found himself standing in the midst of a great mound of high brass and a strange and lovely woman. Her neat dark suit, their heavy loads of gold stripes and "scrambled eggs" on their caps, their epaulettes and the achingly bright shine of their well-turned shoes, all contrasted noisily with the redhead's sweat-stained, oil-spotted T-shirt, faded fatigues with one knee out, and knob-toed safety shoes. The sailor gulped noisily and begged their pardon. Admiral Nelson cocked his head and looked at the young man, Captain Crane smiled, it may or may not have been at the man's discomfiture; in any case his eyes were off in the middle distance. True to his creed, the superior B. J. Crawford was not aware that the inferior gob even existed.

Dr. Hiller looked straight at the redhead, cool and attentive, and the redhead, bulging his muscles against a dirty rag he held behind his back, was apparently trying to build, with his knob-toed feet, a hatch to fall through.

"Take a look at *this* lad, B.J. He's Seaman Smith. Recognize him?" demanded Nelson.

Admiral Crawford's glance struck the redhead a glancing blow. "Should I?" he asked coldly.

Nelson chuckled. "Seems only yesterday you were bouncing him on your knees."

Crawford's frosty eyes swung around and got a fix on the bridge of Smith's nose. Suddenly he snatched off his beautiful hat and slammed it cruelly against his knee. "Smith! Ol' Bricktop's son! The spittin' image too!"

"His mother wrote me that he'd finished his hitch in the Navy, so I had him sign up with us on the double."

"Well," said B.J., toning his voice down from bark to growl. He put his hat back on and put out his hand. "Jimmy, isn't it?"

"Yes, sir."

"Minisub man, eh?"

"Yes, sir."

Crawford glanced aloft. "Mark VII, isn't it? Like it?"

"Handles like a dream, sir," said Smith enthusiastically. "I can't wait to wring her out under the ice."

Nelson began to move off, and said over his shoulder, "You will!"

Smith looked after him, bright-eyed. "Thank you, sir!"

Crawford punched the redhead's shoulder. "Good luck, kid."

"Thank you, sir."

The captain herded Dr. Hiller gently over the sick bay sill and glanced back before he let the door swing shut. Young Smith was looking upward like a chicken-farmer thinking about sparrow-hawks, and from the little hatch of the mini dangled shoes, shanks, and bony knees, between which leaned the horse face of the CPO Gleason.

Gleason said, apologetically, "Sorry to break in on your social life, Commodore, but there's an important matter of operational procedure awaiting your attention." Suddenly he dropped a can of metal polish like a bomb (Smith caught it) and roared, "Git back to work!"

Young Smith got a foot on the top gudgeon of a torp tube and leapt, catching the rim of the hatch while Gleason rolled deftly out of the way. Sticking the can of polish in his back pocket, he pulled himself upward. Gleason's unmusical

voice began some sort of chant, the tune of which Crane could not quite place. He shrugged, smiled, and followed the others into the sick bay. "And now," Nelson was saying, "see whether or not it's worth-while getting sick aboard."

Seaview had more hospital space than many a liner, and certainly more than any sub afloat. Dr. Hiller exclaimed in very real delight at the compact dental equipment, complete with X-ray, folded out of a cabinet the size they used, not long ago, for sterile gauze swabs. From a similar cubbyhole came an amazingly comprehensive medical reference library on microfilm, along with an efficient little projection system and a quick-finder index. Urged by the Admiral to go right ahead, she investigated the autoclave, the pharmacy, the drugs and stores. She was crossing to the inboard bulkhead, where stood an adjustable—very adjustable—examining table, when an inner door opened and an officer, tall, thin, in his mid-forties, walked in. "Admiral! . . . Captain . . . I'm sorry. I didn't know you were here."

"Dr. Hiller, this is Dr. Jamieson, our sawbones. You know Admiral Crawford. And this is Congressman Parker."

Dr. Jamieson barely acknowledged the introductions, barely took his eyes from the woman. "Are you—*that* Dr. Hiller? Dr. Susan Hiller?"

"I suppose I am . . ."

"Gentlemen," said Dr. Jamieson, "we have in our midst a very distinguished person. Dr. Hiller wrote—"

Nelson laughed. "We know who she is, Doc. That's why she's with us. She's here to do stress observations."

"We're very fortunate," said the doctor warmly. "Have you any idea how important to us all these psychological observations have been? Why, the size of these cabins, the color of the walls—the air temperature and humidity, the way food is cooked and served, even the layout of dials and controls —all of that, and more, is determined from the analyses of these observational psychologists and psychiatrists. But—Dr. Hiller! Of them all, to have Dr. Hiller!"

Nelson chuckled. "All right, all *right*, Doc! We'll buy it, and Dr. Hiller too."

"I'm sorry," laughed Dr. Jamieson. "Dr. Hiller—Mr. Parker —Admiral—I don't usually flap off at the mouth that way. But it would be foolish of me to try to conceal my admiration. . . . I will see you again, Doctor?"

"Of course. We'll have quite a bit to do together, I should imagine. I couldn't very well do without your help."

"Oh, you have it, you have it," said Jamieson, watching them leave. Why my God, he's panting, Crane thought as

he waved and left. Not at all like Chip (who was off somewhere now, licking his wounds) but still popping off like a school kid on circus day. To those who knew him well, Doc Jamieson was a pretty reserved guy too. Twice today, Crane thought, he'd heard that accolade: Are you *that* Dr. Emery? Are you *that* Susan Hiller? Twice . . . weird, he thought. He indulged in a superstition: they come in threes.

Somewhere in his mind, or perhaps it was from the magazine, he heard a tune, and almost called it by name. He made an effort and hummed a snatch of it, but still he couldn't remember the name.

The Admiral and the visitors were in the mess-hall, which was next to the sick bay—a quiet piece of planning for any eventuality which would require ward space.

"Captain Crane—"

He turned back. "Yes, Doc."

Jamieson extended a hand and dropped four small objects into his palm. "Hang those on the vips for me, will you, Lee?"

"Oh," said the Captain. "Dosimeters. Sure, Doc."

"Rank, she is wonderful," said the doctor. "I can make anyone aboard wear one—in the nostril, if I say so, to boot. Except for just those people who, according to theory, should be protected most—namely, exactly those who outrank me."

"You're the doctor," Crane reminded him with a smile.

"I'm the doctor," said Jamieson ruefully. "Can you see me strutting up to the likes of B. J. Crawford and saying, 'All right, mister, produce your dosimeter. What, no dosimeter? Arrest yourself, mister.' "

Crane looked into his palm. "B. J., Parker, and Dr. Hiller. Three. You gave me four."

"I was being subtle," said the doctor. "Sir."

"Oh," said Crane. Then, just as elaborately deadpan as the doctor, he turned back his lapel and showed the white button pinned there, then roared with laughter. The doctor made a glum motion with his forefinger: mark one up for you; and went back to his cave.

Still smiling, Crane caught up with the others just as the Admiral was saying, "And now, B. J., let's have a look at the stomach this floating army travels on." He turned toward the closed galley door.

"One moment, sir," Crane called. He approached and handed the Congressman a dosimeter, his strategy being that Parker could not be expected to know about them, Susan Hiller would not have forgotten them and would probably say so, and the Admirals would almost certainly have

forgotten theirs as well. "Here you are, sir: compliments of Dr. Jamieson and the *Seaview*."

"What is it?"

"A kind of radiation meter, sir. It keeps track of how much radiation you are exposed to. You'll notice it's white. If you're exposed at all, it will begin to glow. A little more, and it gets pink. Too much, and it glows bright red. But of course, that can't happen."

"And if it does," said Dr. Hiller composedly, "you would have ceased to care."

Parker giggled uneasily, and fastened it behind his lapel where Crane pointed. The Captain added, "Please wear it at all times, Congressman, and remember to change it every time you change clothes." Dr. Hiller had a lapel too, it happened, and Crane was pleased to note that she had nothing to say about it as she pinned it on. Admiral Nelson casually took one and pinned it on, as if needing one was quite the most natural thing in the world. B.J. Crawford bluntly ignored the whole operation, at which Crane felt a profound understanding of the doctor's complaint.

"Now the galley," said Nelson. "This is the most—"

He flung the dooor open and it was, indeed, the most. The well-sealed door had, as it was designed to do, eliminated kitchen noises from the mess. It had probably not, however, been designed to eliminate the shrill piping of a mouth organ, the beat of a half-dozen pairs of hands, the chuckles and shrieks of a one-eyed parrot named Aggie, constant companion of the chef, and last but certainly not least, the spirited clogging of the slender dark-haired girl who, mounted on the chopping block, was doing an Irish reel.

"Jiggers!" gasped the cook, sidling rapidly back of the preparation tables, "The Admiral!"

The hand-pounding stopped abruptly. The accordianist, an enlisted man, was apparently in a closed-eyes transport, and kept on for perhaps two more bars before the silence overwhelmed him too. The girl, apparently in such deep concentration on her footwork that she noticed nothing else, was finally reached by the shriek of the parrot, which said, in tones of total panic, "Hide the dames! Ditch the grog!"

There was an extended hush. Then the girl started down from the chopping block. Her cheeks were flushed and her eyes bright.

The visitors examined this scene, Admiral Crawford impassively, Admiral Nelson with stern disapproval (but then why was he biting the insides of his cheeks?) and Dr. Hiller with her—simply with her *examining* look.

The Captain took it upon himself to speak first. "Miss Connors!"

The dark girl dropped her eyes.

Congressman Parker said dryly, "Dietician, Admiral? Or dance instructor?"

"Neither," said Nelson. "She's my secretary."

Miss Connors spoke up. "I am very sorry, sir. It was my fault altogether. My idea, I mean I thought of it. Started it."

Captain Crane flicked about him that four-stripe look, in which each stripe is a whiplash, that every enlisted man knows. "You men turn to," he said levelly, and Cookie and the second chef flew into the motions of activity, while the others melted away through the far door. Miss Connors edged in the same direction as the Admiral passed her, "We'll have a little talk later, Miss Connors," he said without inflection.

"Stand by, Connors," said the Captain, and she stopped in mid-stride, her head humble, as if his words had the power to switch her off. "We'll have our little talk right now."

The Admirals went out the far door, followed by the Congressman. As she passed him, Dr. Hiller murmured, "It only means high morale, Captain."

"Thank you, Doctor," said Lee Crane coldly. He and Miss Connors waited until the door had closed behind them, and another interminable thirty seconds, while the galley staff succeeded in not looking at them while fairly creaking with the effort. At last Crane motioned to the girl and they in turn went through the door and closed it behind them.

They found themselves in the relative privacy of the starboard corridor. "That," said Crane chillingly, "was quite an act, Connors."

"Yes," she admitted faintly.

"It will, I'm sure, get a favorable review in the *Congressional Record*. And say yes, *sir*, this time."

"Yes, *sir*." She raised her downcast eyes and they were full of laughter, though there was none on her face as she whispered, "Will they fire me, Captain?"

"They've fired better men for less. Can you explain this undignified behavior?"

"I was just showing Cookie how I'll dance at my wedding."

"Well," said Crane grudgingly, "that *is* an extenuating circumstance. In about three weeks, isn't it?"

". . . and two days and four hours."

"Hm," grunted the Captain, "And who's the unlucky man?"

She raised her eyes again, and her face, and her arms, and her warm lips met his eagerly and with joy. "Oh Lee," she said with her lips still against his, "I feel like an idiot."

"Nice idiot," he chuckled. "I love the idiot. But watch it, will you?"

Now it was in this moment, with his lips on hers, that there came to him the surge of feeling he was later to identify, derisively, as the Big Brag. It must be understood that it came to him in a flash, and, for all its intensity, it lasted for the least part of a second. It was this which, later, he came so bitterly to regret, although the Big Brag was unspoken and no one knew of it but Lee Crane in his own innermost secret self. We all impose guilts upon ourselves; it is one of the penalties we pay for belonging to a social species—a vague and constant awareness, however far away from the surface, that we are part of the race, and that for our sins all mankind might be punished. Had things remained normal, this passing flash of Lee Crane's may well have disappeared forever into that lightless region into which we all drop passing thoughts which no longer matter. But things, of course, were never to be what the world once called "normal" again. . . .

The Big Brag, coming to a man who ordinarily did not turn his thoughts inward, and who was not given to taking stock of himself in any way, let alone making mountains of the credit side—the Big Brag, then, suffusing him as he stood in the corridor with the slight strong body of Cathy Connors in his arms, ran thus:

Do you know who I am? I'm Crane. Lee Crane. Yes—that Lee Crane. My girl loves me and her standards are high. Never since grammar school have I been off the honor roll. I'm still the youngest sub skipper in the country, maybe the world. My crew, every man Jack of 'em, would jump to sail this ship under the cellar of Hell and torpedo the boilers. So there you are: I'm strong, smart, young and respected, my girl loves me and the world is watching. I'm Crane. Lee Crane. I'm—that Lee Crane!

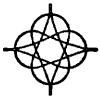
The Big Brag—unspoken, but rising up in him in a sudden surge that made his eyes smart. Then the knob on the door behind them turned and they sprang apart. O'Brien, with his black hair and red eyebrows, emerged: "Beg pardon, Cap'n."

"Carry on, O'Brien." To Cathy he said sternly, "We'll continue this at a later time, Connors."

"Yes, sir," she said demurely: and it was over.

The episode was over, but the Big Brag, wrapping itself

in a coating like one of those delayed-action pills, awaited only the right environment to be released. And the world, and space itself got exactly the right environment ready, by the millions and millions of cubic miles.



DAY AFTER DAY THEY DROVE NORTH. THE *Seaview* behaved like a dream—the dream of a hard-headed, demanding, detailed and logical dreamer, which indeed she was. If ever Admiral Nelson had his Big Brag moments—and he really rated them—Lee Crane could see no sign of it. Not that he was ever persnickety—he was too big for that. But he ranged the sub from stern to keelson to stem to bilge, not so much looking and listening as reading and hearing. Any mere expert can be spoken to by a generator or a pump or a computer; Nelson seemed able to have conversations with rivets and the seam of a weld. In another man, this would come out looking like worry, like fear and mistrust of design and materials. But in Nelson, it was more as if the thousands upon countless thousands of components making up the submarine were a great body of friends of his, to each and all of whom he had said, "Now if anything ever bothers any of you fellers, you tell me about it, no matter who you are. That's what I'm here for." This, to a rivet.

A warm friendship sprang up between Dr. Hiller and Cathy Connors; from the second day, it was "Sue" and Cathy." Dr. Jamieson spent his time in one of the higher levels of heaven, at Dr. Hiller's beck and call; he admired her with a touch-me-not whole heartedness which, to give her credit, she took no advantage of. Chip Morton minded his manners and his own business, though anyone who knew him well—and the Captain knew him very well—was aware of his constant corner-of-the-eye awareness of the svelte psychologist, and of tension like that in a cocked crossbow, as the Executive Officer searched for a chink in the doctor's armor. Lee Crane, however, trusted the latch that held it cocked. Chip Morton might be headstrong, but stupid he was not.

Staying most of the time at the 500-foot level, the *Seaview*

slipped under the ice on the second day. For six more days she cut herself off from the world, traveling north by and large, but zigging and zagging, diving, lying doggo, and rehearsing drills: collision, fire, and various breakdowns: air plant, power, even food shortage. Nelson ran an elaborate series of observations on Earth magnetism and another on crust temperature on the bottom, either of which would have been full time work for a specialist in either field, and still was able to get some sleep.

On the ninth day Cathy Connors entered the office of the sick bay with a thick folder under her arm, and found Dr. Hiller transcribing notes from the little book she always carried, to a tiny tape recorder. "Hello, Cathy. I have some hot coffee here."

"Hi, Sue. Brought you the personnel file you wanted. Yes, I think I will." She hopped up to sit on the edge of the examining table and swing her feet.

Dr. Hiller poured the coffee, handed a cup to Cathy, put her own safely back out of the way and placed the heavy folder before her. Leafing rapidly through it, she said, "Your Captain Crane is surprisingly young for a job like this."

"He was the youngest sub captain in the whole United States Navy," Cathy said proudly.

"He must have a friend at court," said the doctor; but Cathy knew she was teasing. "The Admiral?"

"Wrong diagnosis, Doctor. They're almost like father and son, but the captain *earned* his rank. Neither he nor the Admiral would want it any other way. If anything, I'd say it was harder that way than if they hadn't been so close. The three of them have always fought hard to keep personalities out of—"

"Three of them?"

"Admiral Nelson, the Captain, and Chip Morton."

"Oh," said the doctor quietly, "Chip Morton."

"He and Lee—Captain Crane—roomed together at the Academy," said Cathy. "They were always one-two on the honors lists."

"Morton always second."

"Well, yes. How did you know?"

"It's written all over him. Also that the Captain went through in a breeze and Morton had to fight about twenty-six hours in each day to keep up."

"Lee's never talked about it, but—I suppose that's the way it was. But that isn't in the file."

"It doesn't have to be," said Dr. Hiller. "It's written all over them both. Captain Crane accepts challenges because

they're his job and he does his job. Commander Morton accepts them because they're challenges—I mean, they give him a chance to prove something."

"Prove what, for heaven's sake? Look where he is today, at his age!"

Dr. Hiller shrugged. "Prove he's as good as the best. It's a little like my being driven to prove I was as tall as B. J. Crawford." She smiled suddenly "Don't take all this too seriously. The world is full of Chip Mortons, and whether or not they like it, they make the world's best second-in-commands. They're exacting of those under them, and extremely watchful of those above."

Cathy affected a shudder. "Oooh . . . you strip everybody clear down to their nuts and bolts."

Dr. Hiller laughed at her "No I don't. I can't. Nobody can. There's always something *else* about people. No matter how you graph and chart and study and distill, there's always something *else*. Which is what makes psychology so interesting—the constant search for that something *else*. It's the only field where something else is always there, you can bank on that."

"I guess you could say that about all research—the search for something else."

"In the sciences, yes. The search for the something else that might be there. In psychology—which isn't a science, and don't you believe it is even if a psychologist tells you so—you know darn well it's there."

"If psychology isn't a science, what is it?" asked Cathy.

Dr. Hiller laughed. She had a good laugh. She said, "That depends on the psychologist. Some are statisticians, like insurance men. Some are artists—conscious, creative artists, who match and blend and design to achieve the response they want. And some—well, there isn't a name for it. It's an intuitive something, an ability to know instantly what people are, and if anything is wrong, what's needed to fix it."

"That would make good psychologists out of a lot of priests, cab-drivers, and maiden aunts."

"Better," said Dr. Hiller, "than a lot of 'em who have a diploma to hang on their walls." Seriously she added, "There's just one more thing that makes psychology, and especially psychiatry, such tremendous challenges. And which separates them from the true sciences. And that is that the ultimate instrument, the tool, is after all only a human being. Now a biologist isn't going to let his work be twisted and tilted by a warped lens in his microscope. Before an astrophysicist writes up a weird new effect from his radio-telescope, he'll

check out the wiring on his amplifiers. These people can see a flaw in their instruments the instant it's there. But a psychologist or a psychiatrist might operate for years with a wobble in his mental 'lens' and not even know it."

"How can you possibly guard against a thing like that?"

Dr. Hiller shrugged her slim shoulders. "'Man, know thyself' is one way, though Socrates should have added '. . . if thou canst.' Otherwise, all you can do is to judge by the results you get. Which, of course, you don't get until after the work is done, and if there are mistakes, they're made and you have to live with them. And know better next time." She smiled. "But perhaps you see why I think it's interesting."

"Also scary," said Cathy Connors. "I—"

There was a dull boom far away, felt rather than heard. The submarine lifted, tilted, subsided rocking, while a crunching rumble proceeded upward around them. The constant, almost un-heard thrum of the motors, the barely-felt tremble of propeller-thrust, ceased abruptly, a change from almost nothing to nothing-at-all which was as shocking as a dynamite blast. Dr. Hiller sat frozen, clutching the edge of the desk. Cathy Connors sat on the deck, where the first jolt had flung her from her perch on the examining table, while a thread of blood curled downward over her temple where her head had struck the corner of the desk.

"Damage control!" roared the speaker on the bulkhead, in Crane's voice, but hard, tense, filtered. "Damage control! Report!" The shrill hooting of the alarm filled the ship. They had all heard it many times during the past days of drills, but never with such command, such menace.

"We hit something," whispered Susan Hiller.

Cathy shook her head dazedly. "Something hit us."

The doctor rose and came around the desk. "Come," she said levelly. "You've been hurt. Let me—"

Again that dull boom, the lift and lurch. Dr. Hiller's feet were snatched right out from under her and she sat heavily next to the admiral's secretary, who said tremblingly, "Well, hello."

They helped each other up, and the psychiatrist, holding herself tensely in control, got to a first-aid shelf and deftly examined and treated Cathy's cut. "Not much, really," she murmured. "There—the bleeding's stopped."

"Thanks," said Cathy. "I didn't even know I was hurt. Sue—let's go forward and see what's happened. Only for heaven's sake remember to keep out from under foot. If

there's anything Admiral Nelson hates in an emergency it's what he calls 'non-participating personnel.'"

"I'll be good," said the doctor.

They made their way forward through the central corridor, making a short-cut through what was affectionately called the "fishbowl," the catwalk over the three small tanks and one large one, where sharks slid oilily. It was here that the submarine took the third impact from below, this by far the worst yet. She listed almost thirty degrees to the accompaniment of shuddering scrapes from outside, slowly nosed down, rolled back, and then achieved an even keel again. The water sloshed over the edges of the tanks below, and its surface boiled, lashed by the tails of the frightened sharks. In one of the smaller tanks—smaller only by comparison, but by no means a small tank—a dark torpedo body flashed out of the water and boomed against the wire mesh which covered it, leaving it thrumming. The other tanks, uncovered, seemed to the frightened girls to be ready to fill the air at any moment with flapping, snapping sea monsters.

"But you know," said Cathy afterwards, when they had regained the corridor and were moving forward again, "it was a safer place to be in than your office. I'll take a good strong guardrail on each side, any time, even if there are sharks lunging around underneath."

"I'll requisition some for the office," said Susan Hiller.

Twice they stepped aside and flattened against the wall while damage details went by on the double, and when they reached the wardroom and the door into the observation nose, they moved like a couple of schoolgirls visiting someone else's school, peeping through each doorway before they went through it.

A knot of officers, Captain Crane, Commander Morton, and Admiral Nelson among them, clustered around the control console in the after starboard corner. Quiet, tense orders flashed and crackled between them. The telltales and grilles flashed and crackled as well, bringing information on pressure, temperature, and the presence outside of huge, hurtling objects. . . .

"Look!" breathed Cathy Connors, pointing forward with a shaking finger.

The big floods were on, for although the water was clear, their depth of over four hundred feet put them on the fringes of the lightless deep. And perhaps a hundred yards away, they saw a shape, like a great white cloud . . . no, there was nothing cloudly about it; it was solid, jagged, and seemed to be moving majestically, slowly upward through

the water, until the startled eye realized how far away it was, and how large: at least as big as a ten-story building. Then it was evident that the thing was coming up with a rush, moving far too fast for anything that big. It disappeared above the loom of their brilliant lights.

"Wh-what was that?"

"It looked like an iceberg," Cathy answered. "But icebergs aren't supposed to be down at the bottom!"

From the console came the shrill reiterated squeal of sonar gear, as one of the officers turned up the gain. They all pressed to a cathode screen where a line of light with a little mountain in the middle danced in time to the squeak. The squeaks came closer together, faster and faster. Chip Morton broke away and ran into the transparent bows, pressing his back against the forward plate and looking down and to the rear. "Give me a beam!" he shouted. "That's it . . . straight down . . . aft five . . . five more . . . hold it . . . Oh my God, it's right under our keel . . ."

"Got the range," barked O'Brien. "Two hundred . . . one ninety . . . eighty . . . One hundred fifty . . ."

"Both starboard full ahead!" bellowed the Captain. "Both port full astern. Full left rudder!"

The submarine shuddered from stem to stern as the big atomic-fired turbines took hold. She seemed as if she never would answer, and then a drift could be detected as she began to respond, and flotsam, caught in the lights, began to stream past from left to right. Up in the bows, Chip Morton made a sound of pure animal terror and sprinted aft, only to stand close to the knot of men, as if their very presence formed some sort of sanctuary for him. Eyes wide, he looked forward.

With a grinding crunch, the rising iceberg shouldered into the *Seaview's* bows and lifted them. The transparent plates took the impact on the under side and to the right, and crushed ice showered and swirled like smoke. The ship tilted upward and began to roll to the left, then slide backward, dragging her glass nose down the jagged slope of the ice mountain, cracking, crushing, grinding, smashing into each rough projection as it rose past.

Cathy Connors and Susan Hiller clung to each other and forgot to breathe. Neither could have called the exact figure in pounds per square inch the sub was subjected to at that depth, nor the terrible over-burden of those sickening blows against the transparent nose and the plates around it; both knew, with nightmare horror and utter certainty, that the punishment it was taking was much, much more than

anyone, even Nelson, could have dreamed that it would ever take.

She listed sharply and suddenly to port, and then, like an obscuring sheet snatched away, the white wall was gone. The ship slid back and down through the black waters, found her keel, levelled off and dropped her bows dangerously, the whole maneuver precisely like that which a flyer calls a whipstall.

"All slow ahead," rapped the Captain. "Level her. Hold your turn, then steer one eight oh."

Admiral Nelson moved athwartship, coming quite close to the two girls. He seemed not to see them; his eyes were fixed on the transparent herculite bows, and roved up and back, back and forth, down and across. "By God," he said hoarsely, low: "By God, it held. It held."

"By God, Admiral," said Chip Morton shakily from the other side of the big chamber—he could not have heard—"it held."

"Hah!" grunted Nelson, almost jovially. "Of course it held!"

Susan Hiller met Cathy Connors' eyes and almost smiled; and in that moment, Cathy understood much of what the lady-psychiatrist had said about the fascination of psychology.

"What's your course, Mister?" barked the Admiral, as if never in his life before had he whispered, wondered, or called upon God.

"One eight oh, sir."

"Good." Nelson strode back to the console and barked into the grille, "Damage control: report!"

"One eight oh," said Cathy to the doctor. "That's south. We're getting out of this."

The sonar squealed. The men around the console leapt to action. Range—engines—"Hard left!": a tense pulsing moment of silence, and a great white mountain, mounding up out of the blackness below, disappearing silently into the darkness above the port bow. And everybody breathing again.

"What would make icebergs come up from the bottom like that?"

"Tell me first, Sue, what would make them be down there in the first place."

"No big ones now," said someone at the board.

They looked forward into the green-white glare ahead. Chunks rose—pebble size, football size, automobile size. They came thickly, a strange slow upside-down hailstorm, kissing and stroking the sleek sides of the submarine, knocking impatiently, scraping softly, sometimes like shoes on a coconut

mat, sometimes urgently, like a dog which wanted so much to get in.

"Watch your depth," said Nelson. "It'll hold at about three hundred and then shelve off to six, maybe seven. And when it does you'll see the end of that ice."

"Admiral," said the Captain, "if you know anything at all about what's happening here, for the love of heaven let us in on it."

"I don't *know* anything," said Nelson, "but I've been doing the old trick of reading the instruments for the last half hour without thinking. That way you get the data that are, and not the ones you think ought to be."

"Three ten, sir," said O'Brien at the depth gauge. "Thirty. Eighty. Four ten. That's not a shelf, sir, it's a cliff. Holding at four ten, give or take a little . . . *uh!* four sixty. Five. Five hundred thirty . . . and holding . . ."

"And where's your ice?" asked the old man with something approaching smugness.

All hands swung forward and looked—at the greenish blaze ahead, clear water, a sudden flurry of fish.

"Slow ahead, Captain."

"Slow ahead, sir." To the grille, Lee Crane said, "Slow ahead," and heard it repeated.

"Will you tell us, sir?" asked the Captain, sounding very like a small boy whose uncle had just done a coin trick.

"I'll check it out. Commander, set up a grid chart on that screen, if you please. I want our maneuvering area for the past two hours."

"Yes, sir." Chip Morton worked expertly with the controls, and in a moment the big central screen flickered, flared, and settled down to be a sounding map of their area, with isobars drawn at ten-fathom intervals. It showed deep water, shelving upward sharply to a long curved ridge, some of it no more than forty feet from the surface. Over the whole area was the cross-hatched symbol of unbroken pack ice.

"Very good," said Nelson.

"A moment, sir," said the Captain. He spoke into a grille, listened, spoke again. Then, "Damage control, sir. Hull and seams sound. Cookie's cleaning up a mess in the galley; his stove guards will handle a thirty-degree list and apparently we did better than that."

"Twice," said Nelson. "What else?"

"Nothing, sir. She held up."

"Of course she did. Casualties?"

"Commander Emery reports one bruised porpoise."

Chip Morton laughed abruptly, too loud, and shut it off

too quickly. Cathy Connors thought Dr. Hiller nodded slightly. She did not smile.

"Very good," said the admiral. "Now, Commander, superimpose our course for the last hour onto that grid."

"Aye, sir." Chip Morton's fingers flew over a cluster of buttons. The information was extracted from the course recorder, coded for the flying cathode beam, and placed neatly on the map, a black, wavy line, meandering up to the ridge, tangling, weaving back down again.

Morton stood back and glanced at it, opened his eyes wide, returned to the controls, and began fiddling.

"What are you doing, Commander?"

"Must be something wrong with the scale comparator circuits, sir. That—" he waved a hand at the map —*that* just couldn't be."

"Leave it alone. Just take a good look at it."

"I see what Ch— Commander Morton means, sir," said the Captain. He stepped close and put his hand high up on the chart. "The course as indicated here intersects this ridge. Right here the indicated depth is only six fathoms—forty-two feet. We draw ninety at periscope depth. How could we have been up in there—with deep water showing under us? Chip—pull the course image down about five degrees."

"Leave it where it is," rapped the old man. "You fellows have a thing or two to learn, I see. Let me give you a piece of advice. When you get screwy data, begin by believing it and work from there. Keep your logic sound and link it through until you have an answer. Only if that answer is impossible do you start blaming your instruments. And be damn cautious about what you use that word 'impossible' on. Now then: this chart was prepared when?"

"Soundings taken not over a year ago, sir."

"Well then, let's hypothesize that something's happened since then to change the depths. Only . . . I think we'll have to guess that whatever happened, happened in the last week. But I'll come to that.

"Now we assume that these soundings—asdic, I suppose, and sonar—bounced off rock, or congealed silt—in any case, good honest ocean bottom. But it also could be ice."

"On the ocean bottom, sir?"

"I know, I know: Ice floats. But what of a situation where the polar currents keep pressing ice against these rising shelves? A hundred-foot berg drifts against a forty-foot undersea peak. More ice crowds it. The pack ice has nowhere to go but up; it piles on top of the berg. And more piles up, and more. The weight finally squeezes the big berg downward, and

as more crowds in, more piles up, more goes down. Before long you have solid ice, air on top, rock on the bottom . . . nothing but ice between. A barrier.

"Just to protect what we are still calling true data, we will assume that this solid barrier extends over a wide area, and has brought ice down three or four hundred feet. We will now introduce a warm current—a very warm current, and a very fast one to boot. We'll say it locates at about the one hundred foot level and begins to slice away at the ice barrier. It melts the ice in the middle and leaves it as pack above and a kind of thick paving below."

"A very unstable situation, sir, if you'll excuse me. Ice on the bottom like that would soon break up and—oh."

"Oh, Mr. O'Brien is right," said the old man with something like glee. "Ice on the bottom like that would soon break up and you would have the impossible circumstance of bergs rising up from the ocean floor."

"Very ingenious," said the Captain sincerely, "But sir—a current like that—why, it wouldn't be warm water, it would be *hot*. And lots of it. Where would that amount of hot water come from?"

to have thought of it. I too have thought of it. And I can't

"I return your compliment, Captain. Very ingenious of you answer your question. Not yet. I am, however, convinced that there was and is such a current, that it carved out the middle of the barrier, that we proceeded into the area which recently was solid, and that while we were in there the bottom broke up."

"It's hard to believe, sir, that such a current—"

"You clock-watchers," said the admiral with a fine scorn, waving his hand at the wide array of dials and telltales, "keep your noses on all the instruments that ought to apply and on none of those which actually do apply. Mr. O'Brien, sight unseen, what's the water temperature out there?"

"Usually around twenty-eight point—" O'Brien turned to glance at the sea-water temp. gauge, and his jaw dropped. "Seventy-*seven*!"

"So there must be something wrong with the temp. gauge," said Nelson with biting irony, "because it disagrees with what you think. I tell you, don't think! Read, and stack up your data, and let them tell you: don't think until the data speak. Yes, gentlemen, the sea around us really is at 77°, and it is at 77 after having encountered an awful lot of cold water and ice. I'd judge it was better than a *hundred* and seventy-seven when it first came in."

"But sir!" Morton almost wailed, "where did it come from?"

"That I don't know. Take her up, and maybe we'll find out."

"We're under the pack, sir," said Morton timidly.

"Thank you for reminding me," said the Admiral caustically. "But unless I miss my guess we'll find damn little pack left up there."

"Our schedule calls for another ten days submerged, sir," said the Captain, almost timidly.

"Our schedule was made during, and in anticipation of, ordinary circumstances. If you regard these circumstances as ordinary, mister, you may continue to disregard my orders to *take her dammit up!*"

"Sorry, sir," said Lee Crane stiffly. "Take her up."

"Take her up," repeated the Diving Officer.

The never-ending soft powerful symphony of the machine changed tempo and key as tanks were blown and the *Seaview* pressed upward out of the deep. The Admiral stepped to the door of the radio shack and said, "Sparks, release a buoy antenna and warm up your receivers."

"Buoy, sir? It won't get past the ice-pack."

"I have a hunch, mister, that the ice won't bother it much. I have more than a hunch—why, it's a downright conviction —that you ought to release a buoy when ordered to do so, or scuttle the ship when ordered to do so, or put yourself under arrest when ordered to do so."

"Aye-aye, sir," said the radioman, and pulled a lever. "Buoy released, sir." He switched on his receivers and with open relief, dove into his headphones.

Crane said, "What do you expect from the radio, Admiral?"

"Rock-and-roll music, probably. And then perhaps, between choruses, a news announcement." Dropping his vicious irony as suddenly as he had assumed it, he said seriously, "Whatever this is, it's too drastic an effect to be purely local. Something's happened while we were bubbling around down here like fish in a steel tank."

"And haven't you any idea at all what it might be?"

"Not the ghost of a guess," said the Admiral cheerfully. "Which only means it's time to stop hypothesizing and wait for more data."

"Two hundred," said O'Brien.

"Ow," said Sparks.

They all looked at the door of the radio shack. "In one moment," said the Admiral, still cheerful, "Sparks will appear

in that doorway and announce that something is wrong with his gear."

"One-eighty," droned O'Brien.

Sparks appeared in the doorway, and blinked when he saw all eyes on him. "Cap'n," he said deferentially, "is anyone like welding aboard, or something?"

"No, Sparks."

"Or is the doctor maybe using a diathermy machine?"

"I don't believe he even has one aboard."

Sparks rubbed his ear and shook his head. The earphones were clamped there still, pushed back. "Something wrong some place," he murmured, puzzled.

"Let's hear it, Sparks," said the Admiral. The operator returned to his shack and threw a switch. The chamber filled up with an unreadable scratching roar. Sparks, working over his controls, was able to add a couple of heterodyning whines and shrieks, but that was all. The sound cut, and Sparks returned, looking worried. "I tried 'em all, sir, single sideband, FM, the works. There's more grass and garbage in the air than I ever heard before."

"Magnetic storm?" suggested the Captain.

"No, sir," said the operator positively. "I been there, Captain. This sounds like nothing I ever heard before. Magnetic storms cause fade more'n anything else: this is the exact opposite."

"One thirty," said O'Brien.

"We'll break surface in a second," said the Admiral, "and then maybe we can locate a relay satellite and get something off it on the tight beam. Meanwhile, do what you can, Sparks."

"Aye, sir."

"Periscope depth," O'Brien sang out, instantly followed by Crane's "Up periscope."

Chip Morton switched out the chart grid and replaced it, on the big screen, with the swirling pattern of the periscope just under the surface.

"You were right about the ice, sir," said Crane. "But according to all the charts, there ought to be solid pack here."

"Now what's the matter with the ocean?" breathed the Admiral, glowering at the screen, which, as daylight brightened there, was taking on a pinkish cast.

"I saw a whole lake turn red once, for ten days, sir," said O'Brien. "Some kind of alga."

"I think," said the Admiral, "I here and now stop thinking again, and just watch."

Spellbound, they watched. The image wavered as water ran

off, splashed on, ran off the periscope, and gradually cleared, to show them a typical arctic seascape, scattered floe ice and wide patches of open water. But typical only to the color-blind; for in two important respects it was all wrong. First, they would have had to be hundreds of miles south of their present position to find so little ice. Second, the color was all wrong—for the ice was pink and the water seemed to be full of reflected flame.

"Surface, and crack the hatch," ordered the Admiral. He wheeled and walked aft, to central control and the conning chamber. O'Brien stayed where he was, but the rest followed, Cathy Connors and the psychiatrist following timidly in the rear.

In the conning chamber, the redheaded minisub man Jimmy Smith pulled down a lever and from above, hollowly, came the crack and hiss of the seals. Without hesitation, and lithely as a youngster, the old Admiral swung up the ladder. Above him came the rumble and clang of the hatch gear, and a blast of air.

Cool air.

Those of the crew who had done arctic work before stopped what they were doing, stared upward, then shared a startled glance. Braced as they were, all unconsciously, for that cutting cold they had known so often, they were unprepared for what felt like the gentle airs of a mild October day. The CPO, Gleason, called to the redheaded seaman, who was pulling heavy parkas and gloves from a locker, "Never mind, Jimmy."

The Captain wrinkled his brows, shook his head slightly and peered up the ladder. The Admiral was standing on a rung near the stop, and as much sky as Lee Crane could see past his bulky figure seemed to be a flaming orange-red. Crane glanced at his wrist and then at the chronometer on the control panel, shook his head again and called up, "What is it, sir?" and when there was no answer, he mounted the ladder himself.

The Admiral was already out on the deck. Crane ranged up beside him and stood silently, looking. Someone called from down below, but they both ignored the sound. Presently, "God!" said Chip Morton from the lip of the conning tower, "The . . . the sky's on fire!"

In a broad arc across the sky, a glaring, flaming band of light lay. It trembled, coruscated, rimmed itself shiveringly with tatters of light, yellow, orange, flickers of blue coming and going. Somehow, its most terrifying feature was its silence; a thing like that, by rights, should have roared and crackled, but it did not.

The Admiral cleared his throat. "It would seem," he said in a low voice, "that something's been going on behind our backs. Uh . . . Lee . . . get a periscope slow-scan on that thing and have Sparks lay it on the repeater screens in the ward-room and the crew's quarters. They have a right to see this. And ask Mr. Gleason to tell off the crew in threes to lay on deck and have a look."

"Aye, sir," said the Captain, and went to the conning tower to repeat the order to Chip Morton, who acknowledged and then asked, "But Lee, what in hell is it?"

"Just hell, I guess," said the Captain. He returned to the Admiral.

"Captain . . ." said the Admiral, and paused. Lee Crane watched that craggy profile, raised to the burning sky, lit as by an opened furnace door, and waited. He knew that the incredible brain under that iron-grey thatch was racing: matching, measuring, hypothesizing, testing. He knew, too, that the way to get his own head taken off at the collar-button was to interrupt.

At last the Admiral shook his head slowly and turned to Crane and looked at him as if he had just appeared there and, like the band of fire in the sky, had to be explained somehow. "Captain, it isn't aurora. It's too close. It has to be close because of the heat, and because of those flame movements. I . . . I think if we get a chance to make the measurements, we'll find that some of the ice-pack melted down and had a lens effect, concentrating heat at a focal area two-three hundred feet down, which would account for all that hot water. Suddenly created there, that hot layer wouldn't just lie there —it'd have to move. Just which way would depend on already existing currents, bottom and under-floe contours. But move it would. Move it did." He shook himself suddenly. "Lee, we'll want a position, really exact. You and Chip duplicate a sun-shot and average your readings. I don't think you'll get any help from radio range but try it anyway. Then drag out your newest ephemeris and see if you can't get a passage time, azimuth and elevation for one of the communications satellites. I don't expect a thing from it either, in terms of re-radiation, but if we can use it passively and bounce a tight enough beam off it, we might jam some sort of a signal through all this interference and get through to the Naval Observatory. With luck we could listen the same way. They must know about this, they've got to have some sort of explanation."

Sensing that the old man had said—or was thinking aloud —all he was going to, the Captain stepped aft to the conning

tower. At the hatch he stood aside while Dr. Jamieson, Dr. Hiller and Cathy Connors emerged. The first two did just what he and the Admiral had done: stopped dead, wordless and thunderstruck, then moved to the outside ladder in something like a daze. Cathy stared, swallowed, then turned terrified eyes to Crane. "What *is* it?"

"Like the Admiral says," he answered gently, "sometimes you just have to quit thinking and wait for information." He squeezed her arm and went below.

The crew moved about their duties, speaking little and that in muted tones. The Captain went into consultation with the radio operator and then repaired to the nose console, where he and Chip Morton went to work on the navigation problem.

Ten minutes later the intercom *whuffed* and then delivered the Admiral's bull tones. "Captain, our sharp-eyed lady psychiatrist has spotted something on an ice-floe. I have the glasses on it; it looks like a man. Bearing about 53°. Get the scope on it and have a look."

Crane acknowledged and switched the big screen to periscope, turned the bearing control, got a focus, and then carefully worked the zoom knob. He found the object quickly enough: the old man's by-guess-and-by-God 53° was within two minutes of being dead right. The advanced photomultiplier TV system gave an immense amount of magnification, and he was able to develop a picture which looked as if it were being taken from forty feet away, though it was actually close to half a mile. He grunted and switched the image to the bridge repeater.

"Taking it calmly, isn't he?" murmured the intercom.

Crane nodded as if the grille could see him, and he and Chip studied the picture. It showed a man in his thirties, dressed in a government-issue parka with the front slide open and the hood flung back. He was squatting on his heels in the manner practiced by some Amerindians and most desert Arabs, a pose which most people find impossible after five minutes but which they can hold by the day. His face, which was fiery red in the flaming light, red not only from the light but from sunburn and fever, was otherwise suffused with what could only be called peace—nothing ecstatic or blissful, but solely, passively peaceful.

"Rescue detail!" barked the Captain. "Mr. Gleason, blow up a dinghy, take three men and go out and get that man off the ice. Jump! It might not be there much longer." Gleason acknowledged.

Chip Morton said, "What's that he's holding?"

"Looks like a wet muff," said the Captain, peering.

"Muff or busby-hat, it's wagging its tail," said Chip.

"A dog, by God. . . . What's *with* that guy, anyhow? If it was me, I'd be dancing a jig and hollering my head off."

"He could be delirious."

"Somehow I don't think so." Crane shrugged the whole matter out of his mind and motioned Morton back to the ephemeris.

In a few minutes they had a position, taking their turns at the automatic sextant, and averaging their calculations with the course computer which, like similar ones on aircraft, was designed to give current position no matter what maneuvers had been performed, but which was similarly subject to error from unrecognized drift currents. They also averaged the three chronometers to seven or eight hundredths of a second, reduced the whole thing to three lines of figures, and passed them to Sparks, who had already activated the high-powered satellite search radars. The operator glanced at the figures, then moved controls which unfolded the big "bedspring" on its telescopic mast abaft the conning tower, and set it to sweeping the sky in the area where, if their computations were right, the communications satellite should appear. Warmed up and ready to go were transmitter, receiver, and a lock-on device which would follow the satellite as long as it was in range.

The Admiral called from the bridge: "Mr. Crane, have Sparks contact Gleason and have him report on the condition of that man out there."

In a moment the speaker roared with static, which changed in tone as Sparks tried to trim some of it out. The Admiral's message went out, and was answered by Gleason on the walkie-talkie, barely readable over the churning interference —at only a quarter of a mile—"He must be sick or something, sir. He just sits there. If he'd come out on that spur we could snatch him off it in a minute now, but I guess we'll have to go around the other side."

"Got it, sir!" Sparks cried excitedly. A secondary screen flickered into life and became a seascape showing a small segment of that dreadful fire in the sky. Crosshairs appeared, and at their junction, the familiar silver pip of a satellite.

"Locked on, sir!" called Sparks.

"Can you get anything off it?"

"Just a second, sir . . . ah. Ah!" The speaker roared again, and the roar faded under a signal—a blast of rock-and-roll music.

"Pipe that all over the ship," said the Captain. To Morton

he said, "I imagine the rest of the crew will be as glad as I am to know that nothing has happened to the U.S.A."

"After a rock-and-roll revival, what else should happen?"

They watched the rescue operation for a few moments. Gleason was edging his powered, inflated dinghy in close. He threw the man a rope. The man just looked at it. Crane could imagine the stream of disgusted profanity Gleason was generating.

The Admiral appeared in the after doorway. "Where's that music coming from?" he demanded.

"Can't tell yet, sir. Maybe they'll announce at the end of the number."

The music slammed and tinkled.

"Of all the times to be broadcasting *that*," growled the Admiral.

"It's a signal," shrugged Morton.

The music clanked to a close, and a hoarse, static-drenched voice said tiredly, as if repeating a phrase repeated already so often it had become meaningless, "*Calling the U.S.O.S. Seaview. This is the Bureau of Marine Exploration, calling Admiral Nelson Come in, Seaview.*"

"That's more like it. Transmit, Sparks. Which mike is hot here? Eh? This one? Good." Into the mike he said, a little slowly, and enunciating with care, "Admiral Nelson here, aboard U.S.O.S. *Seaview*." He read the coordinates of their position, and the identity of the satellite on which they were beamed. "We don't read you too well. Please tighten your beam if you can, and increase power. We would like to contact Inspector Bergen if he is available." He glanced at the big screen, either to observe the rescue or to permit himself to believe that that incredible sky still roofed them. Then, "*Seaview*, standing by."

What came over the air then was devoid of officialese, crackling with weary intensity, and carrying an undercurrent of hysteria. It was Bergen himself, special officer in charge of the entire *Seaview* operation, whose cracked tones came out of the speaker: "Nelson! Thank God. Thank God! Have you seen it?"

The Admiral's eyebrows came up, but without hesitation he answered, abandoning all the identifications, stand-bys, and other rituals of radio. "You mean the sky. What *is* it?"

"I was afraid you'd ask that," said Bergen desperately. "I was hoping you'd have an answer . . . sorry, Admiral, but we've been depending on you so much . . ." (A ghost of Bergen's usual humor crept into his voice, got cold, and fled again as he said) "The penalty of your reputation, Admiral.

The whole world's been hunting for real operating geniuses, and I guess you were the only one we know of we haven't been able to reach. I guess a lot of people felt you could wave your hand and put that fire out . . . or at least tell us what it is." He paused, but they could hear the hum of his carrier and could sense his conscious, forcible effort to pull himself together. "All right, Admiral, here are the facts. About fifty hours ago it just—happened. That band of fire, or whatever it is, appeared in the sky. As far as we can find out, it appeared first over the Pacific about 4 A.M. as a glowing yellow-and-red patch. Inside of fifteen minutes it acquired those flame-like streamers and began to stretch out east and west, oh, like a forest-fire in a hurricane wind. And north and south, slower . . . anyway, just over seven hours later the two growing ends of the fire joined together on the other side of the world. The band lies roughly over the equator, though it tends a little south over west Africa and a little north over south-east Asia, around the Cambodian peninsula. Then it began to grow wider, until it averaged about four degrees in width. It stopped widening about twenty-eight hours ago, thank God; for a while we thought it would englobe the planet. . . . Are you reading me?"

"Much better now," said the Admiral, and indeed it was; the boys at the Naval Observatory must have been knocking themselves out over the transmitters. "What's the altitude of this—ah—phenomenon?"

"Near as we can check it, an average of three hundred miles. The margins shift all the time; some of those flames lick down to two-twenty or closer, and you'll find about the same variation outwards. It's all of a hundred and fifty miles thick."

Nelson pursed his lips. A band of fire nearly 28,000 miles long, a thousand wide, and a hundred and fifty thick, was something to think about slowly, take in small bites. He said, "Any idea what started it?"

"Just theories. There was a certain amount of meteoric activity just then, but we haven't been able to check on it. I mean, by the time we got to that stage, communications were so garbaged up that it got useless to try. We're hoping some of the people who first observed it will reach here soon with some data. In the meantime we can only wait and try to think. Communications are really shot—there aren't many tight-beam set-ups like ours, you know."

"What's the public reaction?" asked the Admiral.

"What you'd expect from flood tides on every seacoast, out-of-season heat, and panic. The seismologists are walking

around scared. There have been one or two quakes but as yet nothing serious; yet they tell me microseism activity is up five, six per cent. The earth's beginning to quiver like a bowl of jelly on a motor housing—not much, but all the time. The seismologists are afraid of fault-lines everywhere, that what could slip will slip, what could crack will crack. We haven't heard from Antarctica for more than a day, but their observations showed a measureable rise of that continent. Which only means the ice load is melting off fast. Too fast. How's your ice?"

"What there is of it is going fast. We have a boat out now picking up a man off a floe. You'll have a chart, handy, Bergen. Isn't Station Delta supposed to be in this area now?"

"I'll get a check on it. I hope they got everyone off before the planes were grounded."

"Grounded?"

"Admiral, there's nothing flying anywhere. Even the birds hardly try. You know what the shade temperature is here? One thirty-one. And thermal winds the like of which you wouldn't believe. No, nothing's flying. Nothing." On the *Seaview*, the listeners shifted and tensed; the tone of hysteria kept coming up and falling off in Bergen's exhausted voice. "Here's your information . . . yes, you're right in the area of Delta's last known station. Thank the Lord you're there to pull 'em out."

"Pull *him* out. There's only one, Bergen."

"Dear God. . . . Admiral, can you get here for the meeting?"

"What meeting?"

"I'm out of my mind; I didn't tell you. We've convened an emergency meeting at the UN. The best scientific brains we can get from all over . . . oh, man, you wouldn't believe how international politics went by the board; blockades and bottlenecks nobody has been able to solve for years just disappeared. Meshikov is coming by ship, Dobrovny, Itanzio, Pittar, Zucco, Charbier—everyone. Half of them are already here and hard at work. Harriman, you've got to get here."

"When do you start?"

"We've started, I tell you! We've got all the equipment, computers, staff, everything that any of 'em name. We're translating everything, processing all data six ways from the middle of any way anyone can suggest. The one thing we don't have is ideas, more ideas, new ideas. Admiral, we *need* you."

"I'll be there as fast as the *Seaview* will take me. Meanwhile I wish you'd synthesize whatever you have as soon as

you can. Code it for the HS 17 and we'll set up a schedule so we can surface and receive it when the satellite says we can."

"I'm one up on you: got a synthesis coded up to an hour ago. Admiral, when I said we have facilities now, I'm not kidding. Kind of thing we used to dream about. Though I'd happily give it all back if I could wake up and find this wasn't real."

"Ship me the synthesis," said the Admiral, and there was a world of encouragement in his tone. "When shall we schedule another contact?"

"Got it right here." Suddenly the strained voice uttered what can only be described as a giggle. "I wish you could see me, Harriman. I got six people standing around me while I talk, they've practically got their track shoes on. You mentioned schedule, I held up one finger, one of 'em took off like a Polaris Eight. Here he comes back again. (. . . Thanks.) Admiral? You see, all calculated up: says here you'll have a usable satellite transit at 14:37."

"Seven hours . . . but I don't intend to be around here by then. Correct for 30 knots average, course 173°."

"Make that one-seven-four and I already did. And your altitude bearing will be 12°, azimuth 94."

Nelson chuckled. "I see what you mean, Br'er Bergen. More room service than the Waldorf Towers. All right, 174° it is. Be seeing you, fella." He put down the mike and called, "Stand by for HS transmission, Sparks."

"Standing by, sir."

The radio burped the bewildering chatter of HS—high-speed—transmission. Information cascaded onto the ship's tape recorders, where, slowed down, it would dole out information on call. Then the tight-beam carrier from the Observatory cut out and was replaced by the random roar of tortured radiations from the burning sky.

"Take her down," rapped the Admiral, and turned away from the console, to step painfully on the instep of the man behind him. "Eh! Sorry, Emery."

"That's all right, Harriman—I got another one," said the biologist. He had his old pipe in his hands and kept pulling out and replacing the stem. This, like Harriman Nelson's twisting of his signet ring, was a sure sign of worry, though he might not show it in any other way. His wrinkle-framed eyes were alight and interested, and his smile was always there or about to be. He clapped the older man on the shoulder and together they walked aft, with Cathy Connors bringing up the rear. Behind them in the nose console, then ahead in the main control room, sounded the controlled bedlam of orders

and machines which formed a part of undersea navigation—pumps, engines, acknowledgments of virtually encoded shouts.

Emery sang a phrase of an old song about not wanting to set the world on fire, and laughed. Then, quite soberly, he asked, "And what by the way the hell is it?"

Nelson shook his head. "There's something about the position of that ring of fire that niggles me 'way back in here somewhere," he answered, touching himself on the back of the head.

"Just over the equator. . .?"

"It isn't just over. It's canted a little."

"Magnetic equator," Emery suggested.

"By God," said the Admiral in tones of revelation. At this point they stepped into the main control room, just under the conning tower, and paused.

There was a tight cluster of personnel there, those not directly concerned with the dive staring upward. Two submariners were guiding the feet of a man on the ladder; above the man, two others held him from above. "The man from the ice-floe," said Nelson.

"Easy there." It was Dr. Jamieson. Nearby stood Dr. Hiller, as always watchfully studying faces. The man was brought to deck level. He stood wavering for a moment, and they had an impression of heavy brow-ridges making black caves of the eyes, caves in which, far back, small lights like fires burned. The face was flushed and feverish. Dr. Jamison took one of his arms, the CPO Gleason the other, and they turned him aft toward the sick bay. Jamieson looked at Susan Hiller. "Doctor—you might be able to help here."

"Glad to," said the psychologist, and followed the castaway as he was led aft.

"How'd it go, Jimmy?"

The redheaded seaman swung around and blinked shyly as he found himself face to face with the Admiral. "All right, sir, fine. He's in pretty good shape, except . . ."

"Except what, Jimmy?"

"Except he's buggy, sir." The young sailor blushed suddenly. "I mean he's well, buggy."

"Buggy, like with two wheels and a buggy-whip?" Emery twinkled.

"No sir. I mean, when we threw him a rope he just squatted there and looked at it."

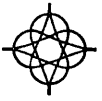
"He's not what you might call in the pink of condition."

"No, sir, he's not, but he's well enough to lay hold of a rope. He just doesn't give a damn, excuse me sir—ma'am," he

added, catching sight of Cathy Connors, who smiled.

"He say anything?" asked Emery.

"Yes sir. He said it was the will of God."



THE SUB PRESSED SOUTH AND A LITTLE EAST, all four propellors straining just under cavitation point, the invisible eyes of their asdic and sonar gears peering ahead. They kept at a safe thirty fathoms, for though there was far less pack ice, there was correspondingly more berg danger. They surfaced once to get the latest synthesis from the UN, and although they had closed the gap appreciably, they found reception less than half as good and worsening by the moment.

On the third day the Captain posted double watches on the seeking gear, double lookouts on deck, and proceeded on the surface, where it was possible to squeeze another fifteen knots out of the big submarine. It was quickly found that the deck watches had to be changed every two hours—this was Dr. Jamieson's recommendation—and then every hour: Dr. Hiller's. For not only was the air insufferably murky and hot, and the direct radiation from the sky unbearable, but the presence of that great curving bridge of fire overhead was something a man could hardly bring himself to be alone with. Berkowitz, one of the torp men, showed signs of being a problem; his wife was expecting, and the lack of communications was a dreadful burden for him. Admiral Nelson, on their third radio rendezvous with Bergen, was able to get some information about the torpedo man's wife: that she was in good shape, that she wouldn't expect the baby for another two, possibly three weeks: a small thing, but enough to smother Berkowitz's potential explosion and cheer up the whole ship as well. There were times—long hours, even—when routine conquered all, the talk was about shore leave, and things seemed normal. Then a man would come stumbling down the hatch, relieved from lookout, flushed and red-eyed, and fear would tighten itself around morale like a boa constrictor.

It was the morning of the third day when Cathy Connors

came stretching and blinking out of her cabin and turned toward the mess, only to meet Cookie carrying a tray.

She glanced at the thick china mugs, the traditional tin can of sugar and the other one of evaporated milk. No food. "Don't tell me they're still at it."

"All they eat for twenty-four hours is coffee and pencils," nodded the cook.

"I fell spang asleep with my chin in my notebook," said Cathy ruefully. "The Old Old Man booted me out and told me not to report for twelve hours." (As on all ships, the Captain was the Old Man; here, the Admiral had become the Old Old Man.)

"They doing any good in there?" asked the cook anxiously.

She touched him on the shoulder. "Don't worry, Cookie. If there's anyone on earth who can do something about it, it's Nelson. How's the little dog?"

The cook smiled widely. "Oh, he's fine. You'd never guess he'd spent four days floating around last on an ice floe. Except for his sunburn."

"A dog with sunburn?"

"Yeah, we noticed he was tender when we patted him. Thought at first it was internal injuries or something. Then I thought to look between his fur, you know, and darn if his skin wasn't all red, just like sunburn. But he's getting over it."

She shook her head in amazement and went aft to the mess. She ordered coffee from the messman, and was just starting on it when Susan Hiller opened the door from the after end and stepped in over the high sill.

" 'Morning, Sue."

"Is that what it is?" smiled the psychiatrist. She came and sat opposite. "It gets a little hard to tell, doesn't it?"

"To some people it doesn't seem to matter. Do you know the Admiral hasn't had any sleep since we picked up that castaway?"

"I know," said Dr. Hiller. "I worry about him."

"Don't," said Cathy positively. "There's one set of rules that applies to human beings and one to—"

"Admirals?"

"No. Just Admiral Nelson. Proof: B. J. Crawford is trying to keep up with him but all he can do now is sprawl on the Admiral's settee with one eye closed and grunt Yes when Nelson calculates something. The Congressman gave up long ago."

"Here's one Congressional junket he'll never forget."

"Don't be too hard on him, Sue," Cathy said warmly. "I was ready to agree with the rest of the world, that Parker is

typecast for the headline-hungry, penny-pinching politician, but I'll give him credit. He hasn't panicked; he has a good head—you don't fumble around federal budgets for as many years as he has without learning something about math—and he puts it absolutely at the Admiral's disposal. At the same time, he operates on a 'If you can't help, don't hinder' basis; when he can't help, he has sense enough to stay out of the way."

"Good to hear," nodded the psychiatrist. "And—where do we stand on that—that *thing* up there?"

"The only thing I can tell you—and I'm not pulling security!—is that for some reason which nobody but possibly Nelson understands, the band lies over the earth's magnetic equator, not its geographic one."

"Well, I—I hope that helps."

"Don't worry, Sue. We're in good hands."

Dr. Hiller smiled. "Oh, my dear, I know we are. And with all due and deserved credit to your admired Admiral, I think I could say that even if he didn't exist."

"I couldn't," said Cathy immediately.

"I can," said Dr. Hiller seriously, all teasing gone from her voice. She glanced around her, a meaningful gesture; it said things about the crew, about tight mouths, pale sweaty brows, cautious fearful looks at the TV repeaters, which instead of feeding entertainment and enlightenment, stared out at everyone like the cataracted eye of a corpse. "There's a lot to be afraid of," she said quietly, "but I am not afraid. I have a sort of . . . secret weapon. I wish I could share it."

"What is it?" asked Cathy, prepared for some subtle psychological revelation.

"Do you remember the names of the men Bergen read over the radio that first time—the scientists who are meeting at the UN?"

"I remember enough to be a little awestruck still. Pittar, Dobrovny, even Meshikov. Charbier."

"I know Charbier," said Susan Hiller. "He was at the big symposium in Athens two years ago. It was a symposium on psychiatry and he's most famous as a chemist, but the paper he read there was the main thing that happened there. Chemotherapeutics—that is, drugs for treatment of psychic disorders—went ahead twenty years just from that one paper. Then I met him—he's the most charming, uncomplicated, modest human being you could imagine. But he's not my secret weapon. Zucco is."

"Zucco? I—well, of course I've heard of him, but I don't know as much about him as perhaps I should."

"Emilio Zucco," said Dr. Hiller, and her eyes glowed. "He's not by any means an old man, you know, but already he can take his place in the company of the world's universal geniuses. Like Franklin—scientist, statesman, diplomat, author. Like Leonardo da Vinci, who, while being artist enough to paint the Last Supper, was a technologist five hundred years ahead of his time. You know of Zucco probably as a theoretical mathematician in Einstein's league—"

"Oh yes, and a practical scientist too—didn't he design the big radio telescope at Altamont in the Andes?"

"Yes he did. He's an astronomer, cosmologist, physicist. But I'll bet you didn't know he is a superb artist, a composer as well; he plays piano quite well enough to have been a concert performer."

"I didn't know that. What I have heard mostly about him is that anyone who gets between Zucco and what he wants, gets a Zucco-sized hole through him."

Dr. Hiller laughed. "That's very well put. And pretty close to the truth. But it kind of stands to reason, doesn't it? He's so often right—one could say, *always*—that it's a little foolish to stand in his way. Dr. Zucco is my idea of the ultimate proof of the old saying that when history needs a giant, mankind produces one. Our world is a lot better place to live in because that man is alive."

"I wouldn't doubt it. I could have nightmares, though, about what could happen if a man with that much reputation and that much drive ever should be wrong about anything important."

"Sleep tight," smiled Susan Hiller, "and dream pretty: that is one nightmare you don't have to bother yourself with. I don't know what that fire in the sky is, but one thing I am sure about: Zucco will know what to do about it."

"If anything *can* be done about it."

"If nothing can be done about it," said Dr. Hiller with absolute certainty, "Emilio Zucco will make a way."

"Well," said Cathy Connors, finishing her coffee and getting up, "I'm mighty glad to have him on our team. But if it's all the same to you, I'll stick with the Admiral."

"I'm glad to have *him* on the team," said the psychiatrist, smiling up at the secretary. "But he is, after all, only a technologist."

"*Only?* Why—"

"Oh please—please, don't be angry! That was the wrong way to put it, I know. It touches on one of my pet peeves, that's all. I've admitted my own field isn't a science and never will be. I go against those in my own field who try to

call it one, or make it one. I go against those—and there are a lot of them—who want to make a technology out of it, too. You've got to understand me—I don't look down on science and technology—I envy them! I wish I could get the kind of measurements they get, predict results the way they do! But to my mind science is pioneering, discovery, the finding of new paths. Technology is exploitation—the making of six-lane superhighways out of those pioneered paths. I'm really sorry, Cathy—I shouldn't have said Admiral Nelson was *only* a technologist. It was quite wrong of me. But I do stick to the statement that while he is the best technologist in the whole wide world, he isn't a scientist like Dr. Zucco. Will you forgive me?"

Still angry, Cathy Connors found it possible to laugh. "I tell you what—you let Dr. Zucco save your world and I'll let the Admiral save mine. Then I don't think it matters who does it; it's the same world, isn't it?"

"Sure it is," smiled the psychiatrist. "Meanwhile—I'm not afraid, and I wish I could share the reason. Is that clear now?"

"I see just what you mean," nodded Cathy. "I'm not either, and when I see these jokers around here getting all tensed up, it just makes me mad. It only means they don't *know* the man."

"Exactly, exactly, exactly what I was trying to say!"

"But not about the same man."

"That's right. But—you're not angry?"

"Of course not. You—just don't know the man." She waved and went aft to the Admiral's suite.

"Come in!" he called to her knock. She did.

Well used to the Admiral and his ways, she still stopped and almost rocked back from the impact of disorder in the suite. Its two rooms, barely separated by a large archway, were carpeted by a veritable snowfall of torn paper, except for a track from a point near the door to a point in the other room by the bed—Nelson's "pacing" path. It had been said of him that he did not think on his feet, but with them. In the past thirty-six hours he had probably logged more than a hundred miles, back and forth in the little rooms. Except for a grizzled stubble on his chin and a rather unusual brilliance of eye—the brightness one associates with fever or fatigue—Nelson seemed unaffected by his marathon think-session.

On the settle was B. J. Crawford, one foot on the cushions, one on the floor, one eye open and attentive, the rest of his face asleep. On the desk-side chair was Congressman Parker, shaved, starched, combed and pressed. Across the desk and on bookcases and shelves were slide-rules, a portable computer,

drawing instruments, charts, maps and grids, and reference books, some wearing so many crumpled book-marks that they looked like the ruffles on a lamb chop.

"Ah, Cathy, come in, come in. Congressman Parker just got here." Which explained a puzzle. "Get some sleep?"

"Yes, sir, thank you, sir. Did you?"

"Later. Now then. B.J., where's that doughnut?"

Admiral Crawford, without opening his other eye, slowly raised one hand and pointed, then let it fall. From the high shelf indicated, Nelson took down a square of cardboard on which rested a large doughnut. "Remarkable technique that man has," said Nelson, nodding toward the settee. "He's tuned out everything but the matter at hand. Show you what I mean. B.J.," he barked, "how do you like the L.A. Angels this season?"

B. J. Crawford lay like a corpse, the one eye fixed unfocussed on middle distance. "And mind you," said Nelson, "there lies the nation's number one Angels baseball fan. Now watch. B.J., what do you suppose caused this firebelt?"

"Solar flare," B.J. responded, mutteringly, but distinctly, moving nothing but his lips, and instantly relaxing them into their former slackness.

"Remarkable man," said Nelson admiringly. "Cathy, you couldn't have got here at a better time. I was just about to explain my theory to the Congressman here, and I want you to listen too. You and he are the ideal audience. Intelligent and uninformed. Don't get mad: I mean it kindly. It's the most useful you could be.

"Tell you why. When we get to New York it isn't going to be what you'd expect—a nice quiet technical discussion among scientific bigwigs, with some bright newspaper men to translate and interpret for the wire services. There won't be time. We have a program, a cure for this thing, and we'll have to—"

"We *have*?" cried the Congressman and Cathy in unison, and Cathy added ". . . sir?"

"Oh sure," said Nelson, brushing aside their hopeful astonishment; he didn't quite say, "What else?" but his tone did. "But we haven't time for presentation plus discussion plus persuasion in the scientific area, and then translation into plain American and the whole thing all over again to the public. We have to hand it over to everybody all at once with no gobbledegook, because from the looks of things we're going to have to do everything at a dead run or not at all. So you two are to be the guinea pigs, right? I'll make my little pitch and if there's anything you don't understand

for Pete's sake sound off and say so, because when I get up there and spout, I have to be sure my nozzle's adjusted somewhere between needle-jet and dense fog. Right? Right.

"This," he said, holding up a ping-pong ball, "is the earth." He held up the doughnut. "This is the Van Allen radiation belt." He pushed the ball into the hole in the doughnut and held them together. "This, roughly speaking, is the way the Van Allen belt surrounds the earth. Are you with me?"

"What," demanded Congressman Parker, "is the Van Allen belt? I mean, what's it made of?"

"Good," said the Admiral disarmingly, "that's what I want, stupid questions.

"The Van Allen belt is an area of radiation, varying in intensity, formed, as far as anyone knows, of free electrons from the sun trapped in the Earth's magnetic field. Now you'll notice that the belt impinges on the earth here, in the hole of the doughnut, at about 50° north of the equator and 50° south of the equator. (It's the magnetic equator I'm talking about, by the way.) Right? Right. Well then, just because I show it to you this way doesn't mean that's the way it is. To explain that irritating remark, I'll have to cut this model through the middle."

He made a cutting motion at the doughnut with a letter-opener, and then threw opener and doughnut aside. He fumbled for a large square of paper—it was a navigation chart—flipped it to the blank side and stuck it to the inboard bulkhead with cellophane tape. "I hope the UN can get me something fancier than this," he grumbled as he worked. He scrabbled through the mountain of detritus on his desk and miraculously found a black felt marking pen. Quickly he drew a circle in the middle of the paper. "This is the ping-pong ball, or the Earth. And here—" He sketched, using a wavery broken stroke, a crescent with its points impinging on the circle about 50° above and below the horizontal, its inner diameter about the same as that of the "earth," and its outer diameter about a third larger. Using a pencil rather than the black, bold marker, he shaded the crescent so that it was darkest where it was thickest. "So your doughnut turns out to be a hollow shell, with a thick wall on the outside," he said. "The radiation's most intense out here where it's thick, and tapers off to nothing about a thousand miles up, over the fiftieth meridians north and south. That's the outer Van Allen belt. You with me so far?"

"How far out is the belt?" Cathy asked.

Nelson pointed to the thickest, darkest area of the crescent. "The area of greatest intensity is about ten thousand miles

out. From there it just tapers away to nothing, in every direction." At her nod, he continued. "Now the inner belt—and this is the one that's giving us the trouble." Close to the surface of the "earth" he drew a smudge, a sort of curved oval, the inner curve of which was parallel to the curve of the earth. This too he shaded to be darkest at its middle, which lay on an imaginary line extending the equatorial center-line of the earth. "This is the inner belt. The center of intensity is about 2,000 miles from the surface. It too tapers away to nothing, down at about the 450- or 500-mile level. Which happens to be the accepted average of the top-most layers of our atmosphere—that is, anything above that is too rarefied to be called an atmosphere.

"Now a funny thing happened a few years ago, and all credit to B.J. here, who without moving anything but his brains, managed to remember it. On the ninth day of November in 1960—he even remembered the date—the entire outer belt disappeared. In just about an hour it was gone, for no reason anybody could figure at the time. In a few days it was back again. Right? Right. Now in the same month, maybe coincidence, maybe not, something slowed up one of the first—"

"*The* first," said B.J. from the depths of the settee.

"*The* first passive communications satellite, a balloon type called Echo. Here it was sailing along at over 900 miles, and suddenly there was enough atmosphere to slow it down. Why? Well, the best theory anyone could come with was that due to an increase of solar activity—and that November is still famous for that kind of sun stuff—the atmosphere under the edges of the outer Van Allen belt became heated. The heated air then rose so high that it was able to interfere with Echo in its orbit nearly a thousand miles up. Am I beginning to make some sense here?"

"The Van Allen belt can heat the atmosphere, then!" said Cathy.

"It can. It did. All right. One more point, and then I think we've covered Phase one: wha' hoppen. Phase two is, of course, what can we do about it.

"Wha' hoppen is that a meteor shower—a cloud of dust, mostly, with some rocks in it, but they don't matter: a dense cloud of interstellar dust, fine enough to be able to be pushed around by the likes of our magnetic field and the Van Allen belt, suffused the outer belt. Now you can see by the crescent shape of the cross-section that it's something like a parabolic lens. If we grant that it has become lens-like enough to focus the sun's rays at a point three hundred or

so miles off the surface, it's a fair assumption that you could get a pretty awesome concentration of energy. That level happens to be the so-called ozone layer as well—a lot of free oxygen atoms running around wanting to combine with something. You heat the whole mess, and enough air rises into the ozone layer to give it plenty to combine with. It does—it burns. The more it burns, the more it heats, the hotter it gets, the more fuel comes up to feed it."

"Good God," murmured the Congressman.

"So much for Phase One. Now, Phase-what-do-we-do-about-it. Let's recall again what happened on the ninth of November 'way back in 1960. All of a sudden, without warning, the entire outer belt disappeared. Within a matter of minutes it just—*wasn't*. Now, what could do that to a hollow doughnut in space 24,000 miles in diameter, 10,000 miles thick and with a hole 6,000 miles across? Even granting that the huge thing is made of nothing but electrons trapped in a magnetic field—a good way of saying it's made of nothing at all, practically—you'd think it would take a lot to make a thing that size just disappear. And you'd think wrong!

"That's the trouble, the sheer size of the thing. It overawes your thinking processes. Now you must remember that on the day that thing broke up, there were no magnetic disturbances in the earth's field. It was Dr. James van Allen himself who reported this breakdown, mind, and he made a special point of this. So whatever broke it down wasn't some gigantic force cancelling out some gigantic force. It was some little thing, no larger in itself than a plague germ is to a man, or that one extra neutron that brings about an atomic explosion. Well, you might say, what little thing was it?

"A patch of dust, I might answer. But a patch of dust bearing the right electric cargo. As long ago as the eighteenth century, it was known that there are two kinds of static electricity—it was Benjamin Franklin who wrote it up. Rub silk with a glass rod and you get one kind. Rub flannel with a carbon rod and you get another. Substances charged with the same kind repel one another; charged one with one, one with the other, they attract each other. They were called, for convenience, 'positive' and 'negative'—meaningless terms, actually, but . . . well . . . convenient.

"Now the Van Allen belts are made up of charged particles, and the important thing is that these particles all carry the same charge. At the same time you have a force, the earth's magnetic field, confining these particles within a certain area. All the particles want to repel one another, yet they're all held together. The result is that each takes up a station

at a distance from the others—a distance which is a compromise between confining and repelling forces. A homely example is the process called 'flocking', which you've all seen, oftenest on record turntables—a way of coating a metal surface with a velvety, fibrous coating. The way that's done is to lay on an adhesive, and when it's tacky, spray the fibres on with a high-pressure air-gun. And just as they leave the gun, they're charged with static electricity. They plunge into the adhesive, which sticks them head-first, but in their electrical effort to get away from the fibre next door, which has the same charge, they stand straight up. Millions of them, forced to be close together, standing straight up to present as little contact with one another as possible.

"So with the electrons, and with the charged dust particles which have been forced into the same position by the Van Allen forces. Now if we can collapse the field, we will have dispersed the dust—or rather, it will disperse itself, become random, and in a matter of minutes will scatter enough so that the field, restoring itself in a day or two, can't possibly collect enough of them to resume the damage.

"And that, my friends, you will be glad to learn, is all the background I need to state, and you to understand. Now we can be specific and say what can be done.

"We need only to seed the outer Van Allen field with electrons of opposite charge to those already there. And it is not as big a job as one might at first suppose. It is not necessary to reverse the charge of every particle out there—that would result in exactly the same situation as we already have. No: we need only to approach the theoretical situation of reversing the charge of half of them. The stability of the whole field would then be upset; particles would collide, merge, fuse, and generally achieve the random effect that we need so that they can free themselves from the Van Allen area.

"Further, we need not even achieve that theoretical half; for if we could get this effect on a very small number of them, the disturbed particles would cause change in other particles by induction. The only critical thing is to make these changes in the right place. And it really would take very few charged particles to turn the trick—the effect then would be very like seeding rainclouds with silver iodide, a fraction of an ounce of which is sufficient, in the right circumstances, to release thousands of tons of water.

"But the seeding must be done in the right place, or like rainmaking, it just won't work. The right place for our problem is, according to my calculations, along a parabolic

curve which will enter the outer Van Allen field at its closest to the earth, pass through the dense center 10,000 miles out, and return to the other hemisphere, coming out where again the field thins out near the surface. In other words, recalling that the cross-section of our hollow doughnut is a crescent, the line will enter one tip 2,000 miles from the earth, pass through the center, or thickest part of the crescent, and come out through the other tip.

"The description of such a parabola is the description of the instrument which can travel it—a missile. According to my calculations it will be sufficient to charge two hundred pounds or less of fine dust— I suggest lampblack, as it is easy to come by and the particles are small—and trail it out along that line, and it will disperse the Van Allen field and the cosmic dust with it. No more lens, no more heat, no more fire. You have a question, Congressman?"

"Actually, I have," said Parker. "What would such a missile cost, Admiral?"

Nelson burst out with a roar of laughter so sudden and so loud that Cathy actually squeaked with fright (though was of course unheard) and even B. J. Crawford twitched. Nelson exhausted the mighty bellows of his lungs and sank down on the chair behind his desk to get air. Once his lungs were full, he released another thundering peal of merriment.

"Oh, I'm sorry, Parker, honest I am," he gasped at last, "I'm not laughing at you, Congressman. I admire you—I can't tell you how much I admire you. I like a man who decides what he's going to be and then *be's* it, come hell high water or the sky on fire." Seriously he then assured the Congressman, "Not one dime will it cost that hasn't already been paid. Right here aboard we carry six Polaris XII's. Lampblack is, as I said, easy to come by, just by burning stale bread or old stockings, though we'll surely find some more scientifically respectable way to manage it. As to charging it, we'll have the engine-room run us up a little van de Graaf generator which will do the trick nicely. No charge, Mr. Parker: it's all bought and paid for.

"The one critical thing, though," he resumed, more than seriously—gravely—"Is where we launch this thing from, and when." He picked up a sheaf of scribbed sheets, riffled rapidly through them, and let go the ones he did not want as if they had ceased to exist, which they did not, but instead settled about his ankles and added themselves to the drifts already there. He struck the paper in his hand. "I've calculated that and cross-checked it in every possible way. Reception is getting worse by the minute, but on our last exchange

with the Naval Observatory I was able to give them figures on this problem and have them run through the Big Brain computer at Princeton. You may be sure they're right. Without dragging you through the details, please accept my word that the only place to launch the seeding missile from is here." He pointed to a spot on the world map north northwest of Guam, near the Marianas. "Launched about east by north, at an elevation of about 45°, the missile will drag an optimum section of the condensed heart of the outer Van Allen field, with the rotation of the earth giving it just enough extra push. So much for *where*.

"As to *when*, I'll guarantee these figures too, and I wish I couldn't. I've gone through them till I've worn a trail, but there's no arguing it. It has to be done at 4 P.M. on August 29, or not at all."

"But that's barely a month away!" cried Cathy.

"Tell that to the Van Allen field," said the admiral gruffly. "Listen: if the average temperature of the earth continues to rise at its present rate, it'll be at 175° by the end of August, and you can write off life as we know it. But that isn't all. Once it reaches that temperature, the whole process will accelerate, warm currents rising into the burning zone, bringing more fuel and more oxygen with them. On the 2nd of September you can expect the band to become a globe. By the 10th, the oxygen will be depleted and I suppose the fire will go out. Not that it will matter a hoot to anyone. So to sum it up: we have to get to the Marianas by the 29th, we have to fire just that missile just that way, and if we don't, we've had it."

"But that's thousands of miles—thousands!" said the Congressman.

"We can do it, even with this stop-off at the UN. I'd like to avoid that but I can't. The last I heard, someone or other has advanced a hands-off policy, on the theory that the fire-band will burn itself out. This is a tempting thing to believe, because it sounds as if all anyone has to do is to muddle through, stay alive until the worst comes and then passes, and after that everything will be okay again. I'm tempted myself. Only thing wrong with the theory is that it isn't so." He slapped his sheet of figures. "I *know* it isn't so. I think we have a duty to go to New York and present this material. It could be unpopular, but I know there are enough sound heads around to calm people down while we're on our way. And once it's understood, it at least gives the world a sure out, and not a wait-and-hope situation. That might be good enough for some folks, but it's enough to drive a lot of others out of their minds. The one thing

the world can do without right now is panic. The one thing we can do about that is to give the world a concrete hope."

The Admiral held them with his eyes for a moment, then with an oddly dramatic, very slight gesture, he tossed the paper to the cluttered desk. "Well," he said, "d'you like it?"

"I'll buy it," said the Congressman.

"Who could question it?" asked Cathy Connors.

"Right," said the Admiral, and began issuing orders. "B.J., get out of here and get some sleep. On second thought," he said, gazing at the recumbent and exhausted officer, "Stay where you are and get some sleep. You're doing it already." And indeed, B. J. Crawford's other eye had snapped shut the instant the Congressman had approved Nelson's plan. "Cathy, shove aside some of that mess and type me up a statement of everything I just said, the whole project. If you get stuck, ask me. Write it more or less as if it was a speech, because that is just what it is going to be. I want to walk in there, speak my piece, clear out and get going. And Cathy—Congressman—do me a favor. Keep this to yourself until I go on TV with it. Before we leave New York I'll give any of the boys shore furlough if they want it, but I don't want them buzzing and worrying about it beforehand. All right?"

"All right, Admiral," said the Congressman. "My congratulations, by the way, and thanks for your confidence. You can count on me for anything you may need."

"Thank you, sir: and may I say at this time that it's a pleasure to know you and twice that to have you aboard?"

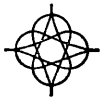
The Congressman smiled—Cathy hadn't known he could do it—and went out.

The instant he was gone the Admiral's shoulders slumped. "I . . . wish I could be as sure as I sound. . ." he murmured.

Cathy looked up at him with startled eyes. Nelson met them wonderingly, and then seemed to comprehend. "Good God, girl, Parker I mean. It's Parker I'm not too sure of. Not the seeding shot."

Cathy smiled and sighed simultaneously. "You threw me a scare, sir. I guess I'm one of those who would panic if I was told to wait and see. I like the idea of *doing* something. Especially if it works."

"It'll work," said the Admiral.



THE EAST RIVER, THAT LIMB OF THE mighty Hudson which makes of Manhattan an island, had been dredged five years before to permit the largest ships afloat to take advantage of the gigantic new pier at the United Nations. Gigantic is the term for what it was, but by no means for what it appeared to be. The pier had (at long last) been designed to make a waterfront be what it should be—the richness of land meeting the vital fluid which makes it rich. Broken at last was the unwritten law which dictates that a civilized waterfront must be filthy, ugly, and unhealthy, the haunt of people of the same description. The long curved mole, and the straight jetty which bordered its upstream end, enclosed a safe harbor for small craft, and the high swell of the mole was undercut so as to be able almost to conceal an ocean liner moored there. The mole, on its broad high green back, bore a small farmhouse and a herd of blooded cattle, a warm and whimsical touch most successfully, because of its simplicity, in keeping with the bald modernity of the towering, slab-sided Secretariat and the low, domed, curved General Assembly Building. Under the green acres of farmland, deep down in carefully engineered corridors and vaults, lay an organized—one might even say orchestrated—complex of ship-fitting, cargo handling, and storage facilities, a comfortable and superbly equipped quarantine, and a concourse lined with jewel-like displays of the very best of each and every one of the United Nations had to offer. The pier even had a small train, like a futurist's dream of roller-coaster cars, which travelled from a terminal hard by the UN Plaza to the main deck of the pierhead.

Sightseeing, however, was far from the minds of the small detachment which left the *Seaview* and hurried to the waiting Assembly. Admiral Nelson's hooded eyes seemed reserved for some inner reading, probably the speech he was about to make. B. J. Crawford, resplendent in the trappings of his rank, was as craggy and unperturbed as ever. Commander Emery, like some goodnatured shaggy animal, cocked an

observant eye on the world as if to say that even at the best of times it was interesting: now it was downright fascinating. Cathy Connors, trim and starched, bodyguarded the Admiral's slim dispatch case. Finally, Congressman Parker alternately studied Admiral Nelson and his own immaculate fingernails, and otherwise, like the Admiral, silently consulted something within himself.

They entered the General Assembly building.

Aboard the *Seaview*, Dr. Hiller, dressed now in a svelte grey suit and in it looking like quite a different person from the slacks-and-shirt clad girl who had so familiarly covered the ship, sat transcribing her notes. At the end of the desk in the doctor's ante-room stood her three small expensive pieces of luggage; she even wore a hat. Captain Lee Crane, passing outside and glancing in, stopped, amused at himself, grinned, and stepped inside.

"You know I actually thought we had a stranger aboard for a second. I'm not kidding. I glanced in at you and said to myself, 'Now, who's that?'"

"Clothes," said Dr. Hiller sagely, "make the stranger." She laughed. "Away down under all this, I'm still Sue Hiller."

"We'll miss you," said Crane warmly. "I hope you've found the visit worth your while."

She tapped the open recorder-tape case beside her. "I've used all but two reels," she said by way of answering.

"Find out anything?"

"In my business you don't really find out anything until you gather all your data, cook it, strain it, and let it settle. I'll tell you this, though. You have a good and loyal crew here. And they can take things in stride. I don't know that I've ever seen a comparable group."

"I like 'em. Well . . ." the Captain added, "I should, I suppose; I picked 'em. Some of those boys saw action with me, some were recommended by friends of mine. I have 'em wet behind the ears, like young Jimmy Smith, right out of school, and old shellbacks like Gleason. I have a no-brain genius in Cookie, who thinks with his hands and his nostrils, and an all-brain specimen like Emery. . . . A good bunch."

"It would take something pretty special," she agreed, "to cause any kind of trouble with them."

He nodded. "More bad breaks than ought to happen, plus a specialist in mutiny." He noticed her eyes straying to the TV repeater in the wall behind him and turned to face it. She touched a knob and let the sound come up.

The screen showed what the old-timers recalled as the

"dust bowl"—rows of cindered corn, a foot high where it should be five, and fine dust blowing endlessly, drifting like snow. Cars crept along with their lights on at high noon, highway drift fences were erected to keep the roads clear. The camera elevated to show the sun as a blurred disc, and then swung over to show the fireband, obscured by the pall of dust, and somehow all the more terrible for it. "Like the dustbowl of the 'thirties," said the voice behind the screen, "—times ten. That's what one old-timer called it. This fiery sky is threatening to strike a mortal blow at the heart of the midwest farm belt. In Italy—"

The screen cut to a scene of the immense square fronting St. Peter's Cathedral in Rome, one solid mass of screaming, gesticulating people—a million and a half, there must have been.

"In Italy, all roads leading to Rome and the Vatican have been jammed for two days. From all over Europe the faithful have been streaming toward St. Peter's to pray for deliverance from the catastrophe which has struck the earth. And here—"

The picture revealed a picture of the earth, from outer space, with the dreaded girdle of fire encircling it—

"—here is the last picture we were able to get from our television satellite camera. No words of mine could add to what you see here."

The picture held and held, and held. The Captain and the psychiatrist were captured by it like birds faced by the traditional snake. Then at last the frightful scene faded and was replaced by the face of a young man, hollow-eyed, his lips occasionally twitching as he spoke. Yet his voice was admirably steady and controlled.

"This program originates at the United Nations, New York, and is emanated continuously for the orientation of newcomers to the Scientific Conference. Broadcasting was discontinued the day before yesterday, as interference from the firebelt—and, as the scientists have informed us, from the breakdown of much of the sheltering effect of the higher atmospheric layers and the resulting intensity of solar radiations in the radio bands—makes impossible to receive wireless signals. Those of you who are at distant locations will have noticed increasing interference even on these wire transmissions. Underground and submarine cables are as yet unaffected.

"Of the many effects of this emergency, this breakdown of communications is possibly the most distressing. We can assume of course that other groups all over the country and all

over the world are working feverishly to find answers, but it is now assumed that even if some other conference should come up with an answer, it would remain unknown until news of it came in from someone who had personally brought the news. Therefore the highest hopes are that the Conference here will produce a solution. The arrival a few minutes ago of Admiral Harriman Nelson may provide a turning point. We shall of course bring you the proceedings at the Assembly Building when he begins to speak. In the mean time, we shall show more film of the catastrophe. In India—"

Susan Hiller cut the sound. "I thought for a moment some of that was direct. I hadn't realized things were so bad."

"We haven't been able to get through for days, even by tightbeam," said Crane gravely. "Oh my God . . . how can there be a country without communications? Banking—railroads—"

"No schools, no . . . oh, there'll be food riots . . ."

"And even if an answer is found—how will anyone know?"

They looked at each other, appalled. Presently Crane shook himself and said grimly, "If only the Admiral's right."

"About what?"

Crane glanced at the TV screen and then back at the psychiatrist. "Theoretically I'm not supposed to say anything about this yet, but you'll hear it in a moment anyway. Admiral Nelson has a plan to disperse the outer Van Allen belt and release the polarized particles which make a great big lens out of it. If he's right—and if he's successful—the news will get around all right. The firebelt will simply collapse —*fooshl*—it just won't be there any more. I don't think you could get the news around any quicker than that."

"You don't know that he's right."

"I'm not Harriman Nelson," said the Captain. "One thing I do know: he says he's right. And that's quite enough for me."

"I like your attitude, Captain. All the loyalty in the world, and all the respect for truth in the world, and I'm in no doubt as to which way you'd jump if you had to choose between them."

"Nelson and the truth are old friends and close companions. They roomed together in kindergarten," smiled the Captain. "It's a choice I won't have to make. But—why do you say I'd choose the truth—if that's what you said?"

"It's what I implied," smiled Dr. Hiller, "and only because you said *'If only* the Admiral's right.' Your fiancée feels the same way, but without the if."

"Oh, here's Nelson's speech," said the Captain. The doctor

quickly turned up the gain. Crane said, "If you'll excuse me, Doctor, I'll go forward now. I want to see to it that the crew hear this. Then we'll have a lot of sorting out to do. Some of the boys have to have furloughs—most want 'em. And there's your man Alvarez to make arrangements for."

"My man Alvarez?"

"What's wrong with that joker is strictly in your department. No man in his right mind lies flat on his . . . bunk . . . letting things happen to him and saying it's the will of God."

"He might disagree with you, Captain."

"He's hardly an expert."

"He's an expert on what Alvarez believes in."

"I haven't time to argue the point with you, Doctor. All I know for sure is that he gives me the creeps and I'm glad he's going over the wall. Here's the Admiral."

Nelson's great stone face appeared on the screen, quietly waiting for a storm of applause to die down. The Captain waved cheerfully and went forward.

In the wardroom most of the enlisted men were sprawled around and over the tables watching the large screen there. Crane wagged a negative finger at young Smith as the kid saw him and was about to call for attention, and passed quietly behind the listening sailors to the forward corridor. Nelson's voice was on the intercom as well as the TV sound systems, and echoed about him, sometimes near, sometimes distant as he walked, but always there, everywhere. His voice describing his project filled his submarine from frame to paint-job . . . and so, thought the Captain, it should be.

In the observation chamber in the nose the officers were watching the big screen.

"Chip," said the Captain quietly.

The Executive Officer detached himself from the group around and over the tables watching the large screen there. said Crane, "You don't have to hear it all over again."

"What's up?"

"It's hard to say, Chip. The Admiral's done a couple of little things I can't quite figure, but I do know he's a man who doesn't do things, even little ones, without a reason."

"Like what?"

"Like replacing stores almost before we looped a line on a bollard, and then claiming the stores had priority on the hatchway and nobody could go ashore until he got back. I know he wants to head for the Pacific fast, but you'd think he was getting ready to scald out of here like panic."

"Yeah, and the shore leaves. The boys don't like that—holding up everything, including so much as a phone call,

until he gets back. Berkowitz is half out of his head, wanting to get through to his wife."

Crane shrugged. "When we find out why, it'll make more sense."

"I guess so. Meanwhile, the shore party's got their shoes shined and their pay in their pocket. That deadhead Alvarez is as ready as he can get, and Dr. Hiller's all packed and purty."

"I saw her," nodded Crane. "We'll miss her around here, especially you."

"Boy, that's one professional who can shrink my head all the way down to the tonsil level."

"You got a head start," said Crane. "Try to keep your hands off her tail feathers when she goes up the conning ladder."

"Ah shucks, Cap'n, is that an order? I've been planning that ever since I saw her. Not even a little down?"

"It wouldn't pay you, Chip. You'd never get to make the first installment." Over the Exec's painful groan, Crane said, "Will Señor Alvarez be good enough to climb out, or will you have to rig a sling?"

"He'll walk. He's not agin us, Lee. He just don't give a damn. Stand him up and give him a push, and he'll walk. Only you have to steer him. Talk to him, he'll listen. Ask him, he'll answer. It's just that by himself he won't walk or talk or even eat. According to him, since God showed His hand up there, nobody has to do anything any more. Everything's already done. Like badly. *Mene mene tekel upharsin*, like it says in the Good Book: we've been weighed in the balance and found wanting."

"Yeah, that was written in letters of fire too, as I recall. Jesus: if mankind had always figured like that it wouldn't have got so far as to crawl out of the drink and breathe air. The hell with him."

"The hell, he says, with us all, and here we go."

"You seem to've spent a lot of time listening to him."

Chip Morton shrugged. "Man's got to do something with these long winter evenings when the boss says you can't collect tail feathers."

"Oh well," said the Captain, giving back the shrug and a grin to go with it, "I guess he can get you into less trouble than the good doctor would."

"Now that," said Morton, "is for damn sure. . . . hey: what's happening?"

It was happening on television: Admiral Nelson, having reached the point in his speech in which he announced his

intention to go to the Marianas, leaving immediately. Off camera came loud shouts of *"No! No!"*

The camera remained fixed on Nelson's surprised face and there must have been some frantic work in the TV booth while they got another camera trained in the unexpected direction. Then the scene cut to a long shot of the Assembly chamber, and a burly figure in black plowing down the center aisle, trailing a number of gentlemen enthusiastically echoing the burly one's big negative bellow.

"That seems to be," said the announcer off camera, "yes, it is, Dr. Emilio Zucco. You will recall, if you have been following these sessions, that Dr. Zucco heads a body of opinion, an overwhelming body, I may add, which holds that the dynamics of the firebelt are such that it is self-cancelling. It would seem that Admiral Nelson's proposal to seed the Van Allen field with charged carbon particles is directly opposed to Dr. Zucco's theory." The announcer's voice issued a polite chuckle. "Dr. Zucco is—ah—not usually opposed."

The Assembly president was whanging away with his gavel; cries of "Quiet" and "Order" were themselves enough to make his cries for quiet and order inaudible. The camera returned to Admiral Nelson, who filled his lungs and shouted in what was called, by his crew, the Old Old Man's "hurricane" voice, "Mr. President! Let Dr. Zucco speak! I have no objections!"

The president rose and spread out his arms, pounded twice, spread his arms again. The chamber rumbled to something like quiet.

"Admiral Nelson yields to Dr. Zucco," called the President.

"For a question," amended the Admiral.

Zucco came snorting and steaming up to the rostrum. He was a black-browed, black-haired man, with burning, deep-set eyes and, under a nose as straight and sharp as an axe-blade, a wide, lipless mouth so cast that it showed a row of straight, white, strong lower teeth and the uppers not at all. His voice was as heavy and, in its way, as black as his hair and his suit. He spoke with the suggestion of an Austrian accent, or the lack of accent: the too-perfect sound of the acquired tongue and a brain behind it which did all things perfectly.

"Go right ahead," invited the Admiral, and one could see the wind leave the scientist's sails. The momentum of some as yet unexplained fury had carried him up here, and it took a moment for him to readjust to something like politeness.

"Well," he said at length. He looked the Admiral up and down and said it again. Then he turned to the Assembly and spoke.

"Mr. President. Members of this distinguished gathering. Admiral Nelson: You will forgive any words I choose, knowing that they are not directed at you personally, but at the pre . . . pos—terous suggestion you have just made. Is it possible, Admiral, is it possible, Mr. President, ladies and gentlemen, is it remotely possible that I, Emilio Zucco, might have overlooked the possibility the Admiral suggests? It is not possible! I too have studied the Van Allen belt and its constitution; I agree perfectly, as you all know, with the Admiral's conclusions as to what this firebelt is and how it began. I too made the hypotheses made by the admiral about seeding and collapsing the belt. And I have given these considerations the treatment they deserve: I have lined my wastebasket with them." He paused dramatically and shot a glance of fire at the Admiral, who smiled pleasantly and cocked his big head to one side.

"If," continued Dr. Zucco, "there was any merit in such a ludicrous procedure, who here would dare suggest that it would have been discarded? Further: if the Admiral's preoccupation with military toys and games had led him to such an experiment, and if it were only useless, and if, oh especially this: if it pleased him, for he is a worthy gentleman deserving of some pleasures, if it pleased him to take his large shining submarine into the far Pacific in this rendezvous with his nonsensical theory, in order to delight himself with his expensive pyrotechnical displays, I would be all for it. It is a basic premise, gentlemen, of human freedom that the pursuit of happiness is a *desideratum*, and all of us, even our admirals, should be permitted, even encouraged, to take what pleasure we may find, wherever and however it may be found —*providing only that no one else is hurt by it.* [Laughter, moderate.] This premise of ethical behavior was clearly enunciated by one of your American savants, I believe it was Mr. Will Rogers, who said, 'Your freedom to swing your fists ends where my nose begins.' [Laughter, immoderate.] In short, gentlemen, I should encourage the Admiral in the pursuit of his spectacular hobbies, for to know of the happiness of so worthy a man would give me warm feelings: I should encourage him even knowing that what he is doing is useless. I should favor it if it were useless and also harmful to him, if it made him happy and hurt no one else. But I will not countenance anything he does, or anyone else does for pleasure, if it endangers anyone else: and gentlemen—if this be-ribboned example of every small boy's notion of a national hero is permitted to indulge this . . . this *whim* . . . *he will kill us all!*"

The shift from light-hearted invective to the final, dreadful charge, was as deft and dramatic as anything ever seen on the stage. There was an instant of frightened silence, while the impact of the scientist's words reverberated through the audience like a bell tone. Then when Admiral Nelson stepped forward, a low, hushed rumble wafted over the chamber, originating in hatred and far back in the animal part of men's throats. It was a thing which could not have happened in normal times, but which had to happen to men in danger who until now had been given no specific enemy to hate. Pent fear turns readily to anger.

Nelson waited patiently for silence, and a moment longer for full attention. He then spoke in a voice which, for its quietness, was even more shocking than Zucco's terrifying shout. He wore the slight, casual smile which men under him had for years known meant important trouble; it was a smile which preceded the keelhauling of some poor unfortunate who had been, not careless, not even disobedient, but wilfully antagonistic to Nelson when Nelson knew he was right.

"A personal attack," he began quietly, "is a wonderful relief to the feelings and a great amusement to the bystander. However, whether it is of any real use in a matter of truth is another question. It is, of course, a weapon of wide use and great antiquity, and has been used against monogamy, the law of gravity, evolution and the sphericity of the earth. Gradually through the years, a percentage of the population has come to realize that to discredit the proponent of a truth may hurt the man, may even destroy him; yet it has no effect whatever on the truth.

"Now, gentlemen, I have no wish at this time to return disfavor with disfavor. My regard for Dr. Zucco and his past achievements remains high, in harmony with what I have just said: no amount of bad manners on my part could change the worth of the things he has done. In that light, I should like to continue this discussion and discover what is it about my hypothesis which Dr. Zucco considers mistaken, where the mistake, if any, lies, and what he considers the result might be."

The Admiral's quiet, almost gentle tone, his unshaken dignity, and the inescapable fact that everything he said about the worth of Zucco's past performances could be applied to his, did not escape his listeners. Back on the submarine Dr. Hiller nodded her head in recognition of the feat: *one up for the Admiral* while in the observation nose, Chip Morton frowned. "Seems to me the Old Old Man stepped back a pace."

"You always do," said the Captain, "before you uncork a roundhouse."

Dr. Zucco looked the Admiral up and down in that scathing, scanning way he had, and then took the rostrum. "To a man of the Admiral's many accomplishments," he hissed, "the error should be obvious." The reaction of the audience, a murmur, a half-heard boo, the shuffling of feet, apparently told him that he had gone far enough with his sarcasm. In suddenly matter-of-fact language, he said, "My closest calculations inform me that on the 29th of August, when the ambient temperature reaches one hundred sixty seven degrees Fahrenheit, the firebelt will have exhausted its available oxygen and will collapse of its own accord."

"And mine," said the Admiral quietly, "inform me that on the 30th, at about 10:37 A.M. Greenwich time, there will occur an irreversible reaction which will cause the firebelt to widen and englobe the earth."

"My figures," said Dr. Zucco with steely patience, "indicate no such thing. By that time the emergency will be over."

"My figures," said the admiral, "after original computation by myself, Admiral Crawford, and Commander Emery, were checked by the master computer at the U.S. Naval Observatory."

"My figures," said Dr. Zucco icily, "were computed by myself, and checked by myself, in order to eliminate errors introduced by—what is your saying?—too many cooks in the broth."

"Dr. Zucco," said the Admiral, after a long slow breath drawn, apparently, to refill his patience tanks, "this—ah, discussion of ours then resolves itself to a matter of checking figures. This will, I think, be a lengthy process, and would be in any circumstances; with communications in their present state, I think it fair to assume that by the time the argument was settled, it would no longer matter to anyone."

"At last," said Dr. Zucco, "we agree on a point."

"Therefore," said Nelson, "I shall simply announce my intention to leave immediately for the South Pacific. If you are right, I shall have had my trip for nothing. If on the other hand I am right—and I am, you know," he interjected, suddenly smiling so engagingly that the smile was repeated all over the hall—"I shall be in a position to do something about it."

The answering of that sudden smile seemed to fuse something in Dr. Zucco, and the fuse was fast and very short; he exploded:

"Mr. President! Delegates! In the name of science, in the name of humanity and its eternal war against bungling and ignorance; this man must be prevented from doing any such dangerous thing!" His voice then dropped to a hoarse whisper; he had apparently learned from the Admiral, in the last few minutes, the little-known fact that a quiet voice in a noisy room is more commanding than a noisy voice in a quiet one. "Do not be led astray by his assertions. What he says about communications, and the length of time necessary to check the figures, is true, and I am convinced he brought it up at all only in his way, shrewd as a rodent, in order to ram his mad plan down your throats." He let his voice come up, and bugled out, smiting his chest. "But I, I, Emilio Zucco, am here to tell you that he is wrong, and I will tell you what will happen if this evil and foolhardy plan is followed. The cloud of charged particles which he proposes to scatter in the outer Van Allen belt will have the reverse effect to that which he predicts. Rather than dissipating the field, it will momentarily intensify it. The lens effect will increase, and for a time—two, perhaps three hours—the concentration of energy from the sun will increase many-fold. The increased heat will bring hot atmosphere up into the burning zone at an accelerated rate, the firebelt will indeed widen and englobe the earth—prevented at the last possible instant from doing what I predict it shall do—collapse of its own accord. This is madness—criminal, irresponsible madness, and you must under no circumstances permit it." He was panting now. He paused for breath and then shouted, "If this argument has reduced itself to a staking of my reputation against this, then so be it. Let me hear your voices: if you agree with me, call my name!"

Zucco! roared the assembly. ZUCCO! After which was a scattered chattering of *Nelson . . . Nelson . . .* The scientist had indeed bound them in his spell.

The Assembly President committed the precedent-shattering act of leaping up, standing on his table. He waved both hands and shouted against the roar of comment and argument that swelled up, and at last succeeded in being heard. As he spoke, the audience gradually quieted to hear him.

"I will have order in the chamber or I shall indefinitely adjourn this meeting, and I need not remind you that adjournment at this moment may be a vital matter, affecting the lives of us all. Order! Order!" He paused, and when it seemed possible to be heard at last, he lowered himself to the floor and sat before his microphone.

"Dr. Zucco," he said flatly, "You must be reminded that

this is not the time nor the place for histrionics. The truth, when we find it, is more eloquent than any man, and more moving than any man's passion. If truth be on your side, it will speak for you. If not, it will speak against you, and with more power than even you, sir, can command. I must further remind you, sir, that you exceed your authority when you call for a vote in this chamber, this being the prerogative of the President." He fixed Zucco with a cold glare, which was returned by a hot one; yet Zucco had presence of mind enough to mumble what might have been an apology. Having done so, the flashing glance he threw across the chamber and back, and the wolfish grin with which he turned to Nelson, said as clearly as words that he felt he had won, and an apology to the chair for a technicality was something he could easily afford.

"The parliamentary situation," said the President, at last able to speak in normal tones, "is that Admiral Nelson has the floor, having yielded only for a question. Admiral?"

And abruptly a new face was injected into the scene. "May I have the permission of the chair, and of the speaker, to make a statement at this time?" And into the rostrum area stepped the usually waspish, diffident, roundshouldered figure of Congressman Parker. Now, however, his face was pink, his shoulders square, his eyes, behind the usually cold rimless glasses, flashing.

"You may not!" roared the chair.

Admiral Nelson, standing too far away from the Congressman to be able to speak privately with him, turned eyes like two radar beams on him. Parker gazed back. What passed between them is hard to say, unless one believes in telepathy. It may have been that other mysterious power, the ability of a man to size up a man. It could be that in this species of mental magic, both were adepts.

"Mr. President," said the Admiral, his eyes still on the Congressman's face, "with your permission, sir, I will yield to Congressman Parker."

"Mr. President, I protest!" shouted Dr. Zucco.

The President ignored him and asked, "Congressman Parker, I must demand to know why you wish to speak at this time."

"Mr. President," said the Congressman, as respectfully as if he were addressing the President of the United States instead of the chairman of a meeting, "I venture to say that my speaking will resolve this question for good and all."

"And you yield, Admiral?"

"Yes, sir, I do."

Zucco yelled "I—"

"Take the rostrum," said the President.

Parker did so, and turned to face Nelson. "Is there the slightest doubt in your mind, Admiral, that your calculations are correct and that to implement your plan you must leave immediately?"

"They are, and I must," nodded the admiral.

"And you are aware, are you not, how an American citizen gets into Congress?" And before Nelson could answer, if indeed he was going to answer, Parker swung about and turned his back. He put his elbows on the lectern and leaned forward confidentially. "My friends," he said confidentially, "thirty years ago, when I was a young man with the paint wet on the sign on the door of my law offices back in Springfield, I had little thought that the day would come when I would find myself standing here in such distinguished company. I love Springfield, mind you; why, one day I said to my wife, 'Mrs. Parker,' I said—(I used to call her Mrs. Parker)—'Mrs. Parker, I love Springfield, and I don't ever want to leave it.' And she said, 'Mr. Parker'—she didn't always call me that; just when I called her Mrs. Parker—'Mr. Parker,' she said, 'One day you will leave, no matter how much you love Springfield. And that will be the day you find out how much Springfield loves you.' And for the longest time I didn't know whatever in the world she meant by that, and when I'd ask her she'd just smile. Well, sir, the time came when I was a candidate, and it was the vote of my own home town that swung the balance and sent me to Washington. Then I knew what she meant. And that's a story I tell you with humility, gentlemen, not with pride."

One of Zucco's younger and noisier supporters shouted, "Get to the point!"

The President rapped sharply, and the young man subsided. Parker gave him a long, still stare, holding it until he heard the first impatient murmur and foot-shuffling, and then went on:

"I took the floor today, thanks to the courtesy and kindness of the speaker and of the President there, promising you that by my doing so, you would see a resolution of this unfortunate deadlock. And see it you shall, for in my thirty years in Congress—and mind you, in thirty years you make a lot of enemies—there is one thing I may say in all humbleness I am known for, and that is that I am a man of my word.

"Now this deadlock here is not one whit different from the deadlock over the issue of the Public Health Bill in the 89th Congress. Let me sketch briefly the issues. Here we are

engaged in a matter of life and death—we were there also. Here it is a question of—well, not law, not precedent, but what's the *human* thing to do. Back there in Washington, D.C., we faced the same grave question. Now this bill, this public health measure, was—"

Back on the submarine, Chip Morton, having slowly reached a profound scowl which had begun with a puzzled frown when the Congressman began to speak, growled, "Now what the hell is that old windbag up to? He's sitting smack on the ways, holding up the whole shebang."

"I don't know," said the Captain. "There's something here that doesn't quite meet the eye. I feel like I just got a letter I knew was important but it was written in invisible ink."

"Aw, Parker just couldn't resist the sight of a lectern."

"Chip, you may not like him—not many folks do—but you never heard of him doing anything without a reason. I never heard him talk unless he had something to say. . . . Where's the O.O.M.?"

They peered at the screen, where the Congressman was asking his audience to bear in mind the point he had just made, and, "On the other hand, certain pressure groups in the pharmaceutical industry, of course from the best of motives—I never doubted that they were honorable men—"

"I thought I saw those five stripes to the left of the picture, but I sure don't now," said Chip Morton. "I wish they'd give us another camera angle . . ."

As by magic, his wish was granted. The director in the TV booth, having tired of the head-on view of Congressman Parker, cut to a profile. Behind him could be seen a few officials and some empty seats.

"He's gone! There's B. J., but Cathy's not there, nor the Old Old Man!"

Crane grabbed the exec's biceps so hard that Chip yelped. "Chip!" rapped the Captain. "How does a citizen get into Congress?"

"He runs for it. What's that got to do with—Oh, Holy sweet Pete!"

The Captain shouldered past him and dove to the console. He palmed the klaxon, snatched up the P.A. mike and roared, "Condition yellow! Condition yellow! Now all hands, hear this! Mr. Gleason, lay up on deck with a detail and cast off bow, stern and both spring lines. Everything but the gangplank. On the double, man, jump! Once your lines are off, bring all hands inboard and you personally stand by the hatch control. Engines!"

"Engines," the speaker acknowledged.

"Stand by for full operation. Mr. O'Brien!"

"O'Brien here, sir."

"Watch your trim, mister. Call for what way you need, but hold her where she is, to the eyelash. A yard out and you'll carry away the gang plank: *that must not happen.* Dr. Jamieson!"

"Sick bay: Jamieson."

"Doc, is that castaway fit to go ashore? Can you get him on the dock in thirty seconds?"

"Not in thirty seconds, sir."

"Then forget it. Dr. Hiller!"

The clear cool voice came floating out of the speaker: "Yes, Captain Crane."

"Get ashore. You have twenty seconds. Goodbye."

"Gleason reporting, sir. All lines off."

"Good. See anybody on the dock?"

"Yes, sir. UN Security guards is all."

"How many?"

"Six, sir."

"Very good. Chip, put a scanner on Number Two screen for me, and let's have a look at the gangplank and the dock area."

"Aye, sir."

The Captain looked anxiously at the big screen, where Parker was holding forth about a citizen's group, a grass-roots group, un-financed, small, weak, but gentlemen, *citizens,* at loggerheads with the big drug combines. And gentlemen, the little man has to be heard, or you don't have a democracy at all.

The Captain wagged his head and barked, "Where the hell's my dockside scanner?"

"Engine-room's got 'em all locked up, Cap'n," said Chip. "O'Brien's using all the eyes he can get to hold her steady and spare you your gangplank."

"Third. Where the hell's the—oh, there you are, Hodges. Go squat in the nose there and get a fix on a piling. If she so much as creeps an inch, sing out which way and how much." As the third officer sprinted into the glass bows, Crane turned to the console. "O'Brien!"

"O'Brien here, sir."

"Turn loose a scanner for me. I've got Hodges watching in the bows and he'll report if she shifts at all."

"Aye, sir."

"Okay, Chip, get me that dockside pic."

The smaller screen flickered and then spread out a picture

of the wide apron of the pierhead. In the foreground could be seen the shore end of the gangway. Six UN guards lounged about, two at the gangplank and the other four back near the far side of the wide apron.

The Congressman's voice continued to drone out of the TV. Crane grinned up at the image admiringly, and was in time to see Zucco rising like a thunderhead. "Mr. President!" he roared.

The Congressman stopped politely and cocked his head, birdlike.

"Mr. President," bellowed the scientist, "may I ask the interminably sesquipedalian legislator to be kind enough to make his point and let us get on with the day's business?"

Instead of attempting to answer, Parker turned and looked appealingly at the chair. The President banged down the rustle of reaction with his gavel and said, conciliatingly, "Mr. Parker, what you have had to tell us is certainly of great interest, but as yet I fear I do not connect it with—"

"Mr. President," said Parker with dignity, "I am here to assure you that I am a man of my word."

"That is of course not the point at issue," said the president courteously but firmly.

"And I promised you that I would see to it that this deadlock was resolved, did I not, sir?"

"You implied, sir, that it would be *quickly* resolved."

"And so it will, sir, so it will. If interruptions can be kept to a minimum, sir."

"Proceed, Congressman," said the President tiredly. Zucco snorted audibly and sat down. He instantly sprang to his feet again, his jaws and eyes wide. He was staring at the back of the hall. He swung his big head to the left, and the empty seats there, and again to the back of the hall.

Congressman Parker, his eyes fixed on Zucco's face, said levelly, "As a matter of fact, Mr. President, I venture to say that the situation is resolved as of right now." Then, for the second time, the crew of the *Seaview* were treated to the almost unheard of spectacle of Congressman Parker, the petulant, the fault-finder, the little-old-lady-who-pokes-in-the-neighbors'-trash (as one adverse columnist had it) the vinegar-visaged—with a broad smile on his face.

"*Mister Pres-i-dent!*" screamed Zucco, so loud that even his mighty voice cracked. "Nelson's *gone!* Don't you understand? He's gone! Gone back to that killer-boat of his, on his way to slaughter us all! Get the guards! After him! Stop him! Stop him! Don't let that submarine leave the dock!"

The chamber boiled, it churned with running, leaping,

shouting figures. Men poured up the center aisle, got in each other's way.

The last of the episode seen on the screen was one long pan shot across the rapidly emptying hall, with no one left in the foreground but the President, slowly rising and coming toward Parker with his hand out, and B. J. Crawford, sitting limply in the second row behind the podium, shaking from head to foot, his bull laughter rising at last above the pandemonium.

"There!" barked Chip Morton. The Captain moved to the smaller screen and saw the doors to the warehouse tunnel still swinging violently, and three figures pounding toward the gangplank. Crane could pride himself on having handled as many details as he had in the past few minutes, but he was always to regret not having ordered the recorders on that unforgettable scene.

Admiral Nelson, blocky and big, ran like the fabled Babe Ruth, his long legs seeming to gain a little on him so that he tilted backwards a bit as he hurtled along. Commander Emery, on the other hand, ran leaning forward like a ski-jumper about to take off, getting all his speed from the sustained act of falling. Each had an arm hooked around one of Cathy Connors' elbows, which protruded like the handles on an old-style sugar bowl, for her hands, low on her hips, held her skirts gathered to completely free her legs. She neither galloped, like the Admiral, nor sprinted, like the Commander, but scampered, an all but indescribable scamper, as the Admiral's back-leaning gait and the Commander's nose-down bird-dog method tilted her torso about thirty degrees to the left of her course. The Captain watched this spectacle with feelings joltingly mingled, and all of them strong: amusement, excitement, laughter, and a good salting of fury as he saw Chip Morton delightedly taking in the sight of those long, flashing, untrammeled legs.

The guards straightened their lounging spines and got on the balls of their feet, but as yet they apparently had no orders and only watched wall-eyed as the trio broke through the pair by the warehouse and then passed one, then the other who were out on the apron.

"Come on!" rapped Crane, and practically in lock-step, he and Morton sprang down the corridor to the main control room. There O'Brien stood, the engine-room mike captured between chin and collar-bone, his left hand on the master trim control and his right on the rudder, and his eyes flicking back, forth, up and down a panel studded with TV images, each showing a portion of hull and the dock nearest it. It

was to the Diving Officer's profound credit that yelling and pounding feet behind him did not make him shift so much as an eyeball away from his task.

At the foot of the conning tower ladder stood the CPO, Gleason, his hand on the closing lever. His only movement was to step smartly out of the way as the Captain and the Exec leapt upward and swarmed the ladder.

Crane swung over the lip and down in one smooth motion, with Morton still virtually synchronized behind him. The three fugitives were fifty yards away and coming fast. The two UN guards all too obviously did not know what to do except be alert.

"If only they keep off their p.a. system," Morton prayed—a prayer which was promptly answered, or rejected, by the blare of the big speaker horns over the warehouse entrance. These horns were designed to punch information through the largest predictable din of loading and unloading ships and chattering passengers; now, in this silent place, they came on like Gabriel.

"*Arrest those submarine personnel! The submarine is impounded. Repeat, the submarine* Seaview *is impounded and its entire complement under arrest!*"

The four guards by the warehouse began running toward the sub. Crane and Morton began running with equal purpose down the deck to the gangplank. The two guards at the head of the gangplank turned toward the fugitives, as indeed any human being must; such a sight is seldom offered here below. The two were therefore taken utterly by surprise as Crane and Morton, coming up the gangplank like two Navy jets off a flat-top catapult, hit them from behind, Crane to the left, Morton to the right. It was an amazing performance; even the short hard chop to the guards' medullae oblongata was identical. One would have sworn the whole thing was rehearsed.

Nelson, Emery and Cathy Connors plunged by and dove down the gangplank, with Crane and Morton right behind them. Later the Captain was to recall with vast amusement that not one of the five forgot to salute the colors at the stern as they hurtled down the plank. "Slow ahead all!" he bellowed as he ran, "Hard left!" hoping against hope that though he had not ordered the topside microphones activated, someone below had had the wit to turn them on. A surge of joy ran through him with the sudden trembling of the hull, the gout of swirling water under the stern. Yet she seemed to take forever to answer, and the long deck seemed to be part of a nightmare, a long steel path upon which

one could run and run forever and never get to that conning tower. He risked another glance aft and saw the four guards clattering down the gangplank, which had acquired a slight list. Behind them, the two guards whom he and Morton had commandoed were following, weaving a bit, but bravely doing their best to get back into the action.

Still moving as if rehearsed, Crane and Morton passed the others, who were understandably tiring, sprang up the conning ladder together, each monkeying up a vertical, and six feet up bent together, got Cathy Connors under the armpits, and virtually threw her upward. They sprang after her to where she clung gasping, passed her one on each side, stopped above her and threw her upward again. This placed her on the platform. Crane picked her up in his arms and dropped her down the hole, hoping she would catch a rung on the way down but prepared to pay the penalty and patch the damage if she did not. He turned in time to pull Nelson while Morton pushed: the Old Old Man was feeling it. His lips were blue, even in this heat, and his eyes seemed to have a tendency to roll upwards out of sight. He heaved the gasping Admiral over the coaming and down, and saw a pair of hands from below—Gleason's, probably—reaching up to assist. Emery sprang up, over, and down; the grizzled old squirrel was barely breathing hard. And at last the captain vaulted over the coaming, bawling to shut the hatch. The guards were running forward; two were already on the deck ladder. One of the others fired into the air, and almost instantly pegged one which whanged and whined off the inside of the hatch-cover as it came down. Crane did not wait for such comforts as rungs, but slid to the bottom and hit the deck as the cover above made seal.

It seemed very quiet in the control room. It was like the instant's dreadful quiet which on occasion follows an automobile accident, before the people begin screaming.

"Take her down," whispered the Admiral.

"There's six guards on deck and the gangplank's gone," gasped the Captain.

"Take her down." The Old Old Man closed his eyes and let himself go limp for a moment against the bulkhead. Then he stiffened, shook himself hard, and rounded on Crane. "Take her down, mister, and that's *now*."

Crane nodded to O'Brien, which was all that was necessary. "Maybe," he said, "some of 'em can't swim."

"They have to take their chances then," said the Admiral, his face like a rock.

Crane shook his head bleakly and turned to Cathy Con-

nors. "Come on," he said, bending over her. She sat on the deck with her back against the bulkhead, her knees drawn up and her skirt tucked over them. He put a hand under her arm but she shook her head.

"What's the matter?"

She looked up at him, very calm now, very pale, her eyes very wide. "I'm afraid to move just now," she said in a cool voice. And suddenly from her wide eyes, tears burst and coursed down her cheeks. She seemed unaware of them. "I think," she said in that same cool careful voice, "that I've hurt my ankle rather badly." He then realized that under the skirt, she was holding her ankle with both hands, so hard her arms were trembling.

"Cathy, why didn't you say so!" He scooped her up in his arms. He said to O'Brien, "The story is that the channel's dredged to a hundred feet from here to the seaward side of the Narrows. Steer as if that could be so but you don't really believe it."

"Aye, sir." Periscope depth for the *Seaview* was ninety feet, so he was asking the Diving Officer to chop it rather fine. But one got used to asking matter-of-course miracles from O'Brien. "Gleason, put two men in the nose as lookouts. Rig the cable remote to the big searchlight and give it to whichever one has the most good eyes and good sense. And use your floods as well. This is one time when it wouldn't pay at all to run aground."

"Aye, sir."

"Be right back, sir," he told Nelson, who nodded.

Crane carried the girl aft as far as the mess, where a man in pressed dress whites, shoes shined to a blaze, a snow-white seabag on his shoulder, ran past him weeping.

"What the—" Crane recoiled out of his way, banging the point of his ankle aaginst the high sill of the mess. He glared after the man, and caught the black stencil on the seabag: BERKOWITZ. Crane retraced his steps a few paces, for the man, skidding to a stop in the control room, had begun to scream.

"You got to let me off, you got to! I have a furlough coming and Mr. Morton signed my pass and I don't even know if he's born yet, she could be dead for all I know, why couldn't I phone at least."

"Sir," suggested the Admiral.

Berkowitz craned wildly up at the dark pocket of the sealed conning tower. "Nobody told me, oh my God, you'll go all the way to the Marianas, me not knowing is she alive or dead with the radio out."

"Sir," suggested the Admiral again, even more quietly.

"Sir!" spat Berkowitz furiously. He glared at Nelson, who stood silently, still leaning against the bulkhead, but lightly. The color was beginning to return to the old man's lips. Berkowitz's eyes wavered. "S-sir . . .?" he whimpered faintly.

"That's better. . . . If it makes any difference to you, Berkowitz, nobody knew we were going to jet out like that until it happened."

"What am I going to *do*, sir?"

"You're going to drop that duffel right here and go aft to the sick bay and ask Dr. Jamieson to quiet you down."

Anyone who knew the Admiral at all would know that this was the time to aye-sir and off. Berkowitz may have known him well enough, but he was also more than a little hysterical, so he said, "But what about—"

Nelson's voice became gentle as a lover's, and every man there knew how big the trouble was that Berkowitz was getting himself into. "Berkowitz," he crooned, "you know we'll do what we can for you. We'll get you off. We'll—"

"Th-thank you sir—" Berkowitz began to weep again.

"We'll get you off if we have to dig a hole in the cellar and drop you out, mister. Because we can't run a ship with the likes of you aboard. Now get aft and see the doctor."

Berkowitz, stricken, dropped his duffel bag and turned blindly aft. Nelson watched him go and then fetched a sudden kick on the bag. "I hate a weeper," he said quietly to no one in particular, but Berkowitz heard. Crane, pacing slowly behind him carrying Cathy Connors, watched the stride of a man who needed a tail to tuck between his hind legs.

"Oh man," the Captain murmured, "I wouldn't slam an outhouse door that hard. . . . Sorry, Cathy."

"That's all right," she whispered. "I wasn't listening . . . Oh Lee, I know that seemed terribly cruel, but can't you see why he did it?"

"He said why he did it. He usually . . . picks on someone his size, though."

"You slap hysterical people. That's all it is. He'll let Berky off some way—you'll see. If Sue Hiller was here she'd explain the whole thing to you. The one thing he couldn't do was to be nice to the kid. Berky'd have gone all to bits."

Lee Crane chuckled. "The O.O.M. can do no wrong, hey, Cats? By golly, if he batted a ball and ran to third you'd change the rules to make him right."

"Now that's just silly and you—"

"And I know it. Sorry, honey. I just hated to stand here and see that happen. Also I'm jealous, because *I* can be wrong

—you've told me so—and he never is, which you've also told me. Are you sure which one of us you want to marry? Choose, hussy."

She bit his ear. "I choose thee now and forever," she whispered and then was crying again. "Damn," she said, "Oh, damn, damn."

"Ankle hurting again?"

"Sure it is," she said furiously, "but that's not worth crying over. It's this whole . . . *thing*, Lee. It's the ranch and the curtains I'd put up waiting for you to come home. It's getting married yesterday which we didn't do. It's all this, this mess."

"Shh. Shh. . . . I hate a weeper," he said.

She smacked him, but it wasn't meant to hurt.

The sick bay was empty when they entered, except for Berkowitz, who sat close to the inboard bulkhead with his head in his hands. The Captain put the girl down on the examining table and turned to face Jamieson, who was coming from the after section of the sick bay. "I see by the papers," said the doctor, "that we're on our way again."

"The O.O.M. says go, we go."

"My patient, or is it star boarder, tells me it's God's will. You tell me it's the Admiral's." He held up a ham-dramatic finger and mugged astonishment. "Or perhaps they're the same after all."

"Don't be irreverent," said Cathy.

"To which one of 'em, girl? And what, may I ask, makes me so fortunate this morning?" He looked at the torpedoman and then at the girl. "My, business is brisk."

"She came down the conning tower without using the ladder. But gracefully," added the Captain.

"I was not graceful," Cathy pouted. "The Captain dropped me in like a sack of coal."

"Let's see it. Oh my. You did give that a wringing out, didn't you?" he turned to the torpedoman. "And what's with you, Berky?"

"I'm all right now, sir," said Berkowitz shakily. "I thought I had a furlough and they pulled it out from under me and I kind of blew my stack. Admiral Nelson told me to come to you and get quieted down."

Jamieson bent over him, took his wrist, looked closely at his eyes. "All right. You seem okay now. I don't know really if the God's will hypothesis holds water or not, but I can tell you one thing for sure: For enlisted personnel, practically anybody's will take precedence over the e.m.'s."

"Y-yes sir." Berkowitz almost smiled.

"And take this doctor's advice," added Jamieson. "Don't argue with admirals."

"I won't, sir."

Jamieson stood up and waved him out. When he had gone, he said, "Nelson give him some lumps?"

The Captain told him what had happened. The doctor shrugged. "Rough. But then, this is likely to be a rough trip all around. You straighten 'em out or you throw 'em over the wall. If a man's going to have the miseries, he'd best not be corked up in a bottle with a bunch of others. The Admiral doesn't have to be nice. He doesn't have to be kind. He just has to be right." He turned to Cathy. "Get that shoe and stocking off."

"I'll go forward," said the Captain, rising.

"She'll be all right," said the doctor. "Nothing busted. And you know the compression bandages we have nowadays. She'll walk out of here. Only," he said sternly to Cathy, "no dancing on no chopping blocks for a while."

Cathy and the Captain laughed. "Oh, you heard about that."

"It didn't get lost in the flurry of news we've been having."

The inner door swung open and the Captain, in the very act of stepping over the high-stilled out door, swung around and his jaw dropped. "What the devil are you doing here?"

"Now that is what I call a warm and welcoming statement," smiled Dr. Susan Hiller.

"Sue!" cried Cathy.

"Hello, honey. What happened to you?"

"Used a steel deck for a trampoline," said the doctor.

"Dr. Hiller, I thought I told you to go ashore."

"I thought you told me I *could* go ashore."

"I remember what I said."

"Oh . . . *Lee*," Cathy chided.

"I'll carry my weight," said Susan Hiller.

Jamieson, who had never lost the gloss of his admiration of Dr. Hiller, said gently, "Cap'n—isn't the discussion academic at this point?"

Without answering him, Crane fixed Dr. Hiller with a cold eye. "You *chose* to stay aboard, then."

A smile twitched the corners of her carven mouth. "I came aboard to study men under stress conditions," she reminded him.

"There'll be plenty of that ashore."

"My present project was to study them here." Suddenly she smiled. The effect, as always, was like throwing back heavy drapes on a sunny day. "I'd like to stop fencing with

you, Captain. I was going to request permission to stay aboard anyway. Days ago I took the trouble to find out if my extra mouth would burden your stores, or even your oxygen supply. I checked on the available space. I wouldn't think of doing it if I'd be in the way. And I'm not just supercargo. I think I can help."

"Let me underline that," pleaded Jamieson. "God knows what we're in for now. Dr. Hiller's a specialist in something we're going to get a lot of. I'm supposed to handle these stress cases along with everything else: Dr. Hiller's being here is a gift from God."

"God seems to be taking a special interest in this project," said the Captain, but he had relaxed; he was kidding; it was all right. Dr. Hiller, sensing it immediately, said, "Thank you, Captain."

Crane saluted and went out.

"And thank you," said Dr. Jamieson to the psychiatrist. "Don't," she said. "People are always attaching nobility to the simple matter of doing a job. I know what I have to do here," she added with a sudden profound gravity, "I know what I must do, and I know I'm equipped to do it. I had no choice; the choice made itself." Abruptly businesslike, she changed her voice and the subject and demanded, "What was the matter with Berkowitz?"

Jamieson, getting to work on Cathy's ankle, said, "The poor kid. His wife's expecting a baby about now. He doesn't know if the baby's alive or dead or his wife either. He got a little hysterical."

"A lot hysterical," Cathy amended. "I was there, and I don't blame him a bit. But he didn't help himself by taking off on the Admiral."

"What happened?"

"The O.O.M. pinned his ears back clear to the sacroiliac, which he then, in a manner of speaking, kicked. . . . I told Lee it was equivalent to slapping a hysterical patient. Was I right?"

"You could be. It depends. Slapping a hysterical patient can be beneficial if the slap is administered by a friend or a stranger, but not by an enemy."

"Oh, the Admiral's not his *enemy!*"

"No? Ah . . . tell me; how did he deliver this figurative slap?"

"First he told Berkowitz he would let him get ashore and then he said it was because he wouldn't have the likes of him aboard; 'I hate a weeper,' is what he said."

"Pick 'em up and slam 'em down hard," said Jamieson.

"A little harder than hysteria called for, perhaps. That sounds inimical enough to me."

"Oh, Sue, you just don't understand the military situation," said Cathy ardently. "The man in command can't have an ordinary set of values. I've thought a lot about this—I had to —I'm marrying one of the monsters. The commanding officer, however decent and kind a man he might be, has to replace a lot of ordinary standards. (Ouch! You're putting on that bandage awful tight.) 'Right' and 'wrong' can be completely different things when you look at them in terms of a military operation. Admiral Nelson's heart might bleed for Berkowitz and very probably does, but the welfare of his ship, his mission and his crew have to come first. And though I hate to say it, a hysterical sailor with primary concerns different from the ship's *is* an enemy."

Susan Hiller smiled a small eloquent smile, nodded a tiny, significant nod. "Absolutely all I suggested was that the Admiral treated him like an enemy."

"Oh," said Cathy. "Oh dear."

"Which saves the ship and destroys the man. Which creates stress conditions on military-type missions, especially submarines. Which explains again why I decided to stay."

"Now hear this!" clattered the annunciator. "Torpedoman Berkowitz. Lay forward to Main Control, on the double."

The three in the sick bay looked at one another. "Excuse me," said Susan Hiller quietly, and went out.

"Berkowitz," said Jamieson, his eyes on his bandaging job, "is now tried and sentenced. Execution of sentence follows."

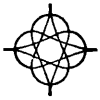
"Oh come on now, doc. It isn't as grim as that. The O.O.M.'s decided what to do and he'll do it. I bet you anything he's found a way to get Berky back to his wife. He's that kind of a man."

"Interesting, what you said about the military sense of values," said the doctor. "True, too. If he does get Berky off, I wonder what's the real reason—to do the man a favor, or to rid the ship of a source of trouble."

"It doesn't matter, if he can do both at once."

"It matters if you're interested, as Dr. Hiller and I both are, in the clockworks inside a man's head." He paused to seal down the end of the pressure-bandage, then said thoughtfully, "I suppose the ideal way to handle it is to do the man a favor in such a way that the rest of the crew thinks it's a punishment."

"Like, eat that ice cream or I'll knock your block off."



IN THE CONTROL ROOM, ADMIRAL NELSON and the Captain stood by the control, where the oblivious O'Brien was coaxing the big craft along inches above the channel floor. Dr. Hiller stood back by the main corridor, watching—waiting and watching.

Berkowitz appeared. He held his stocky young figure erect. His smooth face was pale. "Torpedoman Berkowitz reporting, sir."

The Admiral reached out a foot and touched a heavy, compact rubber package with his foot. "Hang that on you."

Berkowitz, swallowing his surprise and joy, picked up the package, a folded one-man inflatable dinghy, oars, and inflator, and hung it by its strap over his shoulder. "Take your gear," said the Admiral coldly, looking down at the immaculate seabag as if it were something a dog had left there.

Berkowitz shouldered the bag. The Admiral pointed to the main control console, where one of the TV repeaters showed a periscope view of the famous lower harbor of New York. The view swung to point out a nearby shoreline, crowned with granite walls over which poked old 105-mm. cannon. "Fort Wadsworth on Staten Island. You could make that *without* a boat."

He signalled with a finger, and the Captain moved a control, swinging the view aft. It showed the prow of a harbor police boat, its bow-chaser like the admiral's grim pointing finger, the wings of spray it threw up turned pink, light diluted blood, by the glare of the fire-belt. "The metropolitan police," said the Admiral. "They have no jurisdiction, of course, but they're hanging on anyway. Whether they will let you go is something I neither know nor care. Up you go."

Berkowitz stood at tight attention. His eyes glinted, and just once, and fractionally, his face twisted: the Captain knew as clearly as if the man had made a speech that sudden tears had long been an affliction with him, and that he hated them and himself for showing them. He said hoarsely, "Thank you, sir."

"That," said the Admiral, "is just like a gangrenous foot saying thank you when you cut it off. Get out of here."

"Yes, sir," Berkowitz whispered, and, clumsy with his burdens, he began inching up the ladder. It seemed to take forever. When he reached the top, the amazing O'Brien, apparently unaware all this time of what was going on in the chamber, made one efficient motion and hauled back the hatch control. Pink light spilled down, patterning the floor and the inkblot of Berkowitz's shadow, which humped itself to one side and then was gone. O'Brien's hand struck again, snakelike, at the control and the hatch boomed down, blacking out the patch of light and thumbing their eardrums. Admiral Nelson found himself, quite by accident, glaring at Dr. Hiller's face.

"Surgery," said Dr. Hiller.

"An emetic," said the Admiral. "What are you doing here?"

"Dr. Hiller volunteered her services," said the Captain, "which I—my *God!*"

They followed his shocked stare, and saw, on the periscope repeater, which was still trained aft, the curved, whale-like back of the *Seaview*, mostly awash, and behind it, the police launch. On the deck, Berkowitz could be seen standing, up to his shins in water, wrestling with the rubber dinghy, which had just begun to inflate, while with one hand he clutched his shouldered seabag. And from the police boat came a little flickering of light, a mist of thin smoke, and suddenly the long cruel threads of tracer bullets. There was a sudden clatter on the hull.

Berkowitz was facing away from them as he dropped bag and boat both and stood watching the boat; and though they could not see his face, his whole stance and bearing spoke volumes of all the varieties of most intense astonishment. The bag rolled unnoticed into the water and astern; the boat, hung up for a moment on a stanchion-fitting (though the stanchions themselves were stowed away), bobbed like a bubble of tar for a moment, then rolled over, showing a jagged line of punctures, collapsed and sank. Berkowitz turned slowly until he faced the conning tower. They could now clearly see his face. It contained nothing but amazement. He opened his mouth and, effortless as an overfed dog, he vomited. The vomit mingled with the widening soaking stain of blood on the front of his white uniform. Berkowitz' face then made whatever minuscule change a face needs to go from astonishment to a full, calm, accusing comprehension. He looked as if he understood all mankind, all motives, the reasons for everything and the natures of all. He raised his right hand

and waved it; it was in no sense a salute; it was an acknowledgement. Then he let his eyes close and pitched forward into the water washing the deck. It cleansed him away like a flyspeck and left the hull stainless and gleaming.

The launch cut its motors and swung broadside. A man with a boathook appeared on its deck, peering into the water for the body.

"Trigger . . . happy . . . sons . . . of . . . bitches." It came in an under-the-breath monotone, probably from O'Brien, who nevertheless kept his deft fingertip movements going on the controls; yet it came clearly into the deafening silence.

"Stop all," said the Captain.

"Aye, sir," said O'Brien; but before even he could move the Admiral rapped, "As you were."

"Aye, sir," said O'Brien.

"What did you have in mind, mister?" demanded the Admiral.

"Ready the deck gun, sir," said Crane.

"The man is dead," said the Admiral. "Sinking the launch won't bring him back. What are your engines, Mr. O'Brien?"

"Half ahead all, sir."

"Make it three-quarters." He reached for the mike, pressed a stud. "Bow lookouts."

"Yes, sir!" chorussed two voices on the intercom.

"Take another layer off your eyeballs. We're increasing speed."

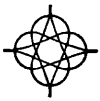
"Aye-aye, sir."

Nelson, his big face impenetrable, fixed Crane with his sharp gaze, then Dr. Hiller. Without speaking, he wheeled and went forward toward his suite.

Crane found himself, as the Admiral had a moment before, staring fixedly at the psychiatrist. She held his gaze, then looked away from him and after the Admiral. He saw her nod. There was something chillingly impersonal about the tiny gesture. It was like the flick of a statistician's pen, putting a checkmark beside something significant in a long column of figures. He stood immobile watching her as she turned and walked to the corridor and down it out of sight.

The Captain took off his hat and slammed it down on the deck, and said the most famous of all four-letter words.

"Yes, sir," said O'Brien.



ON AUGUST 8TH THE AVERAGE AIR TEMPERATURE was 139°. On the 12th it was 141.3°. The sea was sluggish, shiny-surfaced but heaving. The sky was cloudless but hazy, and the firebelt hung across the high southern sky like the bridge to hell.

Captain Lee Crane stopped outside the Admiral's suite and tapped on the door. "Come in!" said a voice, and he entered. "You wanted me, Ad—oh! Hi."

Commander Emery took one of his feet off the Admiral's desk, swung around in the Admiral's swivel chair, and put both his feet up on the opposite corner. The Captain grinned at him. Emery was, in Crane's mind's eye, the original Shaggy Man. There was an indefinable quality about the man that always called the word up. It had nothing to do with his appearance, really. Starched, smoothed, pressed (none of which he was at the moment) he would still seem shaggy. Perhaps it was the big-dog friendliness of the man, perhaps his utterly confident lack of respect for formality. He was a man who did not need straight ruled lines and sharp creases to comfort himself in an uncertain world. "Hi, Lee. The O.O.M.'s brushing his teeth or something. Sit you down some."

Crane sat on the edge of the settle. "What's the occasion?"

"Ways and means. You know Harriman Nelson. He likes to have things all nice and tidy. He never did get permission from anybody to make this trip and shoot this bird."

"Looks like permission is first-place, hard to come by and second-place, sort of an empty gesture."

"Not to the O.O.M. He didn't mind spitting in the eye of those UN characters nor the New York police. *Damn them,*" he intoned passionately, then dropped the passion and went on in his easy-going rumble. "Question of jurisdiction. This isn't Navy, this pigboat, or even Government, if it comes down to that; the Bureau of Marine Exploration, you might say, directs it, but when you come right down to it it was created as a land tool of Harriman Nelson. This tail wags that dog."

"So really, what's the problem? In fact and actuality, Nelson's the big wheel. He bought it, built it, paid for it and he bosses it. Why doesn't he just look in the mirror and say *'Hm?'* and then nod his head and say, *'Uh-huh.'* "

Emery laughed. "He would, Lee, he would, if it were any kind of an operation but this. Also if he were any other kind of a man than what he is. But he's Navy—retired Navy, sure: an out-and-out civilian, when you come right down to it, but Navy for all that; it's the way he thinks, the way he feels, the way he *is*. And if you could define the indefinable 'real Navy', or at least find the lowest common denominator for the whole sea-going soldier-boy business, you'd find that from the three-day Annapolis boot with hay in his hair, clear on up the layers of legend where live ninety-year-old retired five-star admirals, you'd find that they had one thing in common—*they worked for somebody*. Now that's so self-evident up through the ranks that it seems silly to mention it, and so overlooked at the very top that most people wouldn't even realize what you were talking about." Emery acrobatically fumbled a hopelessly beat-up pipe out of his right pants pocket, and a tattered oil-skin pouch out of his left rear pocket, and a jet lighter out of his left pants pocket, and a knife out of his watch pocket, all without disturbing the feet, ankle upon ankle, which one heel-point supported on the extreme corner of the Admiral's desk. "And yet the fact that a high admiral is a subordinate is a thing that means a great deal—more, perhaps, than anything else—to such a man. Two reasons: one, conditioning. An admiral is by definition a long-term bedfellow of the naval attitude, and I say bedfellow advisedly; he lives with it, sleeps with it. Two: As he climbs the long hill, there are a lot of guys up there ahead of him—from the bottom it looks like that mob we saw on the plaza in front of St. Peter's. But the higher they go, the fewer there are, and when he's spent most of a lifetime getting absolutely as high as he can go, nobody can be surprised that in seeing only one man between himself and the sky that he preoccupies himself pretty completely with that man's importance."

"By God, Emery, you do paint a picture. I got as far as four stripes and never thought of it that way before. So he's got to get the permission of the President of the United States."

"Got to, must, *sine qua non* and absolutely."

"And if the President refuses?"

"I think," said Emery, stabbing his thumb into the bowl of his disreputable pipe, "that every man has within him valuations which override what he knows to be the truth, or what

he knows is right. Most of us unfortunately have many such valuations. Harriman Nelson, a professional seeker after truth, a career-man, you might say, in that holy search every bit as much as a career man in the Navy, has very few such valuations. In the support of what he knows to be right, he will kick over anybody or anything—and you saw that happen at the UN. But the one thing—maybe his only thing—weightier than the truth to him is his loyalty to his superior. I pray God the President does say yes, because if he doesn't, he will obey and that obedience will destroy him." Emery laughed suddenly; it was shocking. "Of course," he added, nursing the three-inch flame of his jet lighter into action, "That obedience would destroy all of the rest of us, including the President of the United States, and after that, I guess it wouldn't matter."

Crane looked at his hands and, as if they did not please him, shoved them hastily into his jacket pockets. "And what about if he can't contact the President to ask him?"

"Now that," said Emery jovially—and then paused to puff and puff, and stare at, and puff again his pipe alight, "—that presents a clear alternative and what the Navy loves to call an implement situation. If an officer reports for orders and is unable to get them—and mind you, he has to exhaust his every resource in trying to get those orders—then, and only then, is he on his own discretion. I mean, to put it in the simplest possible terms, he is not on his own discretion if he wants to do something and is ordered not to. Even if it's the right thing to do and he can prove it. On the other hand, inability to make contact is never an excuse for inaction—*never*. Enough men have been court-martialed on this point to make it painfully clear. No, he must take action on his own discretion. That is written in the Code, in so many words. What is not written, but is there all the same, is that he'd better be right in what his discretion leads him to. If it all turns out well, fine. If it doesn't, God help him because nobody else will, most especially the Navy. So what we have to pray for, Cap'n, is that he doesn't make contact."

"You sound as if one, there were some hope of making contact and two, it would be nice if we personally could do something about it."

Emery slowly took down his feet and even more slowly straightened his spine. Shaggy old Emery was grave and serious so seldom that when it happened, it hit like a depth bomb. "Crane," he murmured, and he sounded like far-off thunder, "I'd like to be able to wash out your mouth with sand-and-canvas for that. On the first point, yes, he does have a plan. On the second point, Harriman Nelson plays by the

rules, and as long as I'm around to watch, everybody in his command does likewise."

"Even if it destroys him and all of us—all the world?"

"Even that. Are you arguing the point with me, mister, or just running a test?"

"Just running a test," nodded the Captain, at which Emery suddenly and warmly smiled. "And here's the great man himself, to tell you how to chat with the President when all communications are down."

" 'Way down," said Nelson from the door. "Sit, Lee. Emery, get the hell out of my chair."

"Just keeping it warm for you, sir," said Emery. He shambled up and went to sit by Crane.

"Do you believe in God?" asked the Admiral surprisingly, dropping into his chair.

The Captain and the Commander looked at each other and at the admiral. "Well, sure," said Emery, and "I guess so," said Crane.

"Been talking to that Alvarez," said Nelson. He chuckled suddenly and rubbed the side of his neck hard. "You know, if a fellow had nothing else to do, he'd be tempted to listen a whole lot to that man. Ever drop in on him?"

"Never did," said the Captain. "What have I got to say to him?"

"I did," said Emery.

"Oh, you would. Bet you had a ball with him."

"In a way, yes. But then I'm nuts. Everybody knows that. The secret of my success: I'm nuts. I never run out of things to get interested in. One of those movies that puts you to sleep, now: as soon as the plot gets a little soporific, I kind of tune it out. I get to looking at the lighting and figure how they placed it, how big, what kind. Or the costumes: I remember one night it hit me like a ton of bricks, something I'd known all along but never thought about before: cloth is threads lying side by side."

"Well, what else?"

"Hell, nothing else: it just hit me, that's all." He interlaced his fingers and pulled at them hard without pulling them apart. "By the hundreds and the thousands and the hundreds of thousands—all interacting. You ever stop to think of the distribution of force when you tug at one side of a piece of cloth? It all yields, it all holds. It moves without moving. You hang it out in a hurricane or give it the kind of almighty bashing around it gets in a washing machine, and when you're done none of the relationships in the fabric are changed."

"You talk too much," said the Admiral, "but I know you

well enough to know you haven't changed the subject. We were talking about Alvarez."

"Sure we were. Alvarez sees the universe like a piece of cloth. He envisions—and baby [he was the only man on earth who would dream of addressing Admiral Nelson as "baby" and, further, not notice that he was doing it]—Alvarez is the boy to go to for visions, he really has visions; well, he sees the base of it all as simple as warp and woof; these simple things he calls God's laws. And where the Age of Faith was secure until disrupted by the Age of Reason, and the Age of Existentialism, or it's-all-meaningless, came along and bombed the Age of Reason in its turn; all that complication and chaos and upsettings of whole schools of mathematics, all that revolution and assassination and negation and organized, purposeful destruction—all that, to Alvarez, isn't chaos and never was. It's cloth in a williwaw, that's all, twisted up on itself and maybe even ragged at the edges—but, by God (and you can take those two words literally)—by God, they're there, the warp and the woof, the simple lines of the laws of God. It's a credo that can handle anything—anything at all—one step further than the all-is-nothing existentialists, because Alvarez believes all is something and feels he can prove it. And I guess, if you really believed it, you could get more comfort out of believing that you were an on-purpose man put in an on-purpose world for a reason, rather than floundering around for a meaningless cosmic second in a purposeless universe."

"But that sounds like a whole lot I've heard before!" said the Captain.

"You haven't heard anything quite like this before. Because just when you are convinced that this character is strictly passive and the hell with him, he says something or does something about as passive as a weasel with an eel in his throat. He's actually a very dynamic guy."

"Then what's with all this will-of-God megilla of his?"

"That's simply the conclusion he has come to. It's God's time to wipe us out, and that fire up there is going to do it. Alvarez doesn't argue with or about God, and most especially he doesn't waste any time trying to understand God—which is where he parts company from most of the reverend gentleman I've met so far, who not only claim to understand God, but are prepared to explain God."

"Then what about this dynamic thing? Is that how he falls from grace—gets off his keyster and uses his own will instead of lying prone under God's? What does he do then—repent and apologize and get on his back again?"

"Oh no. He does nothing most of the time, unless he's strongly moved to do something. In other words, he doesn't operate from moral pressures, duty and all that. He moves when he fells a strong inward compulsion. And to him, that's God. God acts through him whenever God feels like it. Alvarez just lolls around awaiting the call, and brother, when it hits him, he jumps. Oh, there's no use trying to describe him to the uninitiate—right, Nelse?"

"Right," said the Admiral, who had been following the conversation like a tennis spectator, swinging his big head from side to side. "All I'll offer is that he believes in something, he makes you wish you believed in something—anything—as much; and finally, he . . . fears . . . *nothing*."

"Natch," said Emery. "He has bowed to the will of God as he sees it. It's acceptance, that's what it is, not passivity. Since he's sure the firebelt is God's ultimate punishment, visited on mankind for his sins; since he is certain that judgment can't be changed; and finally, since he is convinced that his own every act and thought—and non-act, I might add—is a manifestation of God's will; why, he is not anxious." Emery raised his finger, his eyes alight. "*That's it!* He's not anxious! He's the only man I ever met who's free of modern man's epidemic sickness, anxiety. You know what's so irrational, so wasting, about anxiety? It's the worrying about all the things that might happen, and the inability to realize that of all the infinity of things that *might* happen in each instance, only one *will*. Alvarez sees in this firebelt the one thing that is going to happen. This one thing he totally accepts. Everything else has ceased to matter. Ergo: no worry."

"And he's the Lord's anointed, and fears no punishment."

"Oh no! Lee, you talk to him once; he doesn't think of himself as a saint. He knows he will be punished, too. He doesn't fear it because he isn't anxious . . . don't you know that the prime worry of anxious people is that they won't get a suitable punishment?" Emery grinned his shaggy grin and waved a hand at the overhead. "And that thing up there will do till the real thing comes along."

Crane turned to the Admiral. "And do you find this castaway's theories uh—what was the word you used—tempting, sir?"

"If I do, it's like the passing envy for a guy who has a softer pillow than I do. Sure, I'd like to live in a universe as simple and certain as he does. But I don't. I'll tell you where he and I part company. I believe as strongly as he does in a superior power; you can call it God if you want to. And I believe that it is in essence unknowable, the proof of which is that the

more we learn, the more things we find that need learning. Now if you want it in simple terms of God, I believe that God put the unknown in the universe for us to know about. (We never will, we never can, but it's there to work on.) And I believe that we were put here to do that learning. Finally—and here's the point—I think the knowledge we get should direct our actions. I mean if we don't use the knowledge we get, we're spitting right in God's eye. It isn't enough just to know what that firebelt is. I have to do something about it. Sure, it's God's firebelt. It's a natural phenomenon —they're all God's. But just because God decreed that rivers must flow downhill that doesn't mean I'm a sinner if I stop one up and build me a power station."

"Eternal dam-ation," murmured Emery. Crane shouted and the Admiral groaned. "But anyway," Crane said at last, "You can have'm. By me, Alvarez is useless, which is all you need from supercargo anyway, and nuts, which is all right as long as it doesn't come off on any of the crew. What was it you called me in for, sir?"

Emery laughed outright. "The skipper's had it!"

"I like a God-seeking bull-session," said the Captain, "but we're just not fitted out for one here. Make a couple of changes and I'm with you. Get us a dim corner in a college-town tavern and a few gallons of weak beer, and leave us all be from eighteen to twenty-two years old. While you're arranging that—what's the business at hand, sir?"

The Admiral waited until Emery had stopped hooting, and then said, "We've got to get in touch with the President."

"Yes, sir."

"Radio, even tight-beam satellite transfer, is out of the question now."

"Yes, sir. Any luck with the loran?"

"Brilliant idea Sparks had there. Unfortunately, he had it too late. He's been sending Morse by our heaviest loran gear for days on end—sometimes twenty hours in one day, till I made him knock off. But it would seem that nobody ashore has had the same bright idea, and nobody's listening. There'll be a lot of high-priced communications men and SigCor officers who'll kick themselves for not thinking about it, when we get back and tell 'em.

"All right, not having any carrier pigeons, and being fresh out of holy men who can walk on the water, how do you suppose we can get through?"

"I . . . don't think we can, sir."

"Sure we can. We call him up on the telephone."

"Sir?"

"Now I'm just going to sit back and let you think," said the Admiral professorially.

Telephone! Crane looked at Nelson and at the grinning Emery.

Telephone. Transceiver and wires between. Wires, not ship to shore. Shore to shore. He looked up. "The submarine cable."

"How much?" Nelson asked Emery.

Emery opened the hands he held on his lap and uncovered a watch. A stopwatch. "Twelve seconds."

"Damn," said the admiral. "I said he could do it in ten." He fished in his pocket and tossed a dollar across to Emery, who pocketed it happily. "All right, Captain. We need a frogman and somebody who has a wire communications rating and somebody with beef enough to saw through the armor and get in to the wires, and know-how enough to make a halfway decent repair afterward."

"Yes, sir."

"Whaddaye mean, yes sir? Have we got a squad like that aboard?"

"Yes, sir."

"I'll take your word for it. Now here—" he unrolled a chart—"is the new Natal-Freetown coaxial cable. And here we are. And right here, just southeast of Fernando de Noronha, is a shelf where the cable drops off into the first Deep. It lies in about forty fathoms—yeah, here, it's marked: 230 feet. We should reach there in about six hours. And here—" He opened a drawer and pulled out a massive loose-leaf binder full of technical data—"here's the specs of that cable from smelting the ores clear down to what they had for chow aboard the cable-layer that put it there. Round up your squad, brief 'em, see that they're all rested as much as possible, and report here in five hours; that'll be about fifteen hundred."

Crane took the book and the map. "Aye-aye, sir. Will that be all for now, sir? I'd like to get cracking on this."

"Shove off."

When the Captain had gone, Emery laughed.

"What are you cackling about now?"

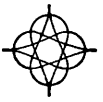
"Just how big a squad do you think he'll pick?"

"Up to him."

"You'll flip when he brings it."

"I don't flip easy."

Emery just put his feet up on the settle, leaned back, and grinned.



"GET DRESSED," SAID DR. JAMIESON.

Hodges, the third officer, obeyed. He was a spare, taut young man with deepset black eyes and black hair. "What's wrong, sir?"

"Not a thing," said Jamieson. He removed the stethoscope from his neck and put it on a shelf, and found his pipe.

"Not a thing, sir? Do you mean I'm cracking up like this for nothing?"

"You're not cracking up," said the doctor, somewhat sharply, "and when I said not a thing, I meant not a thing in my department. Would you mind very much talking to Dr. Hiller?"

"Why, I guess not, sir."

"Your only trouble is that you can't sleep, and I can assure you there's no physical reason for it. Now I can tranquilize you and give you knockout drops, and that would end the insomnia. But if the insomnia is some sort of expression or rebellion of some kind, and I shut off your ability to use it, the rebellion is going to pop out some other way."

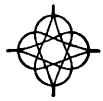
"Like what, sir?"

"Constipation. Warts. Impaired vision. The itch. Might be anything. Symptom-swapping. Some folks spend years swapping symptoms and treating them one at a time, never realizing that they're just a way of hollering for help."

"I don't feel like a guy hollering for help, sir."

"Well, maybe I shouldn't put it that way. Let's just say that Dr. Hiller can find and treat whatever it is and I can only find and treat what it does. You want to see her, or shall I dose you up?"

"I'll see her, sir."



"WHAT'S THE PRESIDENT'S PHONE NUMBER?"

"Now never you mind, girl. He's already married." Chip Morton riffled once through the technical manual, and shook his head. "You'd never think it'd take all this spaghetti to pipe one voice to one ear, would you? . . . You hear who's going out, Cathy?"

"Not yet."

"You mean to tell me they expect to open up that cable and find which wires go to where? How do they know they won't get connected to the city morgue in Butte, Montana, or something?"

"The way I got it," said Cathy Connors, "it doesn't really matter. If they can get through to anyone at all, anywhere, the call can be patched through to the White House."

The Executive Officer shook his head again. "I dunno. I dunno."

"What is it, Chip?"

"Like I said, girl—I dunno. I dunno what I'd do if I was Lee. I dunno why he takes it. And I dunno why I mention it to you."

"Well you did, so do."

"Okay," said Morton blandly. "I was just thinking how the Admiral says stop, we stop, he says make a phone call, we make a phone call. Lee says unlimber the deck guns, the O.O.M. says as-you-were. You know."

"I *don't* know."

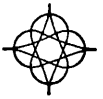
"Well hell, Cathy, he's the *Captain*."

"But Nelson's the *Admiral!* He not only outranks everybody, he owns the ship, or would if he hadn't given it to the Government."

"Well, if I was Captain—"

"What would you do if you were Captain?" asked Cathy. There were sparks in her eyes.

Chip Morton laughed suddenly. "Like I said, girl; I dunno."



DR. JAMIESON WAS IN THE GALLEY. ALL THE necessities of life on a ship have their source in the galley: food, drink, and gossip. "No kidding, Cookie. A phone call. Maybe we'll get some news."

"I'd as soon not hear news, thank you. By me no news is good news, bad news is nowhere," said the cook. "Doc, you really think the Admiral can shoot down that fire-belt?"

"I don't think 'shoot down" is exactly the right word, Cookie, but yes, I think he can."

"Then I'll take no news until he does it. There just can't be no good news until he does it. You see them Oklahoma farms on TV that day? That's my country." His moon face seemed to shrink, somehow, in its inner structure, so that the whole thing drooped a little. It was a hard thing to watch, this unquenchably cheerful man so fearful and sorrow-sagged. "And how's your patient, sir?"

"Patient?" Dr. Jamieson had to stop and think for a moment. "Oh, him. Tell you a secret, he's only in the ship's hospital because he's used to it and we don't need the room. He's fine. He's a nut, between you and me, but otherwise healthy as a whale on wheat-germ. And how's your patient?"

"Tambien!" called the cook, and from the small gap between the forward bulkhead and the freezer, Alvarez' puppy came sidling and ogling. It spread its oversize feet apart near Cookie's left shoe, stroked its chin on the deck between them, the whole time rolling its eyes sidewise up at the doctor; and it positively smiled.

"What was that you called him?"

"Tambien." When the doctor laughed, he said defensively, "Well I asked the supercargo what his name was and Mr. Alvarez just—you know, like he does, shrugs with his nostrils, like—he didn't exactly answer but I got the idea the pup hadn't no name. So I was around Spanish people a lot and all the time I hear that word and whatever it means I don't know, but I figure it's a good name for him."

"It's a good name for him," nodded the doctor. "It means

'also'." He ruffled the loose skin behind the dog's ear with the toe of his shoe. "He looks good to me. Any sign of that sunburn left?"

"About all gone," said the cook. "Only that's just a nickname sort of. Sunburn. A dog can't really get sunburn."

"This dog did, and it was no nickname-type sunburn. We're lucky to be inboard all the time or it would be a problem for us too. You know what's burning up there—what's called the ozone layer. It's a kind of oxygen that usually puts a screen between us and the sun—a screen that filters out a lot of kinds of the sun's rays. Some of 'em penetrate pretty deep, even through the mouse-fuzz on Tambien there."

"Well whaddaye know." Cookie also caressed the dog with his foot. Tambien, unable to contain his ecstasy and also stand, rolled over on his back. "I . . . dunno why you call him a nut, exactly, Doc. Mr. Alvarez, I mean. 'Course, he ain't like the rest of us, somehow. Like he seems to love this dog all right, but whether or not the dog loves him he just don't seem to give a damn."

"You put your finger on it, Cookie. He doesn't give a damn about anything or anybody in the world. He's got bigger things to think about."

The remark, meant sardonically, was taken with complete seriousness. "I guess he has at that, sir."

"Talk to him, did you?"

"I drop in every once in a while. I . . . dunno why you call him a nut." Cookie said again.

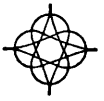
"If it makes you any happier, I'll take it back," smiled Jamieson. "It was two times unprofessional of me to say it anyhow—once for commenting on a more-or-less patient, and again for using non-medical language. Okay?"

"You think it really might be that God sent the fire?"

"I've had no messages," said Jamieson. "Which seems to be yet another kind of communications breakdown."

"I never know when you're kidding, Doc."

The medical officer smiled and went to the hospital to see his more-or-less patient.



THE CPO, GLEASON, RAN HIS FINGERS AND HIS sharp eyes over the limp bulk of the wet-suit, whistling under his breath.

"Knock it off," said the redheaded sailor.

"Knock what?" asked Gleason innocently.

"I'd like to punch him right in the nose," said the sailor.

"That sounds like lezz Majesty or whatever you call it. Insubordination. It's the Old Old Man's nose you're talkin' about."

"All the same," said the sailor, "and just to be serious for a minute which I doubt you can, wouldn't you say an officer, and old-time officer, has to be a little out of his mind to say right out in public that another officer once bounced a guy on his knee, for God's sake?"

"I wouldn't say an officer was no such a thing. I might say he was maybe a few years away from remembering what it was like to be a boot like you, but then who wants to remember a dismal thing like that?"

"I'm trying to be serious, I said. Don't he know I'll spend my whole life in the service hearing guys whistle that tune at me? Don't he know I could get to be an admiral like him fifty years from now and they'll still call me by that name?"

"It could be worse, Sonny Boy."

Gleason was undoubtedly saved from a sample of the Admiral's punch in the nose by the arrival of the Captain, who turned in on them from the corridor. "Find any termites or anything?"

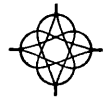
"Not yet, sir," said Gleason. "Are you calling for volunteers for this, sir?"

"Thanks, no," smiled Crane, and walked forward.

Jimmy Smith looked after him and said to Gleason, "I thought you told me Rule One is 'Never volunteer'."

"You don't think for a minute I was going to volunteer *me*, do you? I was going to volunteer you." He lifted and spread the frogman's suit and turned it over on his knees. "But to tell you the truth, I'd like the chance to get out and walk around the block."

"Yeah, me too . . ."



"COME IN." THE ADMIRAL GLANCED AT THE clock. The Captain entered and laid the manual down on the desk. "Right on time." He leaned a little sidewise and tried to peer around the captain. "Where's your diving detail?"

"I'm the diving detail," said Crane.

From the settle, Commander Emery chuckled quietly, "Go ahead, Nelse. Flip. I promised you you would."

Nelson's eyes grew dangerous. "I told you I wanted a wire communications man and a man who could muscle the armored cable and—"

"I completed a wire communications briefing on my last furlough," said Crane. "I can dive, I can handle an airsaw, and anyway, I think it's my job."

"You'll tell off someone else, mister. The ship can't afford—"

"We're a little short on frogmen, Admiral."

"There's Gleason and Smith—"

"Minisub men, sir. Not much help here. And if anything happened to me, you could manage."

"Is that a crack?"

"It's only the truth."

"Hell, he's right," said Emery. "We are light on frogmen and heavy on commanding officers." Needling lightly, he added, "Of course, if you don't think the Captain can handle the job—"

"Certainly he can handle the job," rumbled the Admiral, and then realizing he had been ployed, grinned and said, "Ah, shut up, Emery. All right, Lee, but be careful, will you? . . . Located the cable yet?"

"Yes, sir. Had it on the mine detectors for twelve minutes now. Ought to be on top of it—there we are," he said as the slight shudder of engines slowed and all but stopped. "I told O'Brien to get down-current of it and head in. That way he can hold her steady against the current and somebody in the nose can direct in case I need any direction."

"You ought to buddy up, all the same, Lee," said Emery.

"Another man would just be in the way," said Crane impatiently. "This job is only careful, not big. I'll be under observation at all times and I won't even have to use the sonarphone—I'll be trailing wire. Sparks can patch my headset into the same wires I'll be hooking in to the cable."

The admiral's desk annunciator buzzed. Nelson keyed it and spoke his own name. "O'Brien, sir," said the intercom. "Cable in sight. We're positioning over it now."

"Good," said Nelson. "Nose along it and get the best footing you can. 'Ware eel holes and giant clams and the like."

"Aye, sir. Looks made to order. It's a seamount, sir; on land you'd call it a mesa. Looks like sand-silt. Lot of small coral outcrop, must be pretty solid. Cable lies free and clear."

"Hang her in the current, then," said the admiral, and switched off. "Looks like God's on our side after all."

"I hear that name mentioned pretty often around here," Crane remarked. He meant it to sound casual, but oddly enough it did not. He shrugged when neither Emery nor the Admiral responded, and flipped open the manual with a bookmark. "I've sketched in where I'll tap in red," he said.

"Better go over it with Sparks."

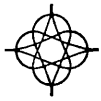
"Already have, sir. He assembled the electrical kit for me. Gleason's getting the mechanical stuff."

"You watch it with that torch, skipper," said Emery. "You'll fuse half the—"

"I think I mentioned it—I'm using an airsaw."

"Don't bother any more," Nelson told Emery with amusement. "He's already thought of everything. Okay, Lee—shove off. Come on, Emery—let's go up to the greenhouse. We can phone from there and watch at the same time."

They went out.



THE SEAVIEW WAS EQUIPPED WITH MORE than one escape hatch, and hatches of more than one kind. There was the under-deck hatch which released the minisub from the forward turtleback, and the kelson hatch which was nothing more than a water-tight chamber with a well, a com-

fortable five feet in diameter, which could be opened to the sea. Entered through an adjoining lock, the chamber could be kept full of air compressed enough to keep the water-level below the rim of the well. There were, in addition, four simple locks on the fore and aft quarters, for emergency work on outside gear, and two of the torpedo tubes could fire a man out if the conditions were mild and the emergency extreme.

Crane, who would be burdened by tools, wire, and an extra tank for the saw, elected to take the well, for the sub lay almost on the bottom, and it would be a simple matter to drop out, drag over, and pop back in again. This last was a real feature for a man diving alone. No one wants to cling to a slippery hull fighting a watertight gate while, perhaps, a moray is sniffing around trying to decide between ham and a shoulder chop.

Crane went to his cabin, stripped, and got into thermal long johns, for though they lay less than ten degrees south of the equator, and the air temperature was climbing almost two degrees a day, their depth was between two and three hundred feet, and cold lives in those dark depths and congeals a man, body and mind.

There was a sharp rap on the door and it immediately burst open.

"Cathy!"

"Lee, Lee—not you! Not you! Please—I have the most terrible feeling that something . . . something awful . . . oh Lee, don't. Please *don't!*"

She threw herself into his startled arms. "Honey, honey," he murmured into her hair, "it's all right. It's all right. And besides, I'm not decent. And next thing you know the house detective will break down that door and then they'll throw us right out of this establishment."

She pulled back from him and scanned his sexless, neck-to-toe waffle-finished garment. "Naked," she murmured. "My God, I'm a ruined woman." She laughed, and abruptly burst into tears and clung to him again.

"Hey, hey now," he said gently, "That's enough, Connors my darlin'. Shure and have you got your Irish to boilin' within? Is it the banshee y've seen wailin' and warnin'? Or is it that ye so fear the foolishness of y'r dharlin' bhoy that ye fear he'll fergit how to swim?"

"Oh, cut the blarney," she said into his shoulder, and heaved a shuddering sigh; then she looked up at him with an expression he had seen before, and sworn never to describe to her, such a power it would give her over him if she knew:

her eyes bright, wide, and wet, her brows tilted up in the middle and down at the ends and worried wrinkles to carry them there, and her lower lip wet and bright too, protruding a little in her appeal, and a little swollen to boot, having just been bitten as the anxiety came on her. "I just have this awful feeling—"

He cut the blarney altogether, and said to her in a voice gravelled with stubbornness, "Cathy, the more you or anyone convinced me of a danger, the less I could send another man. Did you come in here to make sure I'd go, then? Because that's the way to do it."

She looked at him for a long time in that way he'd never describe to her, until he had to hold himself steady by all his muscles, for she was melting his bones. Then she nodded and dropped her eyes. "Very well, Lee." She would have turned away, but he held her hard with one hand and put the other over the intercom call, and said urgently, "Sweetheart, when the knights of old went out to do battle with the heathens and the dragons and such trash, they'd fly milady's kerchief for a pennant, or wear milady's girdle about their brows."

She blinked her eyes rapidly and responded with a light-hearted voice and a full-hearted bravery that made him hurt inside. "Puh-*leez!*" she intoned with mock schoolgirl shock, "Her *girdle?* On his *head?*"

"It was a belt, silly, and don't interrupt or I'll give you one. Anyway, I'm not carrying a spear this trip, and—"

"I will not lend you a—"

"Sh. —and so the best I can do is this: what's your favorite color?"

"Blue. You know that."

Crane flipped the button. "Now hear this! Now hear this! Diving gear detail: I'll use the blue suit. Repeat, the blue suit. Over." He turned off the switch and rubbed her nose with his. "There now. That's as much as I can do to wrap myself up in you in an emergency situation. Beat it."

"Lee . . ." she whispered hoarsely, hugged him savagely and ran away.

Crane gave her a moment and then stepped out into the corridor; no sewing circle since bone-splinters first pierced an untanned fur could out-gossip any crew of any ship any time. He padded aft in his waffle-clad feet, and found Dr. Jamieson, Dr. Hiller, Gleason, Jimmy Smith, Hodges and Chip Morton clustered around the hatch to the well-chamber.

A number of possible responses to this reeled past Crane's inner eye—amusement, anger, even a modicum of embarrass-

ment, for uniform-of-occasion or no, what he wore was still underwear. He chose the rifle-crack voice and the direct order: "Smith! Gleason! Stand by to assist me. The rest of you get back on duty or go forward to the grandstand; you have no business here." It was the kind of voice which caused movement before thought, and the crowd broke up and disappeared, except for Dr. Jamieson, who stepped forward, peered into his eyes while holding his wrist, then nodded and went away. Dr. Hiller, standing in that inhumanly motionless, wide-eyed, way of hers, judging nothing, noticing everything; she stood there until she met his gaze, held it a moment, then turned without a word and left; and finally, Alvarez. He had not been able to see Alvarez until the rest had gone; he stood well back out of the way, his eyes awake, his face asleep. Crane opened his mouth to blast him away like a man sneezing at a gnat, and then unaccountably turned away and forgot him in the business of struggling into the skin-tight wet-suit. Perhaps Alvarez was as yet so unimportant to him that a showdown wasn't worth it. Perhaps the departure of the others gave him room enough now, and the supercargo's presence presented no nuisance.

Crane sat down on a storage chest and got his feet into the suit, and then began working it up his right leg while Gleason palmed the spongy fabric up his left. Once it was up to his waist he did three kneebends and swore under his breath; this always hurt his kneecaps. Then Gleason on one side and Smith on the other wrestled his arms in and his shoulders, got the short zipper up and at last the hood. These deep suits had helmet and mask inherent; it was a full face-mask with a hose fitting on the left jowl. Once it was sealed at the throat, any sound, even a loud sound, in air was only a mumble; sweat began to prickle out all over his body; he had to breath partly his own exhalations and would until the fitting by the hinge of his jaw met the air-hose; all-in-all it made for hurry. He gestured and Gleason checked the well-chamber seal, and Crane dropped into the manhole. As the cover swung to over his head, he saw with infinite annoyance that it did not seal but bounced right open again, hauled up by young Smith who at the same time was fighting Gleason off. Knowing it was useless to speak, the Captain sent a glare up that by rights should have pierced the mask like discharges of artificial lightning, but all Smith did was to turn abruptly, shove Gleason hard with both hands while kicking his feet out from under him, and then without looking at the fallen CPO, knelt on the deck, reached down, got both hands on the Captain's left biceps and hauled. He was well-braced,

but even so, Crane was a big and solid man; yet the youngster snatched him up out of the manhole like a kitten out of a basket, and dropped him stomach down across the edge.

Crane slowly and ominously got to his feet, as Gleason was doing, and between them Jimmy Smith stood waiting, breathing hard. He threw a hot single word over his shoulder at Gleason—probably *Wait!* for Gleason waited; and when the Captain finally stood erect, Smith reached startlingly up and shoved his stubby forefinger downward against the seam between hood and mask. Crane found himself looking cross-eyed at the finger, which was passed effortlessly through what was supposed to be an impermeable joint, and now shared the mask with Crane's face.

Crane gestured angrily, and they jumped to pry open the lips of the self-adhering seals, and haul the zippers. Crane slammed the hood back off his head, and stood like a caryatid, carven and still with his arms rigid, straight down, while they peeled him.

"I'm—uh," said Smith.

"*What?*"

"I'm sorry, sir."

Crane glowered at him, and then remembered to take the fury off his face. "Don't say that, Smith. You know what would've happened if you hadn't seen that open seam? Or grabbed me in time?"

"I can imagine, sir."

"I wonder if you could imagine it all. Do you know I couldn't've hollered for help? Forty fathom down, that ocean would've been in the suit with me before I could say glug. I never even figured to patch in my earphones until I was out at the cable. Mr. Gleason!"

"Yessir."

"You inspected this suit."

"Yessir, I did."

"You missed a slit big enough to stick a finger through."

"No sir, I did not."

Crane picked up the suit by the hood and stuck not one, but two fingers through the slot. The act was his comment.

"Yes sir. I inspected every one of those suits, not knowing which one you were going to use. That cut wasn't there."

"Cut? It just separated at the—" Crane looked closely at it. "By the Lord. Cut it is—you're right."

"Yes, sir."

"After you inspected the suits, did you leave them untended?"

"W'l, yes, sir." The tone conveyed clearly the message,

and why the hell not? "Me and Smith here took all your gear below and flaked it out so's you could flip into it and get going."

"Then you think somebody slipped up and cut the suit with a razor in the few minutes you were below-decks, somebody who not only had a razor ready but who would pick the right suit to cut, not knowing which one I was going to use."

"No, sir," said Gleason immediately.

"No, sir," said Smith in the same breath.

"What d'ye mean no—sir? Gleason?"

"It wasn't no razor, Cap'n. You don't cut this stuff with razors; it'd break any razor ever made."

"I was going to say," Smith offered, "that *everybody* knew which one, sir: you put it on the general intercom."

"Yeah, I did." Of course he had: the hooter in his bunk had two station switches only, one for the control room plus the forward repeaters, the other the ship's p.a. system. He thought of the faces he had seen clustered around when he arrived, tested each one against the idea of such an act, and could only shake his head.

"Cap'n?"

"Yes, Smith."

"It didn't even have to be any of that mob you chased away. You could say it probably wasn't, just because there were too many of 'em to see it. It's more as if someone scooted in and did it and slid out before anyone else came."

"Yeah," amended Gleason, "When we took the gear below, there was nobody here, and when we come up, there was a reg'lar convention."

"What could cut like that that isn't a razor?"

Gleason's spaniel face became lost in thought. He opened his eyes and said, "Cookie's got a matched set of three French chef's knives'll cut a baby-hair endwise." (He did not say "baby-hair.")

Smith said, questioningly, "Scalpel?"

The galley, where everybody went at one time or another to swap the scuttlebutt. The hospital: Hiller, Jamieson, Alvarez. And all of Alvarez's apparently endless stream of visitors.

Lee Crane shook his head again. Well—it hadn't worked, that was the most important thing; and the biggest thing to favor the attempt was its total unexpectedness. That's one thing that he—whoever-it-was—wouldn't have going for him any more.

Who it was would bear thinking on—but later, later.

Why it was would bear even more thinking. Was someone after him, or was it merely someone who wanted to keep him, or anyone, away from the cable?

Lee Crane did not know it at the moment, but it was here that his thought, "What have I done to deserve this?" began to take on the cast of guilt: "Of the things for which I deserve this, which one am I being attacked for?" But as yet this was a nuance; a seed.

"The red suit," he said.

Gleason and Smith sprang to obey. "And we'll get the answers if you two batten up tight." They both grunted their "aye, sirs" and he grimly watched them check the red suit, inside, outside, seam by seam. He then took it from them and they watched while he did it. At last he nodded his head and they wrestled him into the suit. As if it was not only his right but his profession, Jimmy Smith reached up and thumbed the join between hood and face-plate, as Crane was about to pull it down. "This one's okay."

"How'd you know the other was cut, Smith?"

"I saw it, just as you ducked below. I mean I—I thought I saw it gap a bit as you bent your head. I wasn't sure . . . oh holy Pete, sir, suppose I'd been wrong."

"I'd've pried you loose from your lowest gut," said the Captain candidly, "and handed you over to Commander Emery to chop up for his sharks. Handling an officer that way . . ." he growled, and then zipped in.

He motioned them into the manhole ahead of him, lifted the cover over and dropped in as it boomed closed. He dogged it from inside; it was a tight squeeze for three men, and Gleason got an elbow in the face as the Captain spun the dog. Then Crane cracked the equalizer valve and squatted passively to wait for the pressure to rise to that of the well chamber below. He automatically, of long practice, crackled his ear-drums; he saw Gleason giving frantic spur-of-the-moment instructions to Smith, and saw Smith try them all and still look agonized, pinching nostrils and blowing against them, swallowing like a thirsty chicken with his head thrown back and his mouth gaping. Then the lower gate automatically slid aside and they dropped into the well-chamber, a circular cell consisting only of a depressed walkway and the waist-high well, looking like a backyard wading pool for the little tots. The significant difference was that this wading pond had only as much bottom as all the oceans of all the earth.

Arrayed on the walkway was equipment, from the minisub men's earlier visit—diving tanks with straps arrayed for

donning with a minimum of fuss, the tool belt with the electrical kit to the left, the mechanical one to the right, and the airsaw, rigged with a self-coiling hose and a quick-release catch to hold it to the center of the X where the tank harness crossed on the chest. The three checked everything. They checked each other's checking. It took a while, and Crane had to unzip and put up his faceplate because he began to get spots in front of his eyes from inhaling his own breath.

But at last they had him rigged and ready. Crane sat on the rim of the well with his feet dangling within the walkway, and turned on his air. As always it was an exhilarating experience. The air, stored before they had sailed, was different from what circulated and recirculated in the sub. That's all it had to be—different, not better. When the very first atomic submarine made its first 60-day submersion, the story goes that the crew was quite content to breathe recirculated air, noticing nothing, until the day they cracked the hatch and let some in from outside. By the most careful analyses, the inside was as good or even better than the outside air, but the effect of the outside air, just because it was a little different, on that crew made history. Each according to his nature, every man aboard sipped and gulped the new air as if it were perfume; or laughing gas; or catnip; or the aroma of hand-warmed Armagnac. They say that for ten minutes the entire ship was wild—not intoxicated in any sense, for there was nothing toxic about it—just wild, wild with joy. Tank air is usually like that—cool, because of the regulator's reduction of two thousand pounds pressure down to whatever the demand valve calls for—ineffably sweet and fresh, just because it's different. Crane, looking through his faceplate at their two anxious efficient faces, had an airborne surge of admiration for them, and grinned.

Gleason pointed to himself and the sailor and down at the deck, and raised his eyebrows questioningly: it was *Shall we stand by here?* Crane wagged a negative finger and then pointed above: *Get out of here.* The pressure in the chamber was enormous, to meet that of the water in the well, and a prolonged stay there would mean decompression for them both if, indeed, they did not need it already. He saw them turn toward the airlock ladder and then let himself tumble backward into the water.

It was too warm. He did not think about that again.

He worked his way along the curving side and left the hull as it turned to be a bow. O'Brien, with his usual precision, had placed the submarine to hover a safe but convenient 15

feet above the sea floor, and exactly head on to the slight current. Her four banks of floodlights and the search beam were trained on the encrusted cable lying on the undersea mesa. Heading "upstream" this way, the *Seaview* was at her steadiest.

Directly under the bows a single slim pillar of light picked out for him the end of the phone wire which Sparks was ready to reel out to him through a watertight grommet in the hull. He swam to it and hooked it to his tool belt, gave it two sharp tugs and then began to make his way up the golden road of light. Thirty yards past the cable, the light faded in that immeasurable way underwater light has; and to either side, with sharper margins, the dark undersea was permitted to press close. It was not quite the black of extreme depths, but rather like thick drapes covering what you know is daylight; you can't see it but you *know*. He glanced to right and left, making up his mind to see nothing which was not definitely *something*. Watching for what you think you see in such wet dark is monstrous. Therefore he made himself 'tune out' what was certainly movement, things looming, things swirling, a spark, a speckle, a patch of something luminous or white or both. Let'm watch, whoever they are. If they have business with me, let'm stand up and be counted.

He rolled once to look back. He caught a flash glimpse of figures clustered inside the submarine's glass nose. The big one would be Nelson, the small slender one Cathy Connors . . . whose colors, like a faithless varlet, he no longer wore. He grinned and pushed on.

Reaching the cable, he paused and at last plugged the phone line into the jack on the side of his chest, just above the armpit. "Hi, Sparks," he said casually, "How do you read me?"

"Loud and clear, sir," Sparks' voice rang inside his hood. He winced and thumbed the gain control down.

"I'm at the cable, scraping," he said, and got to work. A ten-inch knife had been prepared for him with a concave edge ground to the exact diameter of the outside of the cable, and it made quick work of the slime, silt, and ambitious barnacle coating—ambitious because the cable was impregnated with the most powerful teredocides known. Having cleaned off a two-foot section, and announcing his every move—Chip Morton had replaced Sparks at the other end, and was checking the manual as he worked—he spaded away the silt under the cable with one of his fins, and pushed the two webbing straps of the airsaw clamps underneath and up the other side.

The airsaw was a species of saber saw held by a movable frame which in turn was bolted to a table. The two cross-members under the table had, like his knife, been ground to fit the cable, so that when the webs were pulled tight and their fasteners snapped over center, the table rested solidly on top. Crane swung the saw frame 30° to the table, locked it, then fed the blade until its tungsten carbide tip touched the armor. He started the saw.

It made the most horrendous noise and, unlike voices in earphones, there was no way to turn down the gain. It clattered and shrieked as it started its plunge cut, and when he began levering it upward, positioning it more and more toward 90°, the dural-x armor protested with a scream in tremolo which would have done justice to a dying dinosaur. Once, and then again, he thought a shadow flicked between him and the submarine's floods, and each time he gave a quick glance; he saw nothing and concentrated on his work.

When the saw was vertical at last, he checked the depth of cut—it had to be exactly ¼ inch, to slice into the armor without touching the wires packed inside—and then shut off the drill to report his next move. The infernal clatter kept right on going in his buffeted inner ears, and a lot of screaming—he thought he heard someone shout "Stark, stark naked!" and glanced in alarm at his air gauges, fearing nitrogen narcosis or anoxia, which first paralyze a man's good sense and then make him feel wonderful, moving him, as Cousteau once wrote, "to tear off his mask and mouthpiece and hand them to a passing fish." But his gauges reassured him, and he turned the earphone gain down to nothing at all, purely because he couldn't stand so much as a flyfoot's extra weight of noise in those roaring eardrums. He announced what he was doing next, threw the creeper in gear, adjusted the web tension and started the saw again. The creepers—endless treads, part crampon, part suction—began to carry the saw table around the armored cable, just as fast as the saw would cut, and if the designers were right, which they had been so far, it would cut the armor all the way around, exactly meeting the kerf at the original plunge point. Crane busied himself while it was creeping and cutting, creeping and screaming, by deepening the trench under the cable so that the saw could pass through. He scrabbled out as much as he could from the side, where all along he had been working with his back to the submarine, and swam over the cable to begin digging from the other side. He had just begun backing down—it was a hands-and-knees proposition—and had his head over the cable, when something the size, shape and

nearly the velocity of an airliner fuselage whipped overhead, and the backwash from it lifted him and slammed him down. His head struck the top of the pipe, and he was never able afterward to remember the order in which things happened. There were two long hard yellow tentacles that sprang out and grasped him around the chest. There was something about the noise, the shrieking chatter of the drill, which did not stop, but softened to a murmur and then, still murmuring, snarled with effort. There were red clouds. All through it he held on, held on, and would not slump, would not let the world go black. This was not a matter of pride. It had to do solely with a small valve between his helmet and his tanks. It delivers air exactly equalling the pressure outside the lungs—*on demand*. And if you don't demand it, you don't get it. You demand it by breathing, breathing just a little harder than normally. So if you get yourself knocked out, you don't demand it for a while, and you don't get it, and you just loll there and die.

So Lee Crane hung on somehow, even if he couldn't get things quite in the right order. He knew he wasn't hanging on to the flaking crust of consciousness just to be hanging on. There was a reason. Reasons. The world on fire. He was to show Alvarez how a man does something about it. To get a phone call through, that was it, and to do the job himself.

And it hit him finally: *somebody tried to kill me today.* Then he found himself; then he shook away the fogs of now (though not those of a moment ago). He shook his head once, violently, with his eyes hurting-tight closed, then opened them to see those tentacles about him, one up around his back and under his tanks, one crossing his chest. The tentacles were jointed and finned and looked like frog's legs because a wet-suit with flippers looks that way; this was a diver holding him in this scissors grip!

Deep in his throat he growled, and with one lightning chop, he broke the ankle-to-ankle grip of the legs around him. In an instant he had kicked free and up and had his long, newly-curved knife out, and was plunging down again on the yellow-clad diver who was kicking, kicking trying to get away from that gleaming steel fang. He got a hand on the diver's tanks, and thrust sidewise as hard as he could to roll him; he came back with the knife, he started down with the knife—

"*Lee!*" screamed Cathy Connors, "*for the love of God don't!*" and as he gasped in astonishment (making himself cough in his own saliva until tears came) an unseen hand checked him and the yellow-clad diver was gone up the

fading road of light, up-current to the dimness beyond.

Lee Crane watched, knife in hand, until the other was swallowed by the dark.

"Oh Lee—come in, come in!"

Crane put his hand to his head and felt the bulge of the earphone in his hood. He turned to look back at the submarine and saw what had anchored him in his chase—the telephone line, and the airhose to the saw, which lay silent in the silt.

He coughed twice, carefully this time, and swallowed. He felt a little light-headed and his pulse was too swift. He checked his mixture and found that his oxygen had been increased. He pulled it down. He heard a murmur in his phones and thumbed up the gain. Someone was saying, ". . . suit up a couple of men and bring him in and—"

"Mr. Morton," Crane said clearly, "You will send no one out. That is an order. Get on the manual, please. I'll have that armor off in another few minutes."

"Lee!" It was Cathy. "Are you—all right?"

"I'm all right. Who was that diver?"

There was a silence. Somebody far in the background said either "Tell him," or "Don't tell him."

"That man tried to prevent me from tapping this cable," said Crane. "Who is he?"

"W-we don't know," said Cathy suddenly; and the background to her voice bubbled with murmurs. "Well," she said angrily, off mike but clearly, "He *has* to know. Lee," she said, "all we know is that you were attacked by the shark and all of a sudden he was there."

"*Shark?*"

"We tried to warn you but you couldn't hear. I suppose because of the saw."

"Then it rushed you just as you climbed over the cable. It missed," said a man's voice—Emery. "My God, a blue it was, must have been forty feet long. And we were all yelling to you to break out the shark chaser."

Crane remembered the ghostly screams he had heard drowning in the clatter of the saw: *Stark! Stark naked!* was *Shark! Shark chaser!*—the packs of shark repellent he carried in his belt.

"And then *he* came," said Emery, "and when the shark came back for the next pass he held you down with his legs and snatched off the saw and held it up and cut that monster eight inches deep from behind the gills back about twenty-three feet. He just . . . *held* it. The shark did the rest."

"And then you got up and started to knife him."

"I hit my head," said Crane. "I . . . I guess he kept me breathing, him with that scissors grip. And it must have been him, too, turning up my oxygen. *Who was he?*"

"We don't know. We're all present and accounted for," said Cathy. "Lee—please come in. I'm . . . scared."

Crane swam over to the saw, got his feet down and picked it up. He hefted it over to the cable and fixed it to the frame —a simple matter of a single quick-release lever. He carefully reset the blade in the kerf and adjusted it for depth.

Softly, pleadingly, "Lee . . . ?" Cathy begged.

"Mr. Morton," said Crane harshly, "when you had to communicate with me and it was obvious the noise level was too high, it might have occurred to you to do it with the floodlights."

There was a thick, shocked silence in the earphones, broken by a single sharp smack. Crane, who thought he had forgotten how, suddenly grinned. That would be the Admiral, for one of the few times in his life caught short, smacking his forehead with his palm. Crane had only seen it happen twice before.

Chip Morton at last spoke for all those aboard, any one of whom could have thought of a light-signal: "Oh Jesus, Lee, I'm sorry."

"Continuing the cut," said Crane, and started the saw.

The rest of it was simply arduous, careful slaving, part brain, part brawn. Girdling the armor twice was the easiest part, since the saw took itself around. Making a cut from one kerf to the other was easy but disappointing; he had hoped to be able to open out the segment and drop it off; but open out that tough hide would not; it required a second longitudinal cut opposite the first, and then of course the armor fell away. After that it was a long delicate series of probes with an inductance pick-up, a tool like long needlenose pliers or forceps with a small split ring at the tip, which could be made to surround one wire or a pair at a time. When at last they found one—and there was only one—with a signal, it was unreadable until Crane substituted a contact probe for the inductance. After such success, he was unable to hear the conversation that took place, because Sparks took over his phone line. When it was finally over and they blinked the lights and he unhooked the probe, replaced it with a jack and patched himself in, Sparks told him, "We're done now, sir."

"Put the Admiral on, Sparks. Private."

"Yes, Lee," said the O.O.M.

"Admiral, I can wait for any part of the news but this: did you get Washington?"

"No, Lee, we didn't. We can't and we won't."

Crane drew a deep breath and let it out again. "I'll patch up here and come in."

He got the plastic pod of super-wet epoxy cement, pinched it to break the inner membrane, and kneaded the components together, then clipped the corner off the pod and striped the cut edges of the cable armor with the sticky stuff. He did the same with the portions he had removed and replaced one of them. He carefully positioned the tiny gas pellet and the three "getters" among the wires, and then, replacing the saw's oscillator with a rotary chuck, drilled a small hole through the remaining section of armor. It was while he was doing this that he saw, from the corner of his eye, something enormous looming up from the darkness, up-current. He dropped the drill, slid over and behind the cable, and put up his head just enough to peep over.

It was nothing . . . more properly, it was no thing. It was a purplish, then lavender cloud moving down toward him, spreading and diluting as it came. He remembered then to breathe again, and snapped a curse at himself for being so jumpy. He thought he knew what this stain was, but to be sure, he pulled out the square packet at the back of his tool belt and yanked the cord which tore it open. Purple matter smoked out and streamed slowly away, rising in a tall orchid cloud as it approached the submarine.

Shark repellent.

Someone had planted a dispenser or two of shark repellent upwind of him, pinned it under a rock, probably, so it would stream its protection over him. A simple safeguard which proved Crane, for overlooking it, quite as afflicted by the Blind Spot as those aboard who had not been able to think of signalling with the lights.

He captured his own repellent dispenser with a piece of coral and stared upcurrent for a moment. He had promised himself he would waste no thought on the matter, but now he wondered if the diver in yellow was still up there somewhere, or if he was gone, having left the chemical guardian in his place.

Crane shrugged and went back to work. He set the remaining cutaway section of armor in place after threading the trigger-line from the gas pellet through the hole he had drilled, which was on the underside of the big cable. Then he unrolled his armor tape, stripped off the backing, and carefully taped up all the saw cuts. Finally he snipped a piece of tape off for a patch, removed the backing, and knelt to reach the dangling trigger-line. He grasped it and pulled;

it came free, came out. Inside the cable, which was built in watertight sections, gas under high pressure poured out of the tiny pellet, collecting inside the armor at the top and forcing seawater out through the hole he had drilled. When bubbles appeared at the low point, and a moment later, when they began to dwindle in intensity, Crane slapped the final patch on. Inside, the three "getters" he had planted would chemically absorb moisture until, in a few hours, the cut section would be as dry as the day it came out of the factory.

He gathered up his tools and stowed them, wondering if, after all, this meticulous workmanship wasn't a little ludicrous in the face of the world's end. And then he thought, *right up to the time it ends,* I'll *know.* And it was worth the effort.

He swam slowly back, holding the free end of the phone line up off the sea floor to keep it from fouling while Sparks reeled it in. Then, as the floods and search-beams winked out behind him, he headed gratefully for the warm shaft of brilliance which located the well chamber. Reaching it, he pulled himself heavily up the ladder, painfully feeling the increment of weight as his tanks and tools came into atmosphere. Waist-deep, he paused to get his breath—he had not known he had been down so long, worked so hard, gotten himself so exhausted.

Suddenly he was relieved of pounds of weight. He looked up, startled, into the smiling eyes of Cathy Connors, who was hauling mightily on his tanks. He found strength immediately to climb the rest of the way, swung over the rim, stood on the walkway and relievedly yanked the quick-release on his tank harness, turning to help the girl, who almost fell with them. He broke the seals at his throat, hauled down the zipper, and got the hood palmed up, back, and off his head.

"Lee—*Lee!*" She was on him, enfolding him, ignoring the sweat, the smell (what a diver once called blended essences of undersea and underwear); her warm mouth was on him hungrily, eagerly. "Oh Lee, I was so *scared.* Oh dear . . . your poor head," she cried, stroking, with a feather touch, his bruised forehead.

"Well!" he said, pushing her back in order to make room for a word. "The girl I'd most like to get decompressed with. What the devil are you doing here, you scamp?"

"Oh . . . just scampering around. I—"

"In the well!" barked the grille on the overhead. "All secure, Captain?"

"A moment, Admiral, for the hatch." Crane pulled a wall lever. There was a soft rumble, and the water in the well stirred. The rumble ceased. "All secure, sir."

"Take her up," the Admiral's voice said off mike. "Steer one eight five." On mike again, "Just relax now, Captain. Gleason'll handle your pressure."

"One eight five. South and a hair west. He's going through with it, then. No presidential permission, either."

"He's on his own cognizance now. There just isn't any other way to try. If there was, he'd think of it. He even asked for suggestions—I know—I was the one who trotted around with a pad and pencil like a pollster. From now on we're discretionary."

"You're not," said Crane. "You hussy. You know I have to strip and dry off."

"I know. I brought you dry clothes. I just want to be alone with you for a little while, no matter what the neighbors say."

"Then push that intercom button to 'Listen.' "

"Oh my goodness." She pushed the button. While he stripped and towelled himself, she stood on the other side of the well, turned comfortably sidewise. There was about Cathy Connors neither brazen sophistication nor schoolgirl coyness. She did not primly turn her back; but she also did not stare. She genuinely had other things on her mind.

The submarine began to quiver slightly, as it left the seamount and headed toward the surface. Cathy palmed her ears. "If they raise the pressure any more to blow that water out of the well, I'll implode like a light bulb," she said.

"They won't," said Crane. "Use your head. Sure, there's a hatch across the bottom of the well now, but there's a one-way valve in it—and when the outside pressure goes down, which it will durn quick as we go for the surface, the inside pressure here forces the water out. Look, you can see it going down right now."

Imitating a hill-billy, she wagged her head and demanded to know what they would think of next: then, as if on some secret inner signal, dropped all pretense of small talk. "Lee, I'm so *worried*."

"Aside from being trapped with a wild animal," he said, clinching his belt and coming around to put his arms around her, "while the world ends—what's on your mind?" Then he, too, stopped the banter, and said quite differently, "What is it, honey?"

She kissed him absently. "The O.O.M., mostly. Some of the men think he's carrying the dogged determination bit a little too far."

"How do you know?"

"Part female intuition, part sheer scuttlebutt."

"What would they like to do instead?"

"Some of 'em were pretty sore about the shore leave. Not crazy mad like poor Berkowitz, but sore anyway. Oh, and about Berkowitz: there's talk that the O.O.M. knew in advance that the police boat would shoot him."

"Who said that? By the Lord, I'll—"

"Shh," she said against his lips. "I can't tell you who, and you'll do no such thing. Men have to talk, men always will. You were a foc'sle type sailor not so long ago. Have you forgotten already?"

"I guess not," he said, the swollen veins in the sides of his neck subsiding. "But how can anybody know Nelson and talk like that? . . . anything else?"

"You going to pop your gaskets any more?"

"I'll try not."

"If you do again, I'll clam up."

"I'll be good."

"Well," she said, "It's Chip. He's wild—I've never known him to be so mad before."

"What's his beef?"

"The phone call. Oh dear, you haven't heard it yet? Oh well—you will. It's taped. Anyway, the O.O.M. put it on the p.a. system. Chip says that was the stupidest move he has ever seen made by a commanding officer."

"Why stupid?"

"Well," she said soberly, "it was pretty grim."

"I don't care how grim it was. I'd do just what Nelson did. I think the way he does—that unless it's a matter of security —like the Van Allen shot before he broke it to the UN— a crew has a right to know what's going on. But if we're to go through with it, and make no stops between here and there, it's just like opening sealed orders—it's a high-seas situation."

"You might change your mind when you hear the tape," said Cathy, "though I don't think so. Anyway, Chip thinks the O.O.M. is getting senile. He says the only thing to do is to say nothing and double the work details. He says if it was any other kind of a ship on any other kind of a mission, it might not matter, but when it's the end of the world, you don't hold a crew together by telling them how bad things are."

"He doesn't know this crew," said Crane; but the brave loyal words did nothing about the cold lump which had formed in his stomach. "Any more good news?"

"There's something wrong with Hodges."

"The Third? Heck, there's nothing wrong with him a shore

leave won't cure. What's his trouble?"

"He was, well, praying."

"If that's bad, it's curable. But is it bad? Some of my best friends—"

"He was saying the Lord's Prayer in the magazine, and he wouldn't stop. Dr. Jamieson said he didn't think he *could* stop." She shuddered. "It was awful, Lee—awful. He started during the phone call, and he just went on and on."

"Dr. Hiller has him under some sort of therapy, hasn't she?"

"Yes. She took care of him. She whispered something to him and he stopped praying, but he seemed to be very dazed. She led him away like a child."

"Damn. That makes us a little short-handed on the bridge. I guess I'll have to take his watches. . . . it doesn't surprise me too much, though, honey. I've heard before that people getting their heads candled sometimes come unglued for a while. I'll have a word or two to say to Hiller, though. She should've kept her hands the hell off him."

"Oh, I wouldn't do that, Lee. Really not. She's awfully good, and she only took him on because he was getting jumpy. He hasn't been able to sleep, you know. If it weren't for her the chances are he'd've cracked up even sooner, and maybe worse. You have to remember—nothing's normal now."

"All the more reason to act normally."

"That's what Chip said about putting that call on the p.a."

"I'll have to hear this famous phone call. Who did we talk to, anyway?"

"England."

"England? Who in England?"

"I don't want to talk about it. You'll hear it later. Please, Lee."

"All right, Cathy," he said, surprised and concerned. "Then there's only one more thing on my mind: who was the man in the yellow suit?"

"Old Emery said it was an angel." She looked quickly at him, his eyes, one, the other, searching for laughter which would be cruel then. "He was kidding, of course, but—"

"He really didn't come from this boat?"

"If he did, he was in two places at once. When we saw him out there, we thought it was one of your men—Gleason or Smith. And then when you . . . when he got away from you, we looked around and there both of them were behind us, watching. O'Brien and his little helpers had their hands full

in Main Control and the engine room. Cookie was in the greenhouse with us too—oh, everybody, everyone was aboard but you. And just to cap it—there wasn't a yellow suit in the rack."

"You're right, there wasn't, and we went over every one of them." He shook his head. "What bothers me is that the suit was strictly Navy—identical to the one I had on. Not only that—you saw me set out shark repellent? Well, what nudged me to do it was that that . . . angel of yours . . . he set some out too, upcurrent. I used mine mainly to check just that—it was identical."

"He *did*? Lee, who was he? Who was he?"

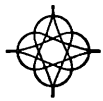
"I can think of three possibilities. One, no matter what you said, it was someone from the *Seaview*—someone you thought you'd checked but didn't. (That, by the way, is my choice.) Two, it was a man from another submarine—which makes no sense at all, because the only way there could have been one around without our detecting it a half a day ago would be for it to be lying doggo—lying exactly where we would stop, or within a few minutes' scuba swim. And nobody knew where we'd stop until we stopped. Even if someone outside had known of our plan to tap the cable, they'd have hundreds of miles of cable to guess at. And just to dispose altogether of that nonsensical silly submarine, it would either be fer us or agin us. If it was fer us, it would have given us a hail. If it was agin us, no diver in no yellow suit would've pegged that shark for me."

"Why would anyone be agin us?"

"Anyone wouldn't, which finally disposes of the whole silly idea."

"And what's your third guess?"

Lee Crane spread his big hands. "He was an angel," he said.



CRANE LAY ON HIS BUNK LISTENING TO A tape recorder. The first thing he heard was his own voice:

CRANE: Segment twenty-four, pair one. [Silence, five seconds] Segment twenty-four, pair two.

SPARKS: Hold it! Hold it right there, Captain Crane, while

I pull up the gain. [Chatter, scratches, chatter. And what sounds like a voice.] Captain, we got something. We got something. Can you hook on with your needle-probes, sir? That's Segment twenty-four, pair 2.

CRANE: Hold on a minute. [Pause, 15 seconds] Try that. [Over background of bad static, a woman's voice, crooning]

VOICE: [very English] . . . ride a cock horse, to Banbury Cross, and what will poor robin do then, poor thing? . . . For oh, for oh, the hobby-horse is forgot. 'Twas brillig, and the slithy toves, did boil the beer of all those coves, in the name of the Father, the Son—

SPARKS: Hello hello hello. Hello hello hello. This is the atomic submarine *Seaview*, United States Bureau of Undersea Exploration. Hello hello hello, do you read me. [A moment of silence, but for the backsurge of noise]

VOICE: I say.

SPARKS: Hello hello hello. This is the atomic submarine *Seaview*. Answer, please.

VOICE: This is the operator. May I help you?

SPARKS: I have a top priority, urgent call for Washington, D. C. Where are you, operator?

VOICE: Southampton, natur'ly. What number are you calling?

SPARKS: Operator, this is an emergency. This is the submarine *Seaview*, Admiral Harriman Nelson calling the President of the United States in Washington, D. C.

VOICE: You're pulling my leg.

SPARKS: Operator, this is a genuine emergency. This is the submarine *Seaview*. We have tapped into the undersea cable off the Brazilian coast. We have a crash priority call for the President of the United States. Can you get us through?

VOICE: [Completely businesslike] One moment please. [Twenty seconds silence]

SPARKS: Hello Southampton. Hello hello hello.

VOICE: One moment, please, *Seaview*. I've put in a trunk call to the Foreign Office. I think I've got through and they're ringing. I say, y'know, this is the first call I've handled in two days. I was lit'r'ly talking to myself. . . . I'm not getting the Foreign Office. P'raps it isn't ringing after all, there could be a short. I'll try some numbers at the Home Office.

SPARKS: Southampton, could you put us through to the admiralty, or the RAF Signal Corps?

VOICE: I'll try, sir.

SPARKS: Could you put some other operators on it? And may I speak to your supervisor?

VOICE: [Cold, tense] I am the other operators, sir. I am the supervisor. I am the charlady and the bottlewasher and the sweeper-up and the doorman. Oh I am the cook and the captain bold, and the mate of the Nancy Lee. . . . Sorry, *Seaview*. I've been on duty for three days and I haven't had tea since yesterday. . . . The ringing signal's stopped. Maybe it never was ringing, what? Ring out wild bells . . .

SPARKS: Southampton!

VOICE: Mrs. Symonds is the relief operator, what? She came a little late in her little blue hat. She floated right up to the window and she bobbed about, and she went away with the tide, and when the tide came in, there she was again. [Suddenly businesslike] I'm sorry, sir. I've been ringing London right along, but I can't get an answer from telephone Central. I'm afraid I shan't get through. The wires are down all over the west coast, y'know. This one London line sounds live, but there hasn't been anybody on it in days.

SPARKS: Operator, what about the overseas lines?

VOICE: All out, sir. First noise, ever so much noise, and then one by one they went out. Until you came. Where did you say you're calling from?

SPARKS: United States Submarine *Seaview*, tapped into the submarine cable off Ferdinand de Noronha.

VOICE: Oh, I say: that *is* a lark.

SPARKS: Could you speak a little more clearly, please. There's no way you can relay this call to Washington, then? Or to the British authorities?

VOICE: Not until they put the lines right, sir.

SPARKS: [Off mike] Yes sir, I'll ask. [On mike] Operator, Admiral Nelson wants to know everything you can tell us about the world situation.

VOICE: Now I know you're pulling my leg. He's been dead for years.

SPARKS: The *American* Admiral Nelson!

VOICE: Oh yes, of course. I'm sorry, sir. I'm sorry, I've been, you know. And no tea. I say, you wanted to call Washington in America, what? Oh dear, you can't, you know, it isn't there any more. At least the Government are not. The very last I heard was that they had moved into Virginia, the mountains, you know. There were some calls from New York too, there are still people there. In the tall buildings. They want water. They want food too, but

mostly water. The rivers have all gone salt, you see, with the sea coming in. [The background noise louder. The voice fainter.]

SPARKS: Please speak a little closer. Can you read me?

VOICE: Would you repeat that, please.

SPARKS: I'll shove in more . . . uh . . . there. [Loud, and badly overmodulated] Can you read me now?

VOICE: Ouch! Oh, my poor ear. Yes, I read you, *Seaview*, only the noise is frightfully loud too.

SPARKS: Can you tell us any more news?

VOICE: Oh, not possibly, I can't remember all those awful things. . . . The Prime Minister asks us to keep calm for the duration. The Royal Ballet refused to cancel, last I heard, and I don't know what will happen because they say the water's up to the first balcony at Covent Garden. There was word that the sea would overrun Panama, you know, between the Americas. There's no chance for the hollyhocks, they hate so much wet, you know. Oh, you'll want to know about the riot in California, they burned down Dr. van Allen's home. He wasn't there, Dr. van Allen, I mean, you know, the radiation belt chap. There's bad fighting in Israel too, something to do with the arm of the Mediterranean that's filling up the Dead Sea, they blame it on one another. And oh, there's Mrs. Symonds coming back, I can see her little blue hat floating along like a toy boat. And then there's all those ships gone out to sink that submarine, that scientific wallah's submarine, the *Seaview*. Oh, but you're the *Seaview*, aren't you? So they can't have got you yet, can they?

SPARKS: What ships? Operator, please speak more slowly.

VOICE: Sorry. Is this better? What ships? Oh, some silly spat they had at the United Nations, and there was a vote to go out and find you, and it wasn't carried, and some of them got quite livid and said they would make up their own task force and sink you.

SPARKS: How did the United States vote? [Background noise up]

VOICE: Oh, I say, I haven't the faintest. The water's pouring in downstairs, this time, I imagine the tide's higher than ever. And Mrs. Symonds!

SPARKS: Operator! Operator!

VOICE: Why, she's going to float right in the window down there. Bless her old heart, she drowned three days ago and still she wants to come back and relieve me. Plucky, what? Are you there? I say, hello, hello, are you there?

SPARKS: Operator! Operator!

VOICE: I say, I can't hear you. Are you there? Are you there? [Background noise up]

SPARKS: *Seaview,* calling Southampton operator. Can you read me?

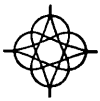
VOICE: Mrs. Symonds! Mrs. Symonds! Do you read me? . . . *read* me; whatever am I saying? . . . I say, whoever you are, I'm hanging up now. Mrs. Symonds is dreadfully wet, poor thing.

SPARKS: *Operator!*

VOICE: Ta ta.

Click!

[Background noise.]



THE AVERAGE TEMPERATURE RISE WAS NOT quite the two degrees a day predicted in the UN debate—but it was 1.9 and a hair over; close enough. The random radiation, all through the radio spectra, and far into the ultra-violet, increased by the hour as the ozone layer was consumed by the firebelt. Electronic circuits began developing odd quirks—little squirts of corona, unexpected inductances and those non-connected, duplicated signals called "ghosts." Sparks and Reynolds, the Second, and something of an electronics wizard in his own right, passed more than one miracle in insulating and isolating components, and keeping the whole complex going.

All hands had their jobs, and all hands made it their second job to inspect critically the jobs of the others. Pipelines were sanded, steel-wooled down to the bare metal and that polished, then abraded, undercoated, coated again, finish-dressed, waxed and buffed. The submarine was in a perpetual state of detour and re-route, like the streets of New York, constantly dug up; every coat of paint meant a section sealed off by the water-tight doors and signs posted to direct traffic around the work.

There appeared a great deal of what the old sailors used to call scrimshaw. Bone-carving. Inlay. Hand-lathed machine work: a miniature automobile engine, one-sixteenth normal

size, with microscopic cams, capillary-diameter sleeves for hydraulic valve-lifters which really worked. Kaski, the Second Engineer, found a wooden broomstick—a real treasure—and freehand, whittled it into a chain.

Dr. Hiller watched everyone. Cathy Connors kept an odd, unaccountable distance from the Captain, and when at last he called her to account she said, in a complete departure from her usual open manner, "I'll write you a note." Shocked, puzzled and hurt, he buttoned his lip and waited a day and a half for the note, the message of which he felt he had to accept—and its second sentence a salve, though not a cure, for his feelings:

Lee, it's just not fair to the others.

I had to write it because I could not bear to tell you and watch your face while you thought of me this way.

The last part was kind, at least: she cared for him. But it made him angry, too—not so much at Cathy, who was, in the last analysis, doing what was best for the ship; but angry at that glowing coal of animalism which illuminated everything that lived, and most especially men confined. And of all men confined, it glowed brightest in men in danger. Every war, every major disaster, like burning passenger ships, forest fires, floods—all have their tales of flickering, unpredictable, brutal, explosive sexuality. The *Seaview's* personnel were superior even in comparison with submariners as a whole—and of all human groups, submariners are the friendliest, the most tolerant, the most understanding. Yet they were men, they were alive, they were confined, and they were in danger; their very species was in danger. Crane could be angry, but he could not, even deep within himself, completely denounce their increasing awareness of the female. Their feelings were only the voice of life itself, only the current of mankind's immortality as mankind.

They took the Straits of Magellan instead of rounding the Horn, and this was one other occasion where the Old Old Man publicly countermanded his orders: "But Admiral! Those shoals are sure sudden death to anything draws as much water as we do!" he had protested, and the Admiral had looked at him icily and had said, with profound scorn, "What shoals, Captain?" and had left him to face the sounding charts which he, the Admiral, had been studying and which Crane inexcusably had not. Crane, his ears burning in the presence of O'Brien and Hodges, pored over the charts and the logbook, open beside them. The perpetual soundings entered in the book, compared with the ones marked on the printed chart, showed that there was now eighteen to

twenty feet more water everywhere in the Straits, eliminating two shoals out of three as dangerous.

A third of the Magellanic shoals are, however, no inland waterway. It was a painstaking, hairsbreadth passage, with red lights often aglow on the consoles, and the one unforgettable experience they had of thrusting their transparent nose gingerly into the mangled carcass of a super-gigantic blue whale which blocked their passage in the very narrowest of the channels. It was Emery who noticed what was gorging on the mountain of flesh—darting, cruel, ravenous schools of barracuda.

Barracuda, hardly anything, ever, but a tropical fish: barracuda in the treacherous water between Tierra del Fuego and Arenas!

It was Emery, too, who wondered what had killed the whale. Even the ripped, tattered evidence of the 'cudas at work could not conceal that the whale had been riven, blasted, crushed. Someone aboard might certainly have thought of an answer if it had not been for the murder of O'Brien.

Black-haired, red-browed O'Brien, with a touch delicate as an electroscope, steady as an H-beam; taciturn O'Brien, who had little to say and who said it the way he did everything else, with efficiency; who would stand his watch until he was relieved, and if not relieved would stand the next man's; who could be given an order and forgotten about; O'Brien was garrotted with a loop of stainless steel wire twisted up, tourniquet-like, by the cork handle of a diver's knife.

It took Commander Emery eight minutes to bring out the plentiful fingerprints on the blade of the knife.

It took Dr. Jamieson four minutes to match them in his files.

He and the captain went to the murderer's cabin to get him. When they opened the door, they stopped and looked, and turned to each other and stared, and then Jamieson went in and picked up a small bottle. "Call Dr. Hiller, will you, sir?" and he knelt by the bunk and, taking a penlite out of his shirt pocket, turned its needle-beam into one of the rigid, staring eyes.

Crane saw young Smith in the thwartship corridor and sent him for Dr. Hiller, and then returned, watching Jamieson work.

Dr. Hiller came. "Yes, Captain Crane?"

Crane stepped aside and she went in. Her eyes flicked from Jamieson to the body and then to the bunk shelf, where the small bottle stood. "Hodges?" she asked.

"Dead," said Jamieson.

"Did— did he—"

"Did he kill himself? He did. Did he murder O'Brien? He did." Dr. Jamieson rose slowly; he looked, somehow, a good deal taller than usual. "Dr. Hiller, did you give him that stuff?"

"Only to make him sleep. To *let* him sleep."

"You had him under some sort of therapy. Did you have no evidence of murder and suicide in the man?"

It was a rough question, especially coming from one doctor to another. One answer would be that such information was priviliged; no ethical psychiatrist would answer a question like that. Yet . . . to say Yes was to admit a horrendous oversight; Hodges might have been prevented; others certainly might have been warned; such knowledge on her part, properly conveyed, might well have saved two lives. To say No was a profound reflection on her professional ability; even a layman would raise eyebrows at the idea of this degree of violence being present and escaping the supposedly searching techniques of psychotherapy. Crane could sense the tension rising, compounded, as all things were compounded, by the desperate unreality of all things in all the world just now, by the crash and clatter of Jamieson's shattered idolatry, and above all by Susan' Hiller's very presence: Crane thought, is it loving Cathy, or approaching old age, that has made me never notice before how beautifully Hiller carries herself, how full her breasts?

"I find evidence of murder and suicide in every man I examine deeply enough," she answered quietly; and the part of Crane which always stood off and watched, applauded her —not especially for the worth of what she had had, but for its cleverness. For Crane's part-that-watched was a childlike thing, and was filled with wonder at jugglers, and violin virtuosi, and suspension bridges and the men who built them, and at anything else surpassingly deft. Jamieson's blunt question had had her at a disadvantage, demanding as it did a blunt answer—and *Yes* and *No* and *I don't know* were all equally damaging. But her answer, which was no answer, demanded a rephrasing of the question, which was a lessening of the bluntness, which was a widening of the field, an opening of loopholes, a tack for maneuvers.

And turning to see how Jamieson would catch this ball, Crane realized that the doctor had in him, in this special case, enough ethical harshness to ask the blunt question once; that to maneuver with this woman whom he admired so extravagantly was to lose to her. He looked back at her;

her face was still, her eyes wide. He saw her nostrils dilate, nothing else move; it was, he thought, a species of smile. "He should," she said professionally, "have left some sort of a note."

Jamieson turned his gaze away from her face. It seemed to cost him something, as if the gaze must stretch and check him briefly before it broke. He passed his hand across his eyes and then fumbled along the bunk shelf, glanced at the settle and turned up a pillow, and finally returned to the bunk. The dead Third Officer's hands were cupped and clenched together; he gently moved them, raised them, plucked at a white ear of paper which protruded between the left thumb and forefinger, and worked it loose. He unfolded it and glanced at it, then handed it to the Captain.

It was God's will. I did not hate him.

Crane passed the paper to Dr. Hiller. "Would you like to interpret that?"

She flicked her wide eyes over it. "It speaks for itself, I think."

"Was he saying he did not hate God?"

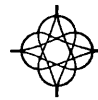
"I shouldn't think so. It would be more as if he referred to O'Brien. It says, I think, that he felt he must kill O'Brien, and he could not survive his remorse. But his compulsion was stronger than anything else. . . ."

"His compulsion was what he called the will of God. What does that mean?"

"It means whatever his conviction was of the will of God."

"The will of God," said the Captain, low in his throat. And he went to see Alvarez.

At last, he went to see Alvarez.



"STOP ALL!" CHIP MORTON THUMBED THE hooter and called into the general p.a.: "Condition Yellow. Condition Yellow." He snarled into the Main Control mike, "Both inboard, slow astern. Stop her, damn it."

Nelson came bursting out of the wardroom. Morton had a fist raised, a thumb pointing forward, all ready for the

O.O.M.'s quick glance. Nelson stared forward. "Stop that swing!" he barked. "Watch her head!" snapped Morton into the mike, in his turn. An engineering officer with navigating experience, Kaski was now divemaster. He was a good man, very good. He was not as good as O'Brien. The admiral had said, the day before after they had buried the two dead, submariner style, through the torpedo tubes, "If they gave me my choice to sail without O'Brien or without engines, I think I'd sail without engines . . ."

Captain Crane came in, outwardly alert, inwardly, if anyone cared to look closely, a little dazed. "What is it, sir?"

The Admiral pointed forward.

They had threaded their way through the Straits of Magellan, running deep to avoid as much of the wild water as possible, navigating by chart and by contact. Although they had not again met a channel as narrow as the one from which they had nudged the whale, there were still some tight ones to be negotiated, and the last of these was dead ahead. It was broad daylight above, and at 150 feet there was plenty of light to see the channel ahead, which looked a little like a mountain pass, with peaks on either side, and beyond a wide emptiness that, after these nervous days, looked like the promised land to them—better than land—it was sea room.

Morton had already turned on the floods, and was manipulating the searchlight controls. The twin white beams, integrated so that their divergence could give range, shot through the V-shaped passage and turned a dim thread out there into a silver chain. Following it upward, it showed what bobbed there, spherical, horned, waiting.

"Now wouldn't you know," said Crane. "We're just lucky, I guess. Of all the places for a mine to drift to, of all the times for it to happen—"

"I don't think luck had much to do with it," said Nelson. "Depress that light, Mr. Morton. Right down to the floor."

The beams came down, scythed along the floor of the pass. It rose, then fell away like a road going over the crown of a hill. Dead ahead, just where it fell away, lay a second mine on a short chain.

"Nobody lost that egg, Captain. Somebody laid it there." He met Crane's eyes, and, without any humor, he chuckled. "I must say, I'm flattered."

"The Southampton woman wasn't altogether crazy. Dr. Zucco really has scrounged up a task force then."

"The Southampton woman was altogether crazy," said the Admiral, "and also altogether right—something which can happen."

"I couldn't take it seriously," Crane confessed. "Zucco—"

"Zucco is wrong," said the Admiral. "Either he doesn't know it, in which case he thinks he's right as much as I do—and *I* won't be stopped, you know—or he does know it, which is ten times the reason he'd do a thing like this. He's never been publicly wrong about anything in his whole life, and he isn't about to start now. . . . I wonder how they got here in time to lay mines? Chanced flying, I guess, to some South American port. Knew we'd try the Straits."

"I think I know now what happened to that whale we nudged aside."

"That whale . . . oh, but you . . . are . . . right," said the Admiral slowly, always a sign that his brain was working fast. He pointed. "If we rise enough to clear that lower one, we'll be scraping the chain of the other."

"They could be magnetically armed, horns or no horns," said Crane. "Just getting near would be enough. We can't chance that. Either we go back and try some other way, or we get them out of there."

"We don't go back," said the Admiral positively.

"Might send 'em a fish," Morton chimed in.

"We can take a whole lot," said the Admiral, "but I think one torpedo plus two mines plus a rock gradient about 60 per cent sure to slide—I wouldn't want it."

"I'll take out the minisub and cut the chains."

"You'll send out the minisub and cut the chains." The O.O.M. turned what the foc'sle called "the icy eye" on him. "Or have you taken a course in that too?"

"Well, sir, I can certainly—"

"Mr. Morton, ask the CPO to step up here, and Seaman Smith."

Morton turned to the intercom, and the Admiral said softly to Crane, "You don't have to be the whole crew, Lee."

As softly, Crane said, "Why not? I can't be the Captain."

At the look of pain which, in swift spasm, crossed that rocky old face, Lee Crane could have bitten off his tongue clear back to the inner ear. Ordinarily he would have been incapable of thinking such a thing, let alone speak it. Shocked and miserable, he stood silent, his face as rockbound as the Admiral's now was, until the Admiral said quietly, "It's all yours, Captain," and started aft.

Crane was after him in two strides. "Admiral—"

Nelson stopped, looking aft as if plotting a course.

Crane meant it to sound something like an apology, but his throat was tight and it came out harsh, little-boy-smart-alecky: "I'll get you to the right place at the right time."

Nelson turned then and smiled like an old man. "I'm sure you will," and walked out.

Crane scowled and went into the greenhouse to look at the mines, like great big lollipops, standing on their stems and shining in the floods.

"He had that coming, and boy howdy, you handed it over," said Morton.

"Shut your mouth," said Crane, and only as the air reverberated around him did he realize how loud he had shouted.

"Okay, okay," said Morton, his back turned, but the cut of his ears somehow showing that he grinned. "You're the Captain." And then he added, "Really," and if Gleason had not appeared at that moment he would certainly have climbed right up the executive officer's back and hammered him into the deck like a spike into a pine plank.

"Yessir," said Gleason.

"Where's Smith?"

"I'll get'm," said the CPO, and before anyone could move to stop him, he leaned across the console and sang a few wordless notes into the general intercom. "The knee's in the greenhouse," he added, and switched off.

All over the ship could be heard the echoes of laughter. It was too easy to laugh now, to cry, to kill, and where was Cathy just now? . . . He forced his attention back to the CPO, and his mind repeated to him the notes Gleason had sung. They were the same he had once heard Gleason whistling—and in a rush he recognized the tune—that treacly mass of excess sentiment called *Sonny Boy*. He recalled the day—how long ago it seemed!—when Nelson had, with blatant disregard for the consequences, publicly reminded Smith how once he bounced on old Admiral B. J. Crawford's knee. He felt a surge of profound annoyance against the O.O.M., probably because he needed to just then. It made him feel much better. How could the old guy have been so *stupid*? Had he really forgotten the awful cargo of ribbing the youngster would have to carry from that moment on? Didn't he *know*? In forty years, hadn't he learned *anything* about the Navy?

"Knock off that horseplay," he snapped harshly. (He did not say "horseplay.")

Gleason's good, doggy face turned masklike. "Yessir."

"I want those chains cut."

Gleason peered forward, pursed his lips to whistle, seemed to recall something, and became masklike again. "Will do, sir." Smith came in then, saw Gleason first, said whitely,

"Listen, poochface, you pull that Sonny B—"

"*Tenshun!*" said Gleason.

"Sorry, sir," said Smith to the Captain.

"Seaman Smith," said Gleason, "we are going to cut those chains."

Smith looked puzzled, then followed Gleason's gaze out through the herculite nose. His jaw dropped, and then he nodded and said, "Aye-aye, sir."

"On the double," said the Captain, and the harshness was still in his throat, though he did not mean it to be. They tumbled out.

Captain Crane, waiting for the minisub to show itself, stared unseeing out toward the pass and the mines, and tried hard to get hold of himself. For almost two whole days now, ever since he had stormed aft to the sick bay and Alvarez, he had been shaken, overwhelmed by a sense of unreality and disbelief. His inward condition was analagous to that of a man who had for years walked a two-by-four between his house and his barn, until one day someone had pointed out to him that under the narrow timber was a thousand-foot drop. And ever after he took no casual step. Crane was built and trained to do whatever comes next; his world then appeared on both sides of him like scenery, having built itself. But ever since that talk with Alvarez, he had felt compelled to test his every word and pace, every thought and all the meanings of those who spoke to him, to be sure they applied, to be sure they were there, were real.

And these were all feelings, pressures, for which there were no terms as set down here. A man just having learned what a light-year is, and of how many light-years it is across the galaxy, and then that there are other, larger galaxies immeasurably distant across the gulfs of space; such a man, one night, might lie looking up at the stars and suddenly see them as what they are—something other than pinholes in a black cloth bowl. With his own eyes he might suddenly see that some were near and some far and the blackness between a pool of illimitible emptiness. Such a man might, at such a moment, know fear the like of which he had never imagined before, purely in the realization that he had lived all his life with his bones and his soul on the verge of so majestic an emptiness, and brushed its fringes with his hair.

It was such a void that Alvarez had opened to Captain Crane, though one of another kind; and if all the man said was true, then the fire in the sky was a small stripe to lash his back, and the end of the world not quite severe enough to punish him.

Cathy Connors was beside him. "Lee . . . Lee, I'm *frightened.*"

Crane stared into the swirling luminous deep. How strange it seemed that nothing out there looked wet.

She said, "One of the men was . . . after Sue Hiller. She got her door locked and then he tried to break it down. Someone was coming and he ran away. She wouldn't say who."

Crane's lips parted because in the void Alvarez had spread for him lay a word, and in a moment, if it could only be an untroubled and uninterrupted moment, he could lay tongue on it. It tantalized him, coming close enough for him almost to feel its shape—and he closed his lips, knowing it was gone again.

"I'm afraid, Lee. It's going to happen again. A lot."

"Maybe," Crane said distantly, to the herculite hull, "it doesn't matter after all."

"Oh," whispered Cathy Connors, and by the time the minisub appeared, she had gone as quietly as she had come.

"Mr. Morton," Crane barked, "Rig me a remote mike and hang it on the sonarphone."

"Aye-aye, sir."

He came forward, trailing wire. Crane reached back without looking and took the microphone. Morton said, "Jesus, Lee, d'you think—"

"Gleason," said the Captain, his voice crashing, "do you read me?"

"Loud and clear, sir," said a speaker on the console from the other end of the greenhouse. Morton, in mid-sentence, mid-stride, still foolishly extending the hand with which he had carried the microphone, turned suddenly and stamped back to the console.

"Belly down," said the Captain, "and crawl. I'd guess those things were tuned to something *Seaview* size, but all the same, stay as far away as you can. They could be acoustic or magnetic or contact armed and tripped, or any combination."

"Aye, sir." The jaunty-looking, humpbacked, sleek-skinned minisub, looking like somewhat less than a minnow compared with the *Seaview*, settled evenly through the brilliant water. It moved as evenly, and with as little visible effort-of-control, as a seahorse, sank sedately to within a few inches of the ocean floor, and crept up the incline of the pass like a ground vehicle. It topped the rise and went down the other side, out of sight.

Crane watched the horned skin of the lower mine, microphone tensely in hand, ready to bark a caution if he saw any evidence of jolting or swaying. He saw none. At the end of

an interminable four minutes the mine simply began to rise, and ballooned upward out of range of the floods.

"One away," said the Captain. "Mr. Morton, get a sonar fix on that drifter and lock on to it. We want to know its exact position at all times. And get another automatic finder locked on to that second one."

Morton grunted an acknowledgement. Crane got a glimpse of the minisub as it moved toward the second mine, and then it was out of sight again as it sank to attack the anchor chain as near as possible to the bottom. The minisub's powerful electric winch was tied to one arm of an oversized bolt-cutter, the other arm of which was held by a fitting in its hull. Apparently it could not have been better designed.

"Two away," said the Captain. "Slow ahead both inboard. Give Kaski 2.5 magnification on the forward screen and turn over the searchlights to Central Control. Put a man on the screen, give him the controls, and see that he's ordered to do nothing else. Get me two lookouts for up here. Ahoy the minisub!"

"Smith, on the minnie, sir."

"Scout ahead. Stay in the loom of our floods, and use your own lights as well. See that your phone stays in the on position at all times and stand by for course corrections."

"Aye, sir."

"You locked on to those drifters?"

"Yes, sir," said Morton. "They're well clear."

"As you go."

Crane turned again to the nose and stood looking out until two sailors slipped up beside him. The floor sloped sharply away ahead, and the Captain returned to the console to look at the charts. It looked like sea room at last.

"Full ahead, sir?"

"As you go!" snapped the Captain. Morton shrugged; it was insolent, but to remark on it would have seemed picayune. Instead, Crane said, poring over the chart and not looking at Morton, "Mr. Morton, could you bring yourself to lay mines and then just go off and forget about it?"

Morton looked startled; he turned quickly and looked out through the nose. "You think we'll get a reception committee?"

By way of answering, Crane gave orders: "Discontinue all sound projection systems. Establish situation Hush [the *Seaview*'s drill code for whispers, tiptoes, and the elimination of dish and tool clatter] and break out every passive listening and locating device aboard. Ahoy the minnie."

"Gleason here, sir," said the speaker.

"Situation Hush," said Crane. "Proceed as ordered, course three hundred. Do not acknowledge this. Over."

Like a shark with a pilot fish, *Seaview* and the minisub crept out of the Straits and into deep Pacific water. Crane hugged bottom until its slope led them to about 40 fathoms, then held that level, shallow enough to keep things comfortable for the minisub, deep enough to make their lights undetectible in daylight.

"Stop all," said Crane quietly after about ten minutes. As always, the difference between the almost-silent engines, and none at all, was jolting. Morton picked up the minisub in the search beams and flickered them. The sub acknowledged with its fin lights, and seemed to approach backwards—actually the result of *Seaview's* greater mass carrying the big submarine forward farther and faster than the minnie.

Morton and Crane studied the big screen, on which was the reconstructed image of sounds received by acute electronic ears. On the upper left shimmered a jagged symbol like a wandering clump of grass. Morton telegraphed its location to the minisub with the lights. "Twin screw," said the Captain. " 'Bout as big as a DE. Only one of 'em." He watched. "Course about ten degrees—right across our bows. There's sound gear," he added as the screen flashed a worm of light which disappeared, then reappeared, at two second intervals. "Condition red," he murmured into the general call, and flicked the stud which would repeat the call by light signals in each compartment. Morton informed the minisub with the search beams.

The ship passed almost directly overhead, and they began to hear the whistle and ping of its detection gear. As the sound faded they began to breathe again—and then they saw the ship turn and begin an arc.

"Got us," said Morton.

Crane thought his first critical thought of the mighty *Seaview*. "Just too damn big." Aloud he said, "Stand by the sonars. If they drop anything I want to know what it is." He moved to the segment of the console marked *Degaussing*, and pressed the stand-by button. The engine room would set up the powerful generators and high-frequency alternators which would, when activated, make the entire enormous hull of the submarine disappear from the "sight" of a magnetic-seeking torpedo. Seeing what he planned, Morton spoke up: "It could be a heat-sniffer," and added "Sir."

"It could," said Crane. "So we have a fifty-fifty chance of being right. If we're right, we're altogether right, and if we're wrong it'll only matter for a minute or so." He knew

as well as Morton that the special degaussing gear they carried would heat up the hull in a matter of minutes—Crane had once seen steam forming and bubbling up past the herculite nose, on a test—and make them a perfect target for an infrared detecting missile. At that moment he would have given all his stripes and a Swiss watch for the simple information as to what that ship up there was, so he could deduce what they might throw. For a painful second he actively missed the O.O.M., who would be sulking in his suite. Nelson had a deductive faculty that amounted to intuition, and that was the best possible substitute for information.

"She's squatting to lay," said Morton, his eyes nailed to the screen. The blip of the surface craft had ceased its arc and was cutting toward the overhead point. "And there's the egg."

Crane, too, watched with all his being. Here, now, was where the wrong move could not be corrected, even if the correction should be applied a second later. A depth charge, or "ashcan" they could ignore, purely because there was nothing they could do about it. A torpedo, on the other hand, although much more dangerous, could be fought.

The tiny spot of green light representing the attacking device fell wavering for three or four fathoms, which would mean "ashcan" but then suddenly turned into a slender caterpillar on the screen, crawling toward them and trailing a diminishing trace.

"A fish!" Crane hit the engine-room alarm and bellowed for full astern on all four engines. Morton banged all the prepared sonics and the whole row of screens lit up, picking out images, finding the minisub, the hull of the attacking ship, and most important, the torpedo itself. The *Seaview* shuddered under the flailing of her props, wavered, and began to make weigh astern. "They're seeking, all right," cried Morton, watching the curve of the torpedo's course as they backed out of its original trajectory.

Was it heat-seeking? or magnetic? For an awful split instant Crane could not decide. And it was as if he let his thumb decide for him. Seemingly without his orders, it come down hard on the *Degaussing, On* button. Instantly, as the lights dimmed under the initial surge, the scream of the alternators wailed through the ship.

"Hard left," he yelped, and the *Seaview*, like many another vessel going astern, answered almost too readily and began to swing. "Watch her head!" he cried, lest they overswing; Kaski, as if inspired, seemed to have caught O'Brien's delicate touch from the rim of his wheel, for he caught and checked

her perfectly, and she shot backwards like a crayfish with her nose dead on to the approaching torpedo, thus presenting a minimum profile to the missile's seekers.

"Fish number two!" Morton called, and immediately, "Number three!"

Crane laughed, a horrible sound in that time and place. Perhaps the sudden wavering, the long curvette, performed by the first torpedo, was not funny—but it made him laugh. "Foxed 'em!"

They watched breathless as the first torpedo cut by them a hundred yards to port, followed in a few minutes by the second, which seemed to be tracking it exactly, and probably was, since it was the only magnetically attractive object in the vicinity, the minisub being made largely of high-impact synthetics.

"Where's that third fish?"

The answer came in the form of a dull boom and a slight lurch. "What'd he do—sink himself?"

"No," said Morton, watching his screen, where the surface craft still showed intact, "more's the pity. He must've pushed a destruct button before she swam up his back." He did not say 'back.' "Hull temperature's two hundred or better, cap'n."

"Let it ride," said Crane, meaning the degaussing gear, and speaking the three syllables which were to cost him so terribly. They continued to speed astern, steering in a wide arc to bring her course out over deep water and toward her destination. The minisub, invisible except to their detectors, paddled along in their wake. The surface ship obviously could keep them in its sights, for it followed, the sound of its laboring screws creating jagged mountains and valleys of light on one of the screens.

"Fish four," Morton sang out, and Crane picked up the sonarphone. "Aboard the minnie," he said, " 'Ware torpedo dead in your wake," for the minisub was not equipped with wear detectors like the mother vessel.

They seemed suddenly to be in a sea of soda-water, for effervescent clouds pressed upward all around the herculite plates. "What's the hull temperature?"

"Two twenty three . . . four."

How much of this could she take? he thought. Nelson would know . . . Shut off the degaussers then and have the torpedo draw a bead? Even half a second without the degaussers, and any halfway decent seeking gear would locate and direct. "Hard right," he said.

The speeding sub veered and began to swing. "Check her

at South," said Crane. "*Well?*" he snapped at Morton. "Is that fish following?"

"Can't tell yet . . . five seconds more . . . oh my God."

Crane saw it as soon as Morton: the fourth torpedo was following. He should have known, he should have known . . . Nelson would have played chess with that skipper up there and won. He knew now the clue he had overlooked: the firing of torpedos one-two-three, and then that wait before the fourth launching. That wait had been, obviously—now, obviously—to re-equip the torpedo with a heat-seeking head. And by keeping on his degaussers, his bubbling hull couldn't have pulled in the torpedo more efficiently if he had a line and a winch on it. "A heat-sniffer, and I guess. . . ." He swallowed, and continued hoarsely. "I guess we've had it."

"Speak for yourself, skipper," crashed a voice from the console. Crane stared stupidly at his right hand, which still held the sonarphone mike, then at the grille, then at the screen which was locked on to the minnie. The grille laughed harshly. "You can get off my knee now, Sonny Boy."

"*Gleason!*"

"Oh, I'll jest set here, this once, daddy-o," said the exultant voice of young Smith. "As Billy Budd or somebody said, God Bless Captain Bligh or Nelson or somebody."

"Kaski," said Gleason's voice, "you can have my black shore shoes. I stole 'em from you anyhow."

Morton and the Captain stared, hypnotized, at the mini-sub's screen. They saw its blip accompanied suddenly by a streak, they saw the sub's blip turn and swoop, they saw the two approach and merge and the screen flare out in a shower of green speckles as suddenly the detector had nothing but scattering wreckage to detect. The sonarphone was dead.

The Captain reverently laid down the microphone.

"What—the—hell did they do?"

"Saw the fish, rammed it. Stop all, mister. Shut down everything." The dull thud of the explosion reached them. "Open all ballast cocks. I want that ship to look at a big dead pigboat. Situation Hush, and I'll have the hide of the man who breaks it." He flailed at the console, shutting off everything that would shut.

The lights went out, to be replaced by the ghastly dimness of the battery-powered emergency lamps. Outside, bubbles rising and sweeping away from the still-hot hull, tickled countless millions of pelagic life-forms into phosphorescence, so they looked down a pathway of boiling green fire. It quickly shortened, seemed to curve away and up, as their rearward velocity slowed and they began to sink through the

dark waters. "Let's see that ship," said Crane, his low voice resounding in that dark place even over the crash of silence. Too bright, the No. 2 screen lit up, swept across and back from the scramble of green which was a ship, finally found it and locked on. It was circling, directly overhead.

"We got fish could seek out everything they got including the stink of their armpits," said Morton. He did not say "armpits." "Lee, we got to sink 'em."

Crane turned to peer at him through the gloom. "As far as they're concerned, we're dead. We sink nobody if we're dead." He stared at the screen. "They have everything they need for a full report and a medal from Dr. Zucco. They have our hulk sinking. They have an oil slick rising." They stood quiet, thinking about the minisub's oil slick—noticeable enough, for all her small size, for she was electric- and diesel-powered, and her fuel tanks were unused and full. Sinking the giant *Seaview* would release hardly as much. "They did a good job."

"Smith and Gleason."

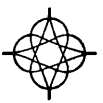
"Yeah," breathed Crane. He looked again at the screen, and returned to the previous subject: "And that could be an American ship."

"Holy God."

They sank slowly, dark in darkness, for another twenty minutes. Quite suddenly, the screen seemed in trouble, the image lost and gained again, then fading and flickering.

"Thermal layer," said the Captain at last. "Their gear won't penetrate it. Check her dive. Slow ahead all. I'm going aft."

"Aye, sir."



CRANE LAY ALONE IN HIS CABIN . . . ALONE, alone. There was a peculiar, and completely new, naturalness in all the things he had done to cut himself off from Nelson, from Cathy and Morton and even the cook. From the very beginning he had been a "new-style" commander of men, never jealous of his power, the enemy of formality, yet able to induce instant and total obedience in the pinch. His past deference to the Admiral in matters of command was not what Chip Morton implied it was, what, in Chip Morton, it

certainly would be: weakness and uncertainty. Crane had been willing to let the O.O.M. take precedence not only because he respected him, but because he himself was absolutely sure of his own worth and position. He, unlike Morton, would never find it necessary to reassure himself of his captaincy by having the enlisted men lick the soles of his shoes. He had been free, then, to associate with men as a man, to speak his piece, to react to anyone or anything without fear of jeopardizing his position.

This was no longer good enough for him; it was no longer even good. And although it might seem that he was, at long last, reverting to a more conventional awareness of self and estate, he was not. He had entered upon some new area, a strange inward universe in which the rules had been changed, the laws largely unknown, old valuation repealed and new ones not yet established. He was still unshakably sure of himself, of his own reality and purpose. As to the rest—all the rest—he could not be sure.

And there was nobody to talk to about it. Nobody, nobody at all. "Oh, God," he murmured intensely, "send me somebody who can talk about it!"

There was a knock on the door.

Crane lay absolutely still for a moment, brain, body, breath, and, for all he knew, heartbeat. Then he slowly sat up on his bunk and regarded the closed door, which immediately made more knocking sounds at him.

"All right."

The door opened and old Lucius Emery came in. "Hi Lee. Feel all right?"

"Feel like I should," grunted Crane. "Gleason, Smith, O'Brien." He shrugged. "Hodges."

"I know," said Emery. "Okay, I'll push off then."

"Why?"

"I got a gripe. This wouldn't be the best time for it."

"Sit down and get rid of it."

The old Commander sank back into the chair and swiveled it to face the Captain. "What's this for?" He held out a paper.

Crane looked at it tiredly and did not raise his hand to take it. When he had recognized it he said, "I told Cathy to post that in the mess."

"She did, about twelve seconds before I walked in here. I took it down and brought it along."

"What's the matter—don't you like the way it's worded?" He leaned forward suddenly and snatched the paper out of Emery's hand. He read it aloud. " 'To all hands: As of this

posting, the supercargo Alvarez, in or out of his quarters, is to be regarded as out-of-bounds. Signed Lee Crane and-so-forth.' What's the matter? Should I have addressed it Gentlemen and included the word Please?"

"It's only a damn fool's opinion," said Emery, "but I think you should have worded it with the eraser end of your pencil and then posted it in your hat."

Crane shrugged. "It's your opinion."

"What's the matter, Lee? He get to you, that Alvarez?"

Crane filled his lungs to blast the man out of his cabin, but Emery's acute grey gaze held him, and he let the breath out again. After a time he shrugged again and said, "I guess he did."

"What's this really for?" said Emery, taking the paper, crackling it, and tossing it behind him to the desk.

"Protection, I guess is the word for it. That Alvarez has a spooky talent for crawling under a man's skin."

"Who's protected against what?"

"I can't really answer that," said Crane candidly. "Say you have a package of—oh, call it force, and you don't really know what it is—explosive, power supply, magic, like turns frogs into fairy princes, medicine or poison: all you're damn sure of is that it's force. You have a crew of men you're responsible for. So you tell them to stay the hell away from the package."

"What's your idea of this force?"

Crane thought for a long moment about that. Then he said, "I went storming up there after Hodges knocked himself off. Hodges left a note about God's will. As far as I was concerned at the time, that was Alvarez's thumb print."

"At the time."

Crane ignored the interruption. "I roared into that sickbay demanding to know what kind of old rope and oakum he'd been jamming into Hodges. Hodges used to go see him a lot." Crane closed his eyes as if to see the scene again. "I kicked open the door and there he sat. I never saw a man sit like that. A guy by himself is reading or cutting his scrimshaw or maybe even he's stopped to think, but nobody I ever saw before just sits staring at an outboard rivet. He knew I was there, mind—it wasn't a trance or anything else, but I had to wait for him to—well, to come back from wherever he was. I *knew* I had to wait. I could've bellowed at him, or kicked his stern off the bunk and up and down the sick bay, I s'pose, and it wouldn't've hurried him up one bit. It wasn't even a question of insolence or stubbornness; hell, if a man's a half-mile off in a rowboat and I hail him to talk, I've got to wait till he rows back, and I'd be a damn fool if I put him in irons

because he didn't make it in two seconds. It was like that. I just had to wait.

"So when he—got back—he turned to me very slowly and looked at me, and then he brought up one of those long bony arms and just as slowly brought it to bear on me, and he said, 'Ecce homo.' "

" 'Ecce homo'?"

"That's what he said. 'Behold the man.' I tell you, I had my mount shot out from under me. I didn't know what to make of it. Emery," said Crane, "I can remember what he said to me, idea by idea. I can remember what it was like hearing it. But I don't know what words he used or the way he used them. If I'm going to tell you about it, I'm going to have to do the best I can, and hope you don't think I'm nuts."

"I know," said Emery, as if he really did know.

"Well, he undertook to tell me who I am." Crane suddenly tried to laugh and could not. He was sweating, and wiped his forehead. "About me, he said I was real. About everybody else, he said he doubted it. Don't talk for a minute."

Crane clutched the bridge of his nose and bent his head, trying to recapture everything about that weird interchange. Then he shook himself, like shuddering, and went on, "The idea is this. I am the center of the universe. Judging by my own subjective evidence since I was a babe in arms, the world and the cosmos have revolved around me as a center. Any evidence to the contrary is somebody else's evidence, not mine. It's been said I have a lot of what's called courage and I have some medals to prove at least that they've said it, if nothing else. And you know, I've always been amazed, getting medals or promotions or anything like that. If I'm brave it's because I know nothing can really happen to me; I'm central, the hub, the point at which everything that ever was hangs together. That's all these eyes can see of themselves; anything else I ever professed, was conceded out of courtesy and not from any real conviction. Got that?"

"Got it," said Emery.

"All right. Given that I am that, I am the world. I am humanity. Yeah, me, Lee Crane. Rank, like they say in the old Navy, rank has its privileges. The other side of the coin is that rank has its responsibilities. It has its rewards, it has its punishments. The privileges are the rewards, whether it's a promotion or some May morning I happen to enjoy a lot. The punishments are for all evil done by all mankind—and I am all mankind.

"Emery, Alvarez told me that that was who I am, and that

the firebelt, which he says is God's punishment, is my firebelt, made by me personally. It's the payoff. I am to be executed for my sins. My sins as Lee Crane and my sins as every one else, you name 'em.

"Now, what I have to tell you is that I believed him. I didn't know I was believing him while he was talking. I even argued with him. It was afterward I began to know I had believed him all along."

"I know that too," said old Emery, quite as if he knew that too.

Crane said, "It sums up to this: there is one real individual, and that's me. This 'me' includes all of humanity. All the rest of them, you and O'Brien and the O.O.M. and Cathy, they're scenery and shadows, and maybe my own nerve endings or local irritations on my nerve endings. Sure, they're born and they die, the shadows, they quarrel among themselves, but they aren't real. As long as they aren't real, whatever they do doesn't really matter very much. It can't."

He leaned forward and pointed at Emery's nose. "But look," he said harshly, "I know that's crazy talk and I know you think it is. But that doesn't matter, any more than Jimmy Smith's death or anything else. I'm still me, I'm still captain of this vessel, I'm still going to make deadline for that Polaris XII shoot, I still mean to knock out that firebelt."

"You tell that to Alvarez?"

"Sure I did! And you know what? My saying it, and even if I succeed in doing it—that doesn't matter to him. For a while there I thought I had some way to cope with this: I'd succeed with this in order to prove Alvarez wrong. But it wouldn't prove anything to him—he wouldn't care. You know why not? Because he's a shadow too. That's right. The only difference between him and the others is that he knows he's a shadow, and you and all the others think you're real." Crane fell back, as exhausted as if he had just finished carrying a heavy weight up a long hill.

Emery sat still for a long while and then asked, "Did it ever occur to you that maybe he told this same story to other people?"

"Sure it did! That's the first thing I asked him, before I knew I had been . . . believing him while he talked. I said what I'd come there to say: I demanded to know if he had filled Hodges up with this kind of crap. Because if he had, with Hodges a little tilted anyway, I can easily see how Hodges might have gone off course altogether and killed O'Brien and himself."

"What did he say to that?"

"He said no, he hadn't told Hodges anything of the kind."

"And you believed him?"

"You believe him," said Crane forcefully. "When he opens his mouth, you believe him. You believe him because he doesn't care; nothing matters; lying wouldn't help anything. You believe him."

"You believe him," nodded Emery, who had, Crane knew, believed Alvarez himself. He waited, and then asked, "Is that all?"

"That's all," said the Captain. He glanced at his desk. "Shadows or no shadows, I didn't want the crew doing what I've been doing—chasing the meanings of everything—new meanings for everything—the way I have."

"But they wouldn't, Lee. They wouldn't. He doesn't upset anyone else—I don't think he can. Don't you know why?"

"Well, why?"

"Not one of them is the man—ecce *homo*—*that* man."

"Then what the hell does he say to them?"

"Different things, different men. Some don't say anything, they just go sit where he is. Nobody makes any fuss about it. He tells them things . . . about birds, or fish—damn him, he's a marine biologist, did you know that?—surviving an expedition studying the mat of life that lives in and on the underside of polar ice. Wouldn't you think a marine biologist would have flipped his wig when he found he was aboard with the famous Lucius Emery? But no—Lucius Emery had to come to him, and he didn't give a damn about Lucius Emery any more than he does about marine biology or anything else—it's all shadow play anyhow, and about to come to a close."

"You believe him."

"I believe he believes what he says," said Emery carefully. "I believe he doesn't, or perhaps can't, lie. The things he says are one hundred per cent beyond the borders of pragmatic proof." He turned and picked up the paper, holding it as if it was something a little distasteful. "This is just not needed, Lee. We've got little enough to hold us together just now—it's hard for us all to choke down what Chip said a while back about that killer ship maybe being American—and cutting the men off from Alvarez would be only a disaster. That might not affect you much, being what you are, but it'll play hell with us shadows."

Emery had a bantering tone, but Crane was not sure what he meant by "being what you are" and hesitated to ask. "Are you telling me the crew's getting what's called 'spiritual solace' from this man?"

"That's a mighty good word for it. Nothing churchy, you

understand, but somehow . . . well, they have no books they haven't read, by now, and they have no radio or TV. Alvarez, whatever else you think of him, is a source of an *outside* something." He leaned back and grinned. "You never asked me what he told *me*."

"Go ahead," said Crane.

"Nothing that shakes the cosmos like your ecce *homo*," grinned Emery. "He just told me the thing I wanted most to know—which was where he himself heads in in this matrix. Now here's a basic physical fact that you know: a thing floats, or it sinks. It doesn't do anything between. Shoreside, most people don't know that or have never thought about it; on a sub, it's the central fact of the way we live. Float a cork in a tall vase, and start loading it with lead shot; you'll come to the place where it quits floating and sinks. Bring it up, cut that one pellet that made the difference and put half of it on. The cork will either float or it will sink. Cut the shot again and you'll get the same result. You will *never* be able to weight that cork so exactly that it hangs in the middle, hovering. Okay? Okay.

"Now in this world is a great mass of people who want to be liked and admired. Let's for the sake of argument put them in the 'float' category. And there are a number who actively want to be disliked—put them in the 'sink' category. Sometimes, by a shift of whatever would be weight in this analogue, an individual will move from one category to the other. But nobody, *nobody* at all, has ever hit the exact balance that would enable him to stay in between without outside forces, without effort, naturally and stably. Well, Alvarez has made it. He is by definition, and all by himself, a whole new category of human being because of it. He literally doesn't know, doesn't care, is not aware of the one thing that weighs most with the social animal—whether or not others like him. Maybe it's one of the things that frees him to speak the truth as much as he does." Emery chuckled. "And I got that out of him by observing his dog."

"His *dog*?"

"Did you ever in your life hear of a man who had a dog and was loved and admired by that dog, who didn't give a damn when in his presence that dog was adopted by a whole crowd of other guys? He hasn't given up that dog. Nor has he kept it. It comes in and nuzzles him, he strokes it, it goes away, he lets it go. This guy doesn't even care whether or not a dog likes him. He doesn't need it. He doesn't need visitors either, which is probably why he gets them. Guys come, soak up something—something different each man, each time—

and they go away again."

"All right," said the Captain. He took the paper, tore it across, and dropped it in the basket.

Emery rose. "Thanks, skipper," he said warmly. "You didn't have to do that. *You* don't have to do anything. But I'm glad you did."

He turned to the door. "Emery—"

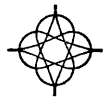
"Aye."

"What have I done to deserve . . ." Crane pointed up, through steel, through water and air, to the burning sky. Emery understood instantly.

"I don't know, Cap'n. You'll have to search that out for yourself."

He left, and that was when Crane hunted until he found the Big Brag, and remembered it, and began to believe that he was going to have to pay for it at, and with, the end of the world.

Of course, there was nothing normal about these times.



MILES AND DAYS LATER, NORTH OF TONGA-tabu and east of the Fijis, they sighted the sub-chaser. The *Seaview* was skimming the surface at the time, all four full ahead and making better time than even the O.O.M. would have bragged about, when Kaski spotted the ship on the horizon. They crash dived, but not before Morton, who was on watch at the time, ran the periscope camera up to full magnification and got a whole strip of telescopic pictures.

Running at a hundred and fifty feet, they found a copy of *Jane's*, the index of the world's naval vessels, and closely comparing silhouettes, identified the ship as a sub-chaser, a year or two old, British-built, manned at the moment by God knew whom, and equipped to the gunwales with radar, asdic, more kinds of sonar than was decent, multi-seeking torpedoes, rocket-launched, and some "turtles." These were a recent unpleasant invention incorporating a sink-or-swim device of gas release plus water intake which would keep the gadget floating at a predetermined depth for a predetermined length of time, which could be quite a long one—a necessity to allow the turtle-layer to get the hell out of there. For once

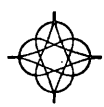
it went off, it wasn't bang or boom, it was—whatever the noise of a hydrogen bomb is.

They were on collision course with this vessel, and therefore lay doggo at three hundred feet, listening to the wheeze, clash, clack, buzz, whine, and clatter of more detection than they had believed possible. Cathy Connors, who had kept herself to herself for the past few days, wordlessly sought out the captain and stood beside him while she waited, while he and all the others waited, to be found.

The chaser sloped up to them, squawking and chattering, changing course twice to draw a finer bead. The personnel on the *Seaview*, one and all (even the dog) found themselves wordless and staring at the overhead as if they could see through it. The noise became unbearable, and when it was directly overhead, ceased so suddenly that everyone gasped and Cathy Connors screamed. There was nothing left but the grind of the chaser's propellors, and then an abrupt metallic whistle, which came in staccato bursts for perhaps ninety seconds, Fortunately for the sanity of all hands, Sparks had his wits about him, or had his training so inground in him that he didn't need wits; whichever it was, he snatched a pencil and wrote down what was undeniably Morse International. He said later that someone on the chaser must have hung a telegraph key on the tone generator of their biggest and noisiest sonor transmitter. When the signal, for such it was, ceased, all the other gear started up again, and the chaser wheezed, clashed, clacked, buzzed, whined and clattered on its way. They lay, fearful yet hopeful, while the racket died away into the wet distances, and then someone thought to look into the radio shack, where they found Sparks leaning back in his chair, his eyes streaming fit to soak his earphones off, laughing like a fool. They read the message:

CANT SEEM TO SEE A RUDDY THING JUST NOW CHEERIO YOU CHAPS

Which told them how some of the English had voted in the UN, and also how some of the English felt about it.



ON THE 25TH OF AUGUST THE AVERAGE AIR temperature was 165.4, within eight degrees of Dr. Zucco's "burnout point"—or Admiral Nelson's "burn-up point." Al-

most half a day ahead of schedule, the *Seaview* ran submerged, not only to escape detection in the event that enough armament had reached the launching point, but also to avoid the heat. A mere 165-plus, *Seaview* could handle, but the nature of some of the rays, all but unshielded now because of the thinning of the ozone layers, made for a very deep penetration; the water at fifty feet actually was warmer than at the surface, where evaporation still operated and air, even warm air, still could cool it. Fifty feet being the depth which contained most of the *Seaview* when she was theoretically at surface, made surfacing an activity more suited for the potatoes in an Irish stew than for human beings. They rigged a camera buoy and towed it to get what surface lookout it could give them, and ran as fast as they could at a hundred feet, with all eyes and all detectors straining ahead. It is certain that they saw the other atomic submarine before they were seen. They did the only thing they could do—they went down.

They went 'way down. At a hundred fathoms they had passed almost directly under the other submarine; but this time there was no lying doggo and waiting; they were too close to their destination, time was too short. They tried to run for it, and were detected.

The other sub, handled and manhandled by evidently a very determined crew, peeled off and dove at them more like an aircraft than a U-boat; it nosed down and dived under power instead of merely sinking as it ran. The *Seaview* did likewise, and rather faster. The U-boat launched two torpedoes, and *Seaview* degaussed and made them miss, luckily guessing these two right. After that there were no more torpedoes—just a headlong flight, down, and down, and down. *Seaview* tried to level off and run, but the other craft gained alarmingly, and Crane nosed her down again.

"Look!" gasped the O.O.M., who, though he stonily kept hands off, had been unable to keep himself out of the greenhouse. He pointed to the No. 2 screen, which held a magnified view of the sleek side of their pursuer. He stepped closer and laid his finger on the image of the forward torpedo tube, and again on one mounted on a swiveling turret on the aft quarter. Protruding from the mouth of each was the blunt head of a tin fish.

"Two fish, jammed in the tubes!" said Chip.

"Jammed, hell," said the Admiral. "The pressure's too great for their launchers. They just can't push 'em out. No wonder we haven't had any more."

"She's not built for this," said Crane. Uselessly, to the oncoming U-boat, he yelled suddenly, "Pull up, idiot! Pull up!"

"Ah, let 'em dive," said Chip Morton, grinning wolfishly, and then had the grin frozen to his face by the sudden, sickening disruption of the other submarine, along which formed a dent, a crease, a dozen splits as tranverse bulkheads were forced out through the collapsing hull; then there was nothing but a cloud full of spinning, broken, crushed wreckage as the craft completely imploded.

"God have mercy on their—" someone started to say, and then the concussion hit them, snatched the deck sidewise, spilled half of them off their feet. Shaken and terrified, they had no sooner climbed to their feet when a second impact shook the sub—but this one quite different; a strange, sliding lurch, a queasy motion, or cessation of motion, like the application of big hydraulic brakes while in the beginnings of a skid. "Stop all!" yelled the captain, and fell.

The engines stopped, but the motion did not; the submarine heaved and stirred as if it rested on the surface of a rubber river running over rapids.

Crane rose to his feet, clutching a wrenched shoulder, and hit the light controls. The floods and the twin searchlight banks shot out—and were stopped, soaked up, by a featureless wall not twenty yards ahead.

"Look what we almost ran into," gasped one of the lookouts.

Cathy screamed suddenly. The submarine, lying on what seemed to be a bed of soft silt, still shuddered and trembled: now it began to list to starboard. Crane set his teeth and cranked the searchlights around. The bright spot travelled up the wall ahead, up and up, forty feet, sixty, and settled on a great bowl-like protuberance that looked like . . . that *was* . . . an eye.

Then the cliff ahead began to go concave, the edge above to lean . . .

"Full astern all!" bellowed the Captain, and the submarine awoke and shivered with effort. Gouts of leathery flotsam drifted by and away from the churning propellors, great sickly masses of some whitish, gooey material.

And the *Seaview* simply stayed where she was, shuddering, while the wall with the eye in it bent close.

Suddenly a rounded something appeared on the upper quarter of the transparent nose, and slid snakelike across it. It came from the upper left, slid across the tip of the prow and vanished in the lower right. It gleamed in the floods, and in the light from inside. It kept coming and coming, an endless belt of sucker-studded horror.

Emery said, "A tentacle. Only one tentacle! If it's an octo-

pus it'll have seven more. If it's a squid it'll have nine more. It's . . . the *kraken* . . ."

Crane stared at the tentacle, still coming, sliding, still thickening. They could have no idea of the size of the thing or things, the shape—it was too overwhelmingly huge. The engines strove helplessly; the props must have been cutting cruelly into whatever held them, but that did not stop the endless sliding of the tentacle, the curving, cupping toward them of that eye-bearing cliff of slime.

"Well, Captain?"

Crane turned to old Nelson. The Admiral was holding the edge of the console for support, but all the same, riding the surging deck with the practiced balance of a windjammer man.

Well, Captain, what? Was the O.O.M. asking him for an answer? He had no answers. Did the O.O.M. have an answer? If so why didn't he come out with it?

Well, who was in command around here?

Crane suddenly grinned, and said to the Admiral, "Take over for me, will you, sir?"

The Admiral shook his head slowly, but it was not a negation: it was an expression of almost admiration of the nerve, the incredible gall of the request. "Certainly, Captain," he said courteously, and, half turning, flicked two controls.

Degaussing, Stand By and *Degaussing, On.*

If it took the engine-room by surprise, it was a surprise that did not last long. The alternators began to scream and the lights dimmed. The submarine humped, tipped, rolled back to an even keel, and shuddered there. Suddenly it was whirled around and held up into clear water; for a moment they thought they were free, but a glance showed the monstrous tentacle, fourteen feet thick, endlessly long, and no longer sliding, still clamped to the transparent herculite nose. The loom of the lights fled across a tremendous outcropping—undeniably rock, this time—a hundred yards away, and the great gaping hole that opened in it. Under them was an undulating plain of flesh, which they realized was the body of whatever horror it was that held them. The rock cliff seemed to be creeping nearer; it could be seen, then, that the monster was oozing across the ocean floor toward that black hole, trailing the part with the tentacles and the submarine.

The leading edge of the rippling, snail-like body climbed the talus at the foot of the cliff and poured upward and into the black portal. As the whole animal tipped back and up, climbing, the floodlights were directed upwards.

Someone screamed—a man this time, and no one, then or

ever, blamed him. One, three, four other huge tentacles shot over the edge of the cliff above; one, two enormous eyes.

"Another one . . ." Emery cried.

Two of the new tentacles streaked down the cliff face. One of them drove deep into a tattered, oozing wound, probably chopped by the *Seaview's* propellors. The second serpentine finger probed out and down toward the submarine.

The effervescence of steam began to appear around the herculite. They saw the suction discs flatten out, withdraw, shift and flatten again. Then abruptly the whole tentacle was gone, and they were free. The engines were still churning away full astern, and they shot backwards, just in time to see the second monster launch itself from the cliff and come down on them like a writhing cloud. It clutched them close, drew them into its embrace . . . spun it about and hurled it away, apparently not having reckoned with its stinging heat. If the average temperature of the ocean trenches is around four degrees, as has been estimated, contact with anything above the boiling point must be an experience for which any creature born to those depths is unequipped and unprepared. As the *Seaview* hurtled away backward, her screws adding to the momentum of that hysterical cast, her broad floods and sharp searchlights stroked across the awesome sight of the second monster, stung and angry, falling upon the first, which waited with hundred-foot tentacles outspread.

"Pictures!" screamed Emery in tones of total and tragic loss, "didn't we get any *pictures?*"

"Admiral," called Crane, a moment later when the submarine had levelled off, reversed its engines, and was proceeding in a long flat climb, on course.

The Old Old Man came over to the console. "Yes, Captain."

"What was the figure you gave for the operational floor?"

"Thirty-five hundred fathoms."

Crane nodded at the gauge. It showed 4800 and a bit over, and they had been rising for some time. "We must have reached 5000—*thirty thousand feet!*"

The Admiral nodded. Crane suddenly realized that in this moment, and perhaps for always, now, this old man could not be hurt. He said, "Captain Crane, I have suggested to you before that you keep your eye on the indicators which really do apply to the situation. The reading was 32,470 feet. If you want that in miles, it's just over six."

And quite as if he was a visiting newsman and not the Captain at all, Crane said earnestly, "Admiral Nelson, I do congratulate you."

Nelson looked around the great greenhouse, nodded with satisfaction, and said, "Thank you . . . Ah—may I be relieved of my command now?"

Crane flushed. "Oh, hell, Admiral—"

"Don't say anything," said the old man quickly. "I'll concede that you clipped me on the button, and I'll admit it hurt. But I have to say to you that I know it was time, past time. Immediate command is your job and it doesn't do either of us any good for me to cling to it." He punched Crane affectionately on the shoulder and walked off before Crane could answer, going aft through the ward room.

Now if that's a shadow, Crane thought, it's a big one . . .

He called to Chip Morton, "Buzz Jamieson for me."

A moment later, Morton said, "No answer from the sick bay, sir."

"I wanted a casualty report. I hope he—"

"Oh, he reported five minutes ago. Nothing so far but bruises and a dislocated finger on the cook. I guess he's scouting around for any more."

"Guess so. As you go, Mr. Morton. I'm going aft."

"Aye-aye, sir."

And there's another one, thought Crane, moving aft. Morton. He had been so used to Morton all his adult life that he had forgotten how to look at the man. Listen to that snappy aye-aye. He was getting from Crane the one thing which apparently he had always wanted—flat orders, a demand for obedience. He seemed much happier.

Crane stepped into the magazine, and smiled at the after portside launching tube. Everything was shipshape here, the advanced Polaris missile programmed and sealed, with statically charged carbon particles in the warhead. He walked over to it and slapped the hose-like power supply cable which arched up from the deck to the launch control housing. "Good ol' horse," he said and slapped it again, whereupon it came away from the box and toppled limply onto the deck.

Crane stared for one appalled moment, then flipped the four locking levers on the launch control box and threw up the lid. Inside was not the shambles he half feared he might see. It was much worse than that. It was neat as could be. The clutter of parts had been efficiently tidied up: two tubes were gone, three thermistors and a diode were gone; most importantly, the preset step relay was gone.

He slammed down the lid and sprinted for the nearest intercom, which happened to be in the sick bay. He burst in. Dr. Hiller was standing beside the desk. " 'Scuse me," he grunted, and half lifted, half shoved her aside, and dove for

the key. "Chip, hook me to the Admiral, private, quick. I'm in the sick bay."

He pounded an impatient fist against the desk top while he waited out the interminable eight seconds. He found himself looking at Susan Hiller's face, which wore that wide-eyed, dispassionate, observing look. Well, let her observe. "Admiral," he barked at the first sound from the intercom, "Crane here. Somebody's scoured out the launch control box on our prepared missile. How far are we from firing point?"

"Right on, a hundred fathoms low. What do you mean scoured?"

"I mean sabotaged. How much time until launching?"

A pause. "Forty-six minutes."

Forty-six minutes. And if the old man's calculations were right, they fired in forty-six minutes or they didn't fire at all, and if they didn't fire, the belt of flame would reach a critical state, widen, and englobe the earth.

Because you bragged on yourself, the inner Crane said snidely. *Pride goeth before a fall.* And he answered it, *I'll do what I have to do right up to the end. No sense getting mad at me. I was made like that.*

He said, "Please, Admiral—get back here. Maybe we—"

"He's on his way," said the intercom in Emery's voice.

"We've got one ace in the hole," he told Dr. Hiller, just because she was there. "The manual firing. But that has to be done from outside."

"Oh?" she said, but he had already gone. He went, not through the corridor, but at a dead run past her room and into Alvarez's, banging right through and out the second door, which he recalled facing the nearest of the four one-man escape hatches. He was only mildly aware of Alvarez rising slowly from his settee to stare at him through the door he had left open in his flight; then he was un-dogging the hatch, clawing out the suit which hung there, ripping at his buttons with his free hand. He discarded shoes, trousers and shirt, and sat down on the high sill to fight his way into the clinging fabric. Once he was in it, with the hood pushed back leaving his face free, he ran forward to the magazine. Emery and the Admiral were there. Emery showed only perplexity, Nelson was merely busy; neither showed fear. "The warhead charge hasn't been messed with, anyway," announced the Admiral as Crane pelted up to them. "Propelling charges are okay. It's just the launch impulse she won't get."

"Can't we cannibalize one of the others?" Emery demanded.

"Damn it, no: this is a XII; the others are all Tens. I

blame myself; I should've used something we had two of."

"A Ten might not do the job," Crane pointed out. "This one positively will."

Jamieson showed up: now, this man showed fear—white, wet, tight-drawn fear. "Have you seen Dr. Hiller?"

Emery nodded toward a door on the inboard bulkhead. "Down to the aquarium, I think."

Wordless, Jamieson sprang to the door and disappeared. Emery said, "Ah youth. Ah spring," dourly.

The p.a. system crackled at them, "Captain Crane. Call the greenhouse, please."

Crane swore and padded back to the sick bay. "Crane," he said into the intercom, which told him, "There's a lot of shipping hanging around up there. We're in luck one way, though—either they have no sound gear or they're not using it."

"Keep me posted," said Crane, and went back to the Admiral. He reported, and Nelson shook his head. "That is un-good. With no company, we could fire this thing from on deck. But if they see us before we launch, they'll blow us clear to the Van Allen belt."

"I'm going out, sir," said Crane. "Lu, snatch me down that manual launching trigger."

Emery, on tiptoe, got one of the heavy, small, flat devices. "Give it here," said Nelson. He looked at his wrist. "I have 15 hours 39 minutes uh . . . nine, *ten* seconds."

"I make it nine seconds," said Emery. I set it this morning."

"Close enough." Nelson palmed a knife out of his pocket, opened a screwdriver blade and worked on the trigger. One screw wound clockwork inside; another set the time. "Here you go."

Crane took the device and ran forward, followed by Emery, who took the tanks from their hook and assisted in getting them strapped on. "Don't stop to go fishin' or anything," he said with forced casualness. "You have all of nineteen minutes."

Crane nodded and pulled on the hood. Emery checked the zippers and seals, and coupled in the hose. Crane fumbled his gloved hand over the seam between faceplate and hood and found it intact. Emery held up both hands and shook them in front of the faceplate, and Crane responded with thumb and forefinger in a circle. He stepped into the closet-sized airlock, pulled the hatch shut and swung the dog-lever, then opened the seacock. The chamber filled with alarming speed. He glanced at his wrist pressure gauge as soon as his

face was submerged, and grunted. Close to 400 feet. The suit could take it and he could take it, but at such pressures a tank of air was not good for very long.

He got a grip on the outer hand-hold, and opened the hull gate. Suction snatched at him; apparently the submarine was making as much way as possible, spiralling upward. Well and good—it would be nice to get into shallower, less pressurized water, but not at the expense of being swept away.

Gingerly he moved out, found the grips, and climbed slowly to the deck, then aft, taking precarious holds, fingers and toe-tips, on a cleat here, a stanchion-socket there. The railing around the lower fillet of the conning tower was one of the greatest luxuries he had ever known. He clung to it, gasping, gave himself a moment to get his breath.

He did not get his breath. He began gasping harder. And he suddenly knew what this meant, this tightening band around the chest, this brass taste in the back of his throat. He had come out without a full tank.

He would like very, very much to know who had drained most of the air out of his tank. Or who had left this emergency suit unchecked . . . but no, not on the *Seaview.*

Let go, then, and kick for the surface.

He had something to do first, though. Already it was getting hard to think. His hand strayed to the bulk of the trigger clipped to his belt, and he remembered what it was for. He began to edge over to the missile bulges.

Which one? Which one? And then he remembered: the XII. He let go the rail and caught a stanchion fitting, lost his feet and for an awful moment streamed away from it like a pennant. Then he slowly doubled up, got a knee around the bulge, and then, with all his concentration draining to his hands, he watched his hands unclip the trigger and place it slowly and carefully on the bulge so that the t-shaped bar at the back engaged the slot on the warhead. He pressed it down, and down, and—*click!* Oh, a most satisfying click! as it latched.

He uncoiled himself clumsily then, put out a hand and leaned and let the merciless current wash his arm out and against the lower rail. He got one hand on it, two, let go with his knee, and was swept against the conning tower. He got one toe hooked into the rail and clung there, trying, then failing, to hold his head still against the rush of water.

For a long time he lay there, his head bobbing ludicrously in random eddies, and he began to dream . . . of Cathy, of the arch of fire, and shadows in the world, killing each other; of monsters like living cliffs with forests of tentacles, and

they were tearing, tearing at him . . .

With a roar the Polaris XII sprang up and away, throwing back a hammer blow of compressed air. It caught Crane and blew him off the flank of the submarine like a dustmote, sent him spinning end over end into the endless depths. Only partially aware, he went on dreaming . . . and spinning free away from life was no more unusual a dream than the others he was having, as for example the dream about Alvarez, wearing a T-shirt and navy issue shorts, fighting him and trying to get his helmet off. He fought back jovially, but knew he would lose, because nothing mattered any more: what happens to the universe when its center dies? And then the dream Alvarez got his seals parted and the zipper down and the hood pushed back, so that without a mask he couldn't see any more and the crushing salt water, too warm, was in his suit with him.

Somebody pulled down a black curtain.

Somebody hurt the gums over his front teeth, hurt them agonizingly. He opened his mouth to yell and got a hard mouthful of plastic rubber with a hole in the middle. Through the hole, and this was the most improbable part of the dream; through the hole, air came rushing, cool, sweet, wonderful air.

He opened his eyes. The warm salt water stung them, and without a mask all he could see was the vague outline of a face close to his, Alvarez all right, Alvarez doing a thing typically far out: Alvarez wearing an eye mask but no mouthpiece.

Mouthpiece. He drew at the mouthpiece, drew again, and when Alvarez tugged gently at it, he let it go. Alvarez shoved it into his own mouth, pulled mightily at it, and had it back in Crane's mouth almost before he missed it. Crane reached full consciousness abruptly, and from then on it was easier. They rose through the water that was like a warm bath, then a hot bath, taking turns at the mouthpiece, clinging together.

And at last they broke surface.

It was afternoon, and the sun was cruel. Over the sky arched the firebelt, bigger and angrier than he had yet seen it. Around them were ships, from a mile to four or five away—eight of them, a mismatched flotilla: one destroyer, a chaser, two private yachts and an oil tanker among them. They seemed to be converging on a spot four miles or so away, which was foolish: did they think for a minute that *Seaview* would hang around directly under the launching point?

Alvarez squeezed his arm and pointed. Bobbing in the

water a half-mile away was the *Seaview's* camera buoy, its 360° lens glinting in the angry light. As he watched, it began to swim toward him.

He looked at Alvarez, dog paddling in the water beside him.

"And where did you come from?"

"The hatch on the starboard side."

"Why?" Crane palmed water out of his red eyes so he could see the castaway's face better. "I thought everything was *God's will: let it ride*; with you. Since when did you start mixing in?"

"God's will is mysterious," said Alvarez, and spat salt, "but it is never stupid. To bow to God's will is not to surrender to Satan. When I see stupidity I see the hand of the Devil, and that I will fight until I am dead."

"What stupidity are you talking about?"

"First my own; not seeing to it that those tanks were full."

"You weren't responsible for that."

"Of course I was." He spoke almost without accent, except for the slightly exaggerated Spanish r. "I am the one who used it, and then never thought to replace the tanks."

"Used it when?"

Alvarez tugged at Crane's sleeve and raised it, almost ducking him. "You don't recall the yellow suit?"

Crane goggled at the yellow sleeve. "That was you saved me from the shark, there by the telephone cable?"

"Fighting the stupid. No diver goes out like that alone. Not ever. That was the first thing I ever learned about diving."

"What do you know about diving?"

"I am a frogman. That is why I was taken on that Arctic biology expedition. I collected samples under the ice."

"Why didn't you ever tell me?"

"Why didn't you ever ask me?"

The information quite staggered him: and yet he saw how easy it was for Alvarez, especially a skilled Alvarez, to slip away from the mob in the greenhouse, go back to his quarters, out again through the corridor door, into the lock and the yellow suit. He recalled the patch of light from the bows of the submarine, and its dark margins, through which a diver could move, and move back again unseen. And—why hadn't he ever told anyone? . . . then he recalled what Emery had said: this man genuinely doesn't care if anyone likes him.

There was a gurgle to their left, and the camera buoy sank. "Reeled in," said Crane. He glanced at the sky. "I

wonder how long it'll take—if it takes? Alvarez—do you think it will work?"

Alvarez tilted his head to his shoulder: a shrug. "I do not know enough about it to judge that."

"You don't think it's a stupidity, then. You haven't been fighting it."

"No, I have not."

You *believed* this man.

The periscope, then the sail broke water nearby, the brilliant flash of the signal lamps going sixty to the minute as it emerged. Crane looked over at the ships. Smoke poured from the destroyer's stacks, and one of the corvettes spat a gout of smoke from the foredeck.

"Relax," snapped Crane. "Relax altogether. They lobbed a shell, and the concussion'll hit you like—"

The shell fell short; the concussion hit them like whatever it was Crane was about to say—hard, and all over.

"Why the hell couldn't he wait," complained Crane, meaning Nelson, his surfacing before the sky could give any evidence.

"I think perhaps the Admiral would die, and kill all hands, rather than miss that," said Alvarez in his calm voice, and pointed.

Crane looked, looked at the sky. There was a dark crease along the firebelt; it grew longer like the smoke trail of a jet plane, only faster, and it wasn't white, but dark . . . and not dark either, but a lack of radiance up the spine of the arch of fire. It spread as it lengthened, making of itself a long wedge, a growing slender spearhead. And it lengthened on both ends, the narrow point—that would be the missile—and the broadening base, which went more slowly, but eating up more fire, in the opposite direction.

Crane glanced at the submarine. The hatch was open, and on its edge sat the Admiral, and his hatch was open as well: he gaped up at the sky as happily as a kid on a fence watching his first model airplane actually fly. Below him, portside and aft, the bright, white signal lamp blinked urgently. Crane knew enough code to read

LOOK UP YOU IDIOTS

over and over again. He turned and looked at the ships, especially the trigger-happy destroyer. They were all turning, pointing their bows at the submarine, building up white fans of bow wave. White, white at last, not pink-tinged any more.

"Hey, you on the pigboat!" Crane roared. "Goin' as far as

58th Street?" and he thrust up a thumb in traditional hitchhiker's style.

The Admiral shaded his eyes, bellowed down the tower, vaulted out, slid down the handrails, and sprinted over the deck like a teenager. "Come aboard, dammit. Hey did you see that? Did you ever in this world see what happened to the firebelt?" and he burst into an echoing roar of unabashed, gloating laughter, ending in a wild whoop that may well have been heard as far as Midway Island.

"Where the hell did you find *him?*" asked the Admiral, contentedly wetting his feet as he assisted the Captain aboard.

"In hell," said Crane, helping Alvarez in his turn, "and he found me. Nelse, Nelse, you're a pigheaded old rooster, which is some animal, but I congratulate you from the bottom of my bottom."

"I couldn't've done it without you, and I wish nobody had ever used that line before and this was the first time."

"I didn't really do anything. I've got a secret—nothing can happen to me. God wouldn't risk it."

Nelson whistled. "Folks get punished for that kind of talk," he kidded.

"I used to think that before I found out who I am. Hey!" he roared in greeting to the crew who were coming out of the sail hatch like hornets out of a fallen nest. They roared in answer.

They made way as the Admiral, the Captain and the castaway climbed up. "Don't stay out too long in this," said the Admiral, nodding at Crane and Alvarez. Crane touched his forehead; already it was red and tender. The crew looked up respectfully at the sun, suddenly much more authoritative now that its rival was no more.

In the control room, they parted from the Admiral, who went forward to his suite and to get into his ribbons-and-gold; judging from the traffic afloat, he was about to get one great gay gorgeous boarding party.

"You really believe it now, don't you?" Alvarez asked him quietly as they walked aft.

Crane knew just what he meant. "I'll tell you," he said confidentially, "I'm going to act as if it was true. I'll be a good man and a good commander. I'll suffer for the sins of all the shadows, and know all the time that it doesn't really matter, not to them, only to me. They're safe. I'm not. I'll be the careful one. I'll be the good one." He laughed exultantly. "What about you? All this while you've said the firebelt was God's judgment on evil."

"And so it was," said Alvarez composedly, "and so it

would have been if you had failed."

"Not a judgment then: a test."

"If you had failed? a judgment. Humanity didn't fail . . . I imagine that's all God wanted to know." Alvarez held up his strong narrow hand in salute, and stepped into the sick bay.

Crane continued aft, through the magazine. As he passed the door to the aquarium, it banged open and Dr. Jamieson sprang out. He was whitefaced, harrowed.

"Jamie! What's the—"

"It's Dr. Hiller, she—she's sick: I have to get a . . . *Don't!* Don't go down there. She—"

From the depths of the aquarium chamber, echoing round and round its curved walls and ringing against its ceiling, came a single long scream of mortal agony.

Crane shoved the jittering doctor aside and sprang down the steel ladder. He still wore his yellow wet-suit, which still wore its flippers, so that negotiating the ladder was more of a leap than a run. The water in the large main tank was swirling, and as he gained the catwalk he saw something long and white loom up in the water and sink again under a darting black shape. Without hesitation he vaulted over the rail and down into the water. The sharks, startled, shot away and turned. He bent into the water and came up with the shredded body of Susan Hiller. Even in that mad moment he could experience a profound shock at the sight of her face—eyes wide, features composed: upside down and dripping, and stained from a terrible rip in the side of the neck, the face seemed still to be just . . . watching.

"No, Lee—No—get out! Get out!" screamed the doctor.

A shark slid in and he lashed back with his left foot, catching it so hard on the snout that pain ran all the way up to his hip. He waded to the side and ungently dumped the body over the edge of the tank, got his hands on it and heaved himself up. Something caught at him and pulled; he kicked viciously and got himself seated on the edge. "Don't worry, they can't bite through this stuff," he said, and lifting his right leg to get out, saw that the flipper had been sheared right off within half an inch of his big toe.

He knelt on the steel deck outside and composed the ruined body as well as he could, and tried to cover it with what was left of her clothes.

"Now this is wrong," he said. "This is wrong, just when everything is . . ." He looked up at the doctor, who was coming around the end of the tank, with all the fingers of his left hand in his mouth and his eyes too round. Crane

stood up. "She was so damn fine."

"So damn fine," said the doctor, kneeling in his turn. He touched the wet hair. "She was so . . . beautiful. She . . . tried to kill you."

"*What?*"

Jamieson nodded miserably. "She told me. She cut one of the wet-suits when you tried to tap the cable, but you wore another suit."

"She didn't!"

"She told me," he said again, brokenly. "She got Hodges under deep hypnosis, made him kill O'Brien."

"I don't believe it. And anyway, people don't kill . . ."

"They don't kill against their principles, no, but they can be made to kill something else . . . a wax dummy or a robot or a gorilla. She just made him see O'Brien as something else. And then when Hodges knew what he had done he couldn't live with it and he took that stuff she gave him."

"Jamie! Jamie! Cut it out! She never—"

"And," said Jamieson relentlessly, "she wrecked the launcher, thinking you wouldn't find it until too late. And when she found out you still had an ace up your sleeve, she tried to blow up the *Seaview*."

"She—"

"*She told me!*" the doctor suddenly screamed at him. Shaken, Crane shut up while the doctor went on, keening over the body. "She took a ball bomb and went into the pile chamber with it."

"That wouldn't go off in air! It's an underwater bomb and has an interlock that—"

"You know that. I know that. She didn't. The one little thing she didn't know." He put out a shaking hand and gently removed something from the tattered strip of cloth that covered one breast, and handed it to the Captain. It was a lapel dosimeter, which would glow when the wearer had been exposed, turn pink as a warning of extreme danger. This one shone ruby-red.

"She was already dead, walking . . . I couldn't find her anywhere, I ran down here to look for her, I saw her slowly open the door of the pile chamber and come out. I ran and slammed the door and I—held her. I saw the dosimeter right away and the only thing I could say was, was. . . . I held her," he shouted, holding out his arms, "and said I loved her, and she said don't love me, not me, don't love me. . . . and then she told me all this."

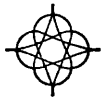
"But Jamie, Jamie—why? *Why?*"

"That Zucco, she . . . she admired and she worshipped that

Zucco, since she was a schoolgirl. She was his assistant on a project once in Austria. He could do no wrong. She would do anything for him, anything. I don't know whether or not he knew she existed even . . . well, she was that way, she didn't need that; she needed to know he was right and she could help. She was so . . . so . . . well anyway, she never knew he was wrong, after all." He looked up at Crane, weeping, not caring. "She was so beautiful. She hurt, I guess, from the radiation and the heat. I ran to get something for her . . ." he waved at the tank ". . . she didn't want to die slowly. Go away now, Crane. I'll be all right, but—go away, will you?"

"All right, Jamie."

He slap-clumped, clap-clumped away on his one-and-a-half fins.



CAPTAIN LEE CRANE, RESPLENDENT IN DRESS blues, shoved his tongue in his cheek and formally turned command of the *Seaview* over to the Admiral. The crew, and the visiting officers from the patchy little fleet which had once obeyed Dr. Zucco, all pressed and shining, stood at attention. Crane turned, and old Emery came forward with Cathy Connors, in dress whites, blushing—really blushing—on his arm.

Admiral Harriman Nelson, as commander of the ship, took the little black book and began to read: "Dearly beloved, we are gathered together . . . . ."

When it was all over, and under cover of the shouting, laughing, drinking, backslapping, he could slip a private word, he bent and kissed her ear and said, "You know who I am? I'm the center of the universe."

"Well, darling, of course you are!"

"You see?" he told the world, the sky, and Alvarez. "You see? I knew it all the time!"

And then Sparks found the United States of America, found it alive; for then Sparks flooded the great submarine with rock-and-roll music . . .

. . . and Crane looked about him with a laughing fear: Maybe I'm not, he wondered to himself: surely to God that isn't my music?

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