

ARTHUR C.  
CLARKE

*Unfortunately, Arthur C. Clarke has very little in common with a ball-point pen—a pity, since he spends so much of his time under water. Writing such memorable novels as *Childhood's End*, *Prelude to Space* and *Against the Fall of Night* might be enough in itself for an ordinary man, but for Clarke these represent only interruptions in that dominating area of his life which is spent with goggles and aqualung, competing with fish and porpoises on their own premises. Still, let us be thankful for what fate gives us; for it is unlikely that anyone without at least a trace of dolphin blood could have delighted us with——*

## *The Deep Range*



There was a killer loose on the range. A 'copper patrol, five hundred miles off Greenland, had seen the great corpse staining the sea crimson as it wallowed in the waves. Within seconds, the intricate warning system had been alerted: men were plotting circles and moving counters on the North Atlantic chart—and Don Burley was still rubbing the sleep from his eyes as he dropped silently down to the twenty-fathom line.

The pattern of green lights on the tell-tale was a glowing symbol of security. As long as that pattern was unchanged, as long as none of those emerald stars winked to red, all was well with Don and his tiny craft. Air—fuel—power—this was the triumvirate which ruled his life. If any of them failed, he would be sinking in a steel coffin down toward the pelagic ooze, as Johnnie Tyndall had done the season before last. But there was no reason why they should fail; the accidents one foresaw, Don told himself reassuringly, were never the ones that happened.

He leaned across the tiny control board and spoke into the mike. Sub 5 was still close enough to the mother ship

for radio to work, but before long he'd have to switch to the sonics.

"Setting course 255, speed 50 knots, depth 20 fathoms, full sonar coverage. . . . Estimated time to target area, 70 minutes. . . . Will report at 10-minute intervals. That is all. . . . Out."

The acknowledgment, already weakening with range, came back at once from the *Herman Melville*.

"Message received and understood. Good hunting. What about the hounds?"

Don chewed his lower lip thoughtfully. This might be a job he'd have to handle alone. He had no idea, to within fifty miles either way, where Benj and Susan were at the moment. They'd certainly follow if he signaled for them, but they couldn't maintain his speed and would soon have to drop behind. Besides, he might be heading for a pack of killers, and the last thing he wanted to do was to lead his carefully trained porpoises into trouble. That was common sense and good business. He was also very fond of Susan and Benj.

"It's too far, and I don't know what I'm running into," he replied. "If they're in the interception area when I get there, I may whistle them up."

The acknowledgment from the mother ship was barely audible, and Don switched off the set. It was time to look around.

He dimmed the cabin lights so that he could see the scanner screen more clearly, pulled the polaroid glasses down over his eyes, and peered into the depths. This was the moment when Don felt like a god, able to hold within his hands a circle of the Atlantic twenty miles across, and to see clear down to the still-unexplored deeps, three thousand fathoms below. The slowly rotating beam of inaudible sound was searching the world in which he floated, seeking out friend and foe in the eternal darkness where light could never penetrate. The pattern of soundless shrieks, too shrill even for the hearing of the bats who had invented sonar a million years before man, pulsed out into the watery night: the faint echoes came tingling back as floating, blue-green flecks on the screen.

Through long practice, Don could read their message with effortless ease. A thousand feet below, stretching out to his submerged horizon, was the scattering layer—the blanket of life that covered half the world. The sunken meadow of the sea, it rose and fell with the passage of the sun, hovering always at the edge of darkness. But the ultimate depths were no concern of his. The flocks he guarded, and the enemies who ravaged them, belonged to the upper levels of the sea.

Don flicked the switch of the depth-selector, and his sonar beam concentrated itself into the horizontal plane. The glimmering echoes from the abyss vanished, but he could see more clearly what lay around him here in the ocean's stratospheric heights. That glowing cloud two miles ahead was a school of fish; he wondered if Base knew about it, and made an entry in his log. There were some larger, isolated blips at the edge of the school—the carnivores pursuing the cattle, insuring that the endlessly turning wheel of life and death would never lose momentum. But this conflict was no affair of Don's; he was after bigger game.

Sub 5 drove on toward the west, a steel needle swifter and more deadly than any other creature that roamed the seas. The tiny cabin, lit only by the flicker of lights from the instrument board, pulsed with power as the spinning turbines thrust the water aside. Don glanced at the chart and wondered how the enemy had broken through this time. There were still many weak points, for fencing the oceans of the world had been a gigantic task. The tenuous electric fields, fanning out between generators many miles apart, could not always hold at bay the starving monsters of the deep. They were learning, too. When the fences were opened, they would sometimes slip through with the whales and wreak havoc before they were discovered.

The long-range receiver bleeped plaintively, and Don switched over to TRANSCRIBE. It wasn't practical to send speech any distance over an ultrasonic beam, and code had come back into its own. Don had never learned to read it by ear, but the ribbon of paper emerging from the slot saved him the trouble.

COPTER REPORTS SCHOOL 50-100 WHALES HEADING 95 DEGREES GRID REF X186475 Y438034 STOP. MOVING AT SPEED. STOP. MELVILLE. OUT.

Don started to set the coordinates on the plotting grid, then saw that it was no longer necessary. At the extreme edge of his screen, a flotilla of faint stars had appeared. He altered course slightly, and drove head-on toward the approaching herd.

The copter was right: they were moving fast. Don felt a mounting excitement, for this could mean that they were on the run and luring the killers toward him. At the rate at which they were traveling he would be among them in five minutes. He cut the motors and felt the backward tug of water bringing him swiftly to rest.

Don Burley, a knight in armor, sat in his tiny dim-lit room fifty feet below the bright Atlantic waves, testing his weapons for the conflict that lay ahead. In these moments of poised suspense, before action began, his racing brain often explored such fantasies. He felt a kinship with all shepherds who had guarded their flocks back to the dawn of time. He was David, among ancient Palestinian hills, alert for the mountain lions that would prey upon his father's sheep. But far nearer in time, and far closer in spirit, were the men who had marshaled the great herds of cattle on the American plains, only a few lifetimes ago. They would have understood his work, though his implements would have been magic to them. The pattern was the same; only the scale had altered. It made no fundamental difference that the beasts Don herded weighed almost a hundred tons, and browsed on the endless savannahs of the sea.

The school was now less than two miles away, and Don checked his scanner's continuous circling to concentrate on the sector ahead. The picture on the screen altered to a fan-shaped wedge as the sonar beam started to flick from side to side; now he could count every whale in the school, and even make a good estimate of its size. With a practiced eye, he began to look for stragglers.

Don could never have explained what drew him at once toward those four echoes at the southern fringe of the



school. It was true that they were a little apart from the rest, but others had fallen as far behind. There is some sixth sense that a man acquires when he has stared long enough into a sonar screen—some hunch which enables him to extract more from the moving flecks than he has any right to do. Without conscious thought, Don reached for the control which would start the turbines whirling into life. Sub 5 was just getting under way when three leaden thuds reverberated through the hull, as if someone was knocking on the front door and wanted to come in.

"Well I'm damned," said Don. "How did *you* get here?" He did not bother to switch on the TV; he'd know Benj's signal anywhere. The porpoises must have been in the neighborhood and had spotted him before he'd even switched on the hunting call. For the thousandth time, he marveled at their intelligence and loyalty. It was strange that Nature had played the same trick twice—on land with the dog, in the ocean with the porpoise. Why were these graceful sea-beasts so fond of man, to whom they owed so little? It made one feel that the human race was worth something after all, if it could inspire such unselfish devotion.

It had been known for centuries that the porpoise was at least as intelligent as the dog, and could obey quite complex verbal commands. The experiment was still in progress, but if it succeeded then the ancient partnership between shepherd and sheep-dog would have a new lease on life.

Don switched on the speakers recessed into the sub's hull and began to talk to his escorts. Most of the sounds he uttered would have been meaningless to other human ears; they were the product of long research by the animal psychologists of the World Food Administration. He gave his orders twice to make sure that they were understood, then checked with the sonar screen to see that Benj and Susan were following astern as he had told them to.

The four echoes that had attracted his attention were clearer and closer now, and the main body of the whale pack had swept past him to the east. He had no fear of a collision; the great animals, even in their panic, could

sense his presence as easily as he could detect theirs, and by similar means. Don wondered if he should switch on his beacon. They might recognize its sound pattern, and it would reassure them. But the still unknown enemy might recognize it too.

He closed for an interception, and hunched low over the screen as if to drag from it by sheer will power every scrap of information the scanner could give. There were two large echoes, some distance apart, and one was accompanied by a pair of smaller satellites. Don wondered if he was already too late. In his mind's eye, he could picture the death struggle taking place in the water less than a mile ahead. Those two fainter blips would be the enemy—either shark or grampus—worrying a whale while one of its companions stood by in helpless terror, with no weapons of defense except its mighty flukes.

Now he was almost close enough for vision. The TV camera in Sub 5's prow strained through the gloom, but at first could show nothing but the fog of plankton. Then a vast shadowy shape began to form in the center of the screen, with two smaller companions below it. Don was seeing, with the greater precision but hopelessly limited range of ordinary light, what the sonar scanners had already told him.

Almost at once he saw his mistake. The two satellites were calves, not sharks. It was the first time he had ever met a whale with twins; although multiple births were not unknown, a cow could suckle only two young at once and usually only the stronger would survive. He choked down his disappointment; this error had cost him many minutes and he must begin the search again.

Then came the frantic tattoo on the hull that meant danger. It wasn't easy to scare Benj, and Don shouted his reassurance as he swung Sub 5 round so that the camera could search the turgid waters. Automatically, he had turned toward the fourth blip on the sonar screen—the echo he had assumed, from its size, to be another adult whale. And he saw that, after all, he had come to the right place.

"Jesus!" he said softly. "I didn't know they came that

big." He'd seen larger sharks before, but they had all been harmless vegetarians. This, he could tell at a glance, was a Greenland shark, the killer of the northern seas. It was supposed to grow up to thirty feet long, but this specimen was bigger than Sub 5. It was every inch of forty feet from snout to tail, and when he spotted it, it was already turning in toward the kill. Like the coward it was, it had launched its attack at one of the calves.

Don yelled to Benj and Susan, and saw them racing ahead into his field of vision. He wondered fleetingly why porpoises had such an overwhelming hatred of sharks; then he loosed his hands from the controls as the autopilot locked on to the target. Twisting and turning as agilely as any other sea-creature of its size, Sub 5 began to close in upon the shark, leaving Don free to concentrate on his armament.

The killer had been so intent upon his prey that Benj caught him completely unawares, ramming him just behind the left eye. It must have been a painful blow: an iron-hard snout, backed by a quarter-ton of muscle moving at fifty miles an hour is something not to be laughed at even by the largest fish. The shark jerked round in an impossibly tight curve, and Don was almost jolted out of his seat as the sub snapped on to a new course. If this kept up, he'd find it hard to use his Sting. But at least the killer was too busy now to bother about his intended victims.

Benj and Susan were worrying the giant like dogs snapping at the heels of an angry bear. They were too agile to be caught in those ferocious jaws, and Don marveled at the coordination with which they worked. When either had to surface for air, the other would hold off for a minute until the attack could be resumed in strength.

There was no evidence that the shark realized that a far more dangerous adversary was closing in upon it, and that the porpoises were merely a distraction. That suited Don very nicely; the next operation was going to be difficult unless he could hold a steady course for at least fifteen seconds. At a pinch he could use the tiny rocket torps to make a kill. If he'd been alone, and faced with a pack of sharks he would certainly have done so. But it was messy,

and there was a better way. He preferred the technique of the rapier to that of the hand-grenade.

Now he was only fifty feet away, and closing rapidly. There might never be a better chance. He punched the launching stud.

From beneath the belly of the sub, something that looked like a sting-ray hurtled forward. Don had checked the speed of his own craft; there was no need to come any closer now. The tiny, arrow-shaped hydrofoil, only a couple of feet across, could move far faster than his vessel and would close the gap in seconds. As it raced forward, it spun out the thin line of the control wire, like some underwater spider laying its thread. Along that wire passed the energy that powered the Sting, and the signals that steered it to its goal. Don had completely ignored his own larger craft in the effort of guiding this underwater missile. It responded to his touch so swiftly that he felt he was controlling some sensitive high-spirited steed.

The shark saw the danger less than a second before impact. The resemblance of the Sting to an ordinary ray confused it, as the designers had intended. Before the tiny brain could realize that no ray behaved like this, the missile had struck. The steel hypodermic, rammed forward by an exploding cartridge, drove through the shark's horny skin, and the great fish erupted in a frenzy of terror. Don backed rapidly away, for a blow from that tail would rattle him around like a pea in a can and might even cause damage to the sub. There was nothing more for him to do, except to speak into the microphone and call off his hounds.

The doomed killer was trying to arch its body so that it could snap at the poisoned dart. Don had now reeled the Sting back into its hiding place, pleased that he had been able to retrieve the missile undamaged. He watched without pity as the great fish succumbed to its paralysis.

Its struggles were weakening. It was swimming aimlessly back and forth, and once Don had to sidestep smartly to avoid a collision. As it lost control of buoyancy, the dying shark drifted up to the surface. Don did not bother to follow; that could wait until he had attended to more important business.

He found the cow and her two calves less than a mile away, and inspected them carefully. They were uninjured, so there was no need to call the vet in his highly specialized two-man sub which could handle any cetological crisis from a stomach-ache to a Caesarian. Don made a note of the mother's number, stencilled just behind the flippers. The calves, as was obvious from their size, were this season's and had not yet been branded.

Don watched for a little while. They were no longer in the least alarmed, and a check on the sonar had shown that the whole school had ceased its panicky flight. He wondered how they knew what had happened; much had been learned about communication among whales, but much was still a mystery.

"I hope you appreciate what I've done for you, old lady," he muttered. Then, reflecting that fifty tons of mother love was a slightly awe-inspiring sight, he blew his tanks and surfaced.

It was calm, so he cracked the airlock and popped his head out of the tiny conning tower. The water was only inches below his chin, and from time to time a wave made a determined effort to swamp him. There was little danger of this happening, for he fitted the hatch so closely that he was quite an effective plug.

Fifty feet away, a long slate-colored mound, like an overturned boat, was rolling on the surface. Don looked at it thoughtfully and did some mental calculations. A brute this size should be valuable; with any luck there was a chance of a double bonus. In a few minutes he'd radio his report, but for the moment it was pleasant to drink the fresh Atlantic air and to feel the open sky above his head.

A gray thunderbolt shot up out of the depths and smashed back onto the surface of the water, smothering Don with spray. It was just Benj's modest way of drawing attention to himself; a moment later the porpoise had swum up to the conning tower, so that Don could reach down and tickle its head. The great, intelligent eyes stared back into his; was it pure imagination, or did an almost human sense of fun also lurk in their depths?

Susan, as usual, circled shyly at a distance until jealousy overpowered her and she butted Benj out of the way. Don distributed caresses impartially and apologized because he had nothing to give them. He undertook to make up for the omission as soon as he returned to the *Herman Melville*.

"I'll go for another swim with you, too," he promised, "as long as you behave yourselves next time." He rubbed thoughtfully at a large bruise caused by Benj's playfulness, and wondered if he was not getting a little too old for rough games like this.

"Time to go home," Don said firmly, sliding down into the cabin and slamming the hatch. He suddenly realized that he was very hungry, and had better do something about the breakfast he had missed. There were not many men on earth who had earned a better right to eat their morning meal. He had saved for humanity more tons of meat, oil and milk than could easily be estimated.

Don Burley was the happy warrior, coming home from one battle that man would always have to fight. He was holding at bay the specter of famine which had confronted all earlier ages, but which would never threaten the world again while the great plankton farms harvested their millions of tons of protein, and the whale herds obeyed their new masters. Man had come back to the sea after aeons of exile; until the oceans froze, he would never be hungry again. . . .

Don glanced at the scanner as he set his course. He smiled as he saw the two echoes keeping pace with the central splash of light that marked his vessel. "Hang around," he said. "We mammals must stick together." Then, as the autopilot took over, he lay back in his chair.

And presently Benj and Susan heard a most peculiar noise, rising and falling against the drone of the turbines. It had filtered faintly through the thick walls of Sub 5, and only the sensitive ears of the porpoises could have detected it. But intelligent beasts though they were, they could hardly be expected to understand why Don Burley was announcing, in a highly unmusical voice, that he was Heading for the Last Round-up. . . .