

DIVING ADVENTURE

Willard Price



Diving Adventure

By Willard Price

Chapter 1

Undersea City

About to descend to the sea bottom, they strapped on their gear - face mask, scuba tank, weighted belt and fins.

'Ready?' asked Dr Dick.

'Ready,' Hal said.

Ready for the great adventure. Hal Hunt and his younger brother, Roger, had made many dives in the past. But never to an underwater city. They looked over the rail of the research ship, Discovery, but could not see to the bottom. The idea that there were streets, houses, parks, factories down below seemed utterly fantastic.

'Over we go,' said Dr Dick, and they dropped from the deck into the tropical waters of the Great Barrier Reef.

They sank rapidly through shoals of brightly coloured angelfish. Deeper, the many colours merged into a rich blue. They began to see the roofs of Undersea City. They felt like aviators winging down from the sky to a busy town.

Dr Dick began to swim and signed to them to follow. He led them to a broad avenue and they slowly dropped into it, until their feet touched the ground two hundred feet below the surface of the Pacific. A sign told them that this was Main Street. They half walked, half swam, among other men who were doing the same.

All were light on their feet. In fact, it was a little difficult to stay on the sea floor. They floated rather than walked.

The weight of the lead in their belts held them down, but was nearly offset by the density of the water. The result was that the least extra pressure of a foot against the earth sent them soaring like birds.

Mischief-loving Roger could not refrain from trying out his powers of flight. With a sudden push of his foot he bounced himself upwards a dozen feet and came down like an acrobat to stand on Hal's shoulders.

Hal, surprised, unable to see straight above him because of the mask, didn't know what had struck him. It might be a dangerous fish. He reached up to push it away. His hand encountered Roger's ankle.

He closed his hand on the ankle, brought the rascal down, turned him over, and stood him on his head. Dr Dick looked on with tolerant amusement as the boy got back on his feet.

At the corner of Main and Research Streets Dr Dick stopped at a house somewhat larger than the

others. Like all the rest, it stood on stilts about seven feet high. There were no steps up to the front door - in fact, there was no front door. Dr Dick went beneath the building. Then, with a thrust of his fins, he sent himself up until his head went through a hole in the floor. He clambered up into the house. The boys followed.

There was no water in the house. The boys and their leader removed their masks and tanks.

Roger's eyes were wide open in disbelief. He stared at the hole in the floor.

'Why doesn't the water come up into the house?' he squeaked.

Hal laughed. 'You sound like Donald Duck,' he said. But so did he.

Dr Dick smiled. 'You'll have to learn to keep your voices low. The reason they are so high is that the air supplied to the houses down here is not like the air you breathe up above. There, it has a lot of oxygen and nitrogen in it. At this depth so much of those gases would be poisonous. Here you are breathing mostly helium and it's the "squeak gas" - but you'll soon learn to talk low.

'Now, you asked why doesn't the water come up into the house. It's because we keep the air pressure in the house exactly the same as the water pressure outside.'

Roger looked blank.

On a side table was a pitcher of drinking water. Dr Dick took a glass, turned it over, pressed the open end down into the water..

'You see what happens,' he said. 'No water goes up into the glass. The air in the glass keeps out the water. Every house, office, and shop in town is kept dry in the same way. So long as the air is as strong as the water, the water is kept out. There's a dressing-room yonder. You'll find towels and some dry clothes.'

The boys stripped off their gear and swimming trunks, towelled themselves dry, and dressed. They came out to find the living-room empty. Dr Dick called to them from another room. They went into what appeared to be an office. Dr Dick sat behind a large desk.

Alan Dick was a kindly man, with a twinkle in his eyes, but looked just what he was - a distinguished man of Science, Director of the Undersea Science Foundation which had built Undersea City and was in charge of its many experiments. 'Well,' he said. 'How do you like it in our new world?' 'It's amazing,' Hal said. 'A very strange world to us.

Perhaps you'd better start by briefing us on what we are supposed to do.'

Chapter 2

Treasures of the sea bottom

‘Let me tell you first,’ said Dr Dick, ‘what we are trying to accomplish here. Then I’ll tell you how you fit in. We’re here to study the best ways to use the fabulous riches of the sea.’

‘The world needs these riches. The land is not producing enough. After all, only one quarter of the world is land. All the rest is sea. We have dug out of the land a large part of the valuable metals. You don’t hear any more about a Gold Rush in California or Australia - the gold is gone.’

‘The silver mines are being exhausted. Copper mines are dying out. There is a severe shortage of magnesium. A single big aeroplane needs a ton of it. There are five million tons of magnesium in every cubic mile of sea water.’

‘Manganese is necessary to make steel. Much of the sea floor is covered with potato-shaped lumps of manganese.’

‘There’s plenty of nickel and cobalt in the sea. There are great reservoirs of oil beneath the sea floor. There are vast stores of potash, platinum, titanium, sulphur, zinc, uranium, bromine, tin, and diamonds.’

‘Why isn’t something being done about it?’ Hal asked. ‘Why aren’t the mining companies interested?’

‘They are,’ said Dr Dick. ‘Deeply interested. Many British and Russian firms and more than a thousand American companies are digging the sea bottom. They want to know how to do it better. Some of the big ones are paying us to find out. That’s the reason why our Undersea Science Foundation was formed.’

‘And now tell us what we can do to help,’ Hal said.

‘In a way,’ said Dr Dick, ‘your job is the most important of all. There’s just one thing that the world needs more than metals.’

‘And what is that?’

‘Food. Eighty per cent of all animal life is in the sea. And ninety per cent of the vegetation. And yet only one per cent of human food comes from the sea. That’s a problem for naturalists like you. How can we get more out of the sea? How can we make the sea produce the kinds of food that people like? We have something to learn from the Orientals. The Chinese have been running fish farms for centuries. The Japanese make seaweed farms - seaweed is a good food. They grow millions of oysters in their oyster beds. And the oysters produce millions of cultured pearls that bring a good price all over the world.’

‘Whales should be protected so they can breed freely. The meat and oil of one whale is worth thirty thousand dollars. The Lapps don’t go out in the wilds when they want a reindeer. They raise their own.’

We don't depend upon finding a wild sheep when we want some mutton. We have our flocks. We cultivate the earth. Why not cultivate the sea?

Hal's eyes were shining. 'Now I begin to see what you want of us.'

'Of course you do,' Dr Dick smiled. 'We've followed your career with interest. Your father is a famous collector of animals and has sent you to many parts of the world to take land animals and creatures of the sea alive for zoos and aquariums so you have had a lot of experience as a naturalist. And we need a naturalist to head up these studies.'

'But why me?' Hal asked. 'There are many naturalists much older and more experienced.' Hal wished at that moment that he was a lot more than nineteen years of age.

'You have more experience,' Dr Dick said, 'out in the wilds than a naturalist twice your age gets in the laboratory with his eye glued to a microscope. Don't be ashamed of your youth. It's just what we need - work undersea is much tougher than up yonder and takes plenty of physical strength and endurance. He looked Hal over. 'You look as if you could stand the gaff. And your brother too. How old are you, Roger?'

'Fourteen.'

'Big for your age. You look as if you could take on a gorilla single handed. You both understand the arrangement I made with your father. Besides helping us, you will be allowed to collect rare fish for his aquariums. So your career as take-'em-alive men will not be interrupted. Of course we will provide you with food and lodging. Perhaps you would like to see now where you will live. Your cottage is just round the corner on Barracuda Street. Let's go.'

Changing back into their diving gear, they dropped through the 'front door' and swam round the corner on Barracuda Street.

Chapter 3

Home beneath the sea

Entering their cottage through the hole in the floor, the boys found themselves in a comfortable living room that opened into a kitchen, bathroom, and two bedrooms.

‘How do you like it?’ Dr Dick asked.

‘It’s groovy,’ Roger exclaimed.

‘Wonderful,’ said Hal. ‘Who would ever imagine a place like this at the bottom of the sea! But we don’t need so much space. Two bedrooms - one would be enough.’

‘And one will be all you will have,’ Dr Dick said. ‘You see, there isn’t enough housing to go round, so it’s necessary for us to double up a bit. I hope you don’t object to sharing your cottage.’

‘Not at all,’ Hal said. ‘In fact, we’ll enjoy having company.’

‘I think you’ll find Mr Kaggs good company,’ said the director. ‘He’s a well-educated man of the highest moral principles.’

Hal knitted his brows. ‘What did you say his name was?’

‘Kaggs.’

Hal was trying to remember. ‘Is he - a preacher?’

‘Why yes. How did you know? The Rev. Merlin Kaggs. He’s the pastor of our church.’

‘Merlin Kaggs,’ said Hal. ‘Yes, we know him.’

‘Fine. That makes it all the better. Since you are already friends you should get along very well together.’

Hal thought bitterly, I’d rather share the cottage with a snake. But something kept him from saying it.

Roger was not so discreet. Isn’t that the guy who —’

‘Pipe down,’ said Hal sharply.

He, or Roger, could ruin Kaggs’ reputation with ten words. Kaggs was no holy man. He was a criminal with two murders to his credit. He pretended to be a missionary, went about with his hands clasped in prayer, and quoted the Bible while plotting to steal and kill. He had schemed to steal a pearl farm and because the boys stood in his way he had left them to die on a desert island.’ Yes, Hal remembered the ‘Reverend’ Merlin Kaggs only too well.

But perhaps the rascal had reformed. Dr Dick thought well of him. He was honoured in this submarine community. Hal was no tattletale. He believed in giving every man the benefit of the doubt. He must keep quiet - at least until he had had a chance to talk with the fellow and find out whether he was the thief and killer he had always been, or was now a new man.

Thinking these thoughts he stood by a Plexiglas window looking out into the strangest street he had ever seen - a street swarming with fish.

‘What made you choose this spot for your town?’ he asked Dr Dick.

The director came to the window. ‘There’s part of your answer,’ he said, nodding at the fish. ‘Sea life is more plentiful in tropical waters than anywhere else. And coral reefs attract fish. They eat the coral animals and they love to hide in the holes in the reef. The Great Barrier is the largest coral reef in the whole world - one thousand two hundred and fifty miles long - and harbours the world’s richest sea life. The sea floor is full of minerals. So it’s the ideal place for a study of oceanic resources.’

Roger was peering out of the window. ‘What’s that small building behind the cottage?’

‘That, my boy, should be of special interest to you. That’s your garage. Your car has already been parked in it.’

‘My car?’

‘Well, not exactly. Underwater, it’s better than a car. Really, a diving boat. You’re our official errand boy, you know. You will carry messages, tools, supplies from one part of the town to another. You know how to drive a car?’

‘Of course.’

‘Then you’ll have no trouble with the glass jeep.’

‘Glass? How could it be glass?’

‘Something new,’ said Dr Dick. ‘Other diving boats are made of steel - the Diving Saucer, Deep Star, Deep Diver, Midget Sub, Cachalot, Sunfish, and the rest. This is the first to be made of glass.’

‘Why glass? I should think glass would break,’

‘On the contrary, glass will resist sea pressure better than steel. The more you compress it, the stronger it becomes. Also, it has some fibreglass and plastic in it. Naturally, it’s much lighter than steel. And salt water doesn’t corrode it, so it can stay under water for weeks or years without damage. And the most wonderful thing about it is that you can see through it - ahead, behind, up, down, everywhere.’

‘Great,’ Hal said. ‘Who was smart enough to invent that?’

‘The first was built by a physicist named McLean - the same man who invented the air-to-air missile. He was Director of the Naval Ordnance Test Station. He was awarded the Rockefeller Public Service Award of ten thousand dollars for his invention. Ours is not like the original. We have improved it a lot for our

own use. But it's still glass.'

'Will it actually go deep without breaking?' Hal wanted to know.

'We think it can go to the deepest trenches of the ocean, thirty-six thousand feet down - nearly seven miles. That seems hard to believe, doesn't it? It hasn't been tested yet at such depths. Anybody who wants to take his life in his hands can go down with it that deep and see what happens. I wouldn't care to be the one. Here's a manual that tells you how to operate it.' He handed Roger a small booklet. 'And now if you will excuse me I must get back to the office.'

Roger studied the manual, then popped out to the garage to examine the glass jeep.

Hal, left alone, thought sourly about Kaggs, though happily about the work that lay ahead of him.

Roger came back full of enthusiasm. 'Greatest thing you ever saw. Want to take a spin?'

Hal was a little apprehensive. 'Sure you can manage?'

'It doesn't look too difficult. Let's try it out.'

Chapter 4

The Glass Jeep

It was the strangest garage they had ever seen. It was open to the sea and full of water. A large window in the roof let in light.

At first Hal could see no glass boat. Then he realized that he was looking straight through it. It had just enough positive buoyancy to hold it against the roof of the garage.

It was like the house - the front door was a hole in the bottom.

The glass diving boat resembled a large egg, about six feet long. The small end was the bow. There was a low seat in the rear for the two occupants. The boat looked rather like a large shiny bug because the four short jet-pipes projecting from it were like legs, and a jointed arm stretched out ahead with jaws at the end ready to bite. This was the 'grab' that could be used to seize objects, animals, or fish.

They swam up and crawled in through the hole. The inside was dry and full of air. Roger closed the hatch.

'How do you get it out of the garage?' Hal asked. 'I don't see any propeller.'

'It works by jets - something like a jet plane.' Roger was in his element. He enjoyed teaching his elder brother. 'Each of those pipes is a jet, but they spout water instead of air. So they're called hydrojets. Hydro means water.'

'Yes, I know,' said Hal impatiently. 'Get on with it.'

'The rear jets push the thing forward. The left forward jet turns the bow to the right. The right jet turns the bow to the left. You can go up by pointing both forward jets down. You go down by pointing them up. You can even back up - by turning the back jets off and pointing the front jets straight forward.'

'Yes, but how do you operate these jets?'

'Simple. See this lever? Push it up and you go up. Down, and you go down. Left, you go left, and right you go right. Over here into reverse and you go back.'

'And that button?'

That works the grab. Pull it out and the jaws open. Push in, and the jaws close.'

'Sounds pretty simple,' admitted Hal. 'I wonder if it's as simple as you think. Let's go.'

Roger started the motor. The glass jeep slid out of the garage and headed straight for the next house.

'Look out, we're going to crash.'

Roger seized the steering lever. In his excitement, he pushed it the wrong way. The boat plunged towards the downstairs window.

In a panic, he jammed the lever to the right. The jeep turned smartly right, and threatened to take on the heads of some of the men passing along the street. Roger pushed the lever up and the jeep climbed like a scared cat.

It taught Roger two things. One, be sure you know what you're doing. Two, this jeep was like something alive. It could turn on a sixpence, shoot up like a meteor, drop like a falling star.

'It beats a car forty ways,' he said.

Now they were passing over the roofs of Undersea City. All the roofs were flat - they did not need to be gabled since they never had to shed rain or snow. Both the roofs and the walls were covered by seaweed and molluscs, food for the thousands of fish. Clouds of fish parted before the bow of the glass jeep.

Columns of bubbles rose from the buildings and from the aqualungs of swimmers and pedestrians. The building marked air was evidently the point from which pressurized helium breathing gas was distributed by underground conduit.

There, with a small spire, was the church of which the rascally Rev. Merlin Kaggs was pastor. Roger could hardly resist the temptation to nip off the spire. He high-jumped over it.

The jeep skimmed over what appeared to be a power plant turning out electricity to supply the town with light and heat.

There was a building that Hal guessed might be a desalting plant to turn salt water into fresh and distribute it round the town.

There were streets of residences, green with tropical growth. The houses were set in pleasant gardens with the most fantastic and beautiful plants - and animals that looked like plants - sea fans, coral trees, sea anemones, gorgeous gorgonias, waxy little animal flowers like tulips.

The principal shopping street appeared to be Main where shops had windows but no doors. Still anchored them to the ground and the entrances were underneath. People floated up into them and came out with plastic bags of groceries and household articles.

There was a dairy that advertised whale's milk, a book store announcing 'Books on the Underworld', a restaurant, barber's shop, a shop that offered 'Deep-down Souvenirs', a hospital, a pharmacy, a bank and a shop where one could buy 'Jewels from the Sea-bed'.

A man came out of a hardware store with a piece of iron machinery as big as himself.

'Golly,' exclaimed Roger. 'That thing must weigh half a ton.'

'Up above, it would,' Hal said. 'Down here, he can carry it easily because the dense water helps hold it up.'

There was even a pet shop - but the pets were not dogs, cats, and canaries. They were dolphins, porpoises, and ornamental fish.

And there were several shops specializing in diving gear, scuba tanks patterned after Cousteau's aqualung, fins, masks, snorkels, and everything else the well-dressed underwater man would wear.

Now the scene changed. Here was a lovely underwater park with paths winding between the 'trees' of brain coral, corals like minarets, starfish, wonderful shells, giant clams and other strange and beautiful sights of the seabed.

On the edge of town was the industrial district where experiments in mining were going on. The sea floor was being explored by men with magnetometers that would detect any metals below the surface. Ore containing gold, silver, uranium, magnesium, and other buried treasure was being lifted to the ship above by electromagnets.

Roger throttled down the motor and drifted slowly over a great iron see-saw rocking back and forth like a teeter board. 'What's that?'

'A pump bringing up oil,' Hal said. 'You've seen them in the Gulf of Mexico.'

'But there they were up on platforms over the sea.'

'Yes, but that's a very poor way to bring up oil from the sea floor. It's terribly expensive to reach down so far to get at the well. Besides, it's extremely dangerous - the platform may be torn down by a typhoon or rammed by a ship. Great waves may destroy it. It's far better to get right down where the well is and escape all the things that can happen up on the surface. Watch out - there's something dead ahead.'

Roger turned the glass jeep just in time to escape crashing into a towering cliff.

'It's the reef,' exclaimed Hal, 'the Great Barrier Reef itself.'

The precipice rose as straight as the wall of a skyscraper. This was the greatest structure ever built by living creatures. It was greater than the pyramids of Egypt, greater than the Aswan Dam. It was over a thousand two hundred and fifty miles long, stretching from one end to the other of the Coral Sea, walling in the north-east coast of Australia. And this colossal structure had been built by one of the smallest of builders, the coral animal - so small that it was hard to see it without a microscope.

This part of the great Pacific had been quite properly named the Coral Sea because it afforded the finest display of coral to be found in all the world.

The coral cliff was the home of millions of fish. Some with hard-as-rock snouts battered off chunks and ate them. Countless small fish of every colour shot into caves and crevices in its surface to escape the big fish-eating fish determined to devour them. Sharks were so numerous that the boys were glad to be protected, although they felt terribly exposed with nothing between them and these predators but a plate of glass. Moray eels and octopuses made their homes in holes. A writhing sea snake coiled around one of the jets. Sea anemones, clinging to the wall, stretched out their tentacles to sting any hand that might touch them or paralyse any small fish that might come within reach. Barracuda with

open jaws rushed in to get a closer look at the boys and appeared much surprised when they banged into something they could not see.

Altogether, it was a bit terrifying. But suddenly a more friendly creature appeared. It was a dolphin and the boys knew that the dolphin is the friend and protector of man.

The dolphin had a pointed, bottle-shaped nose. In that way it differed from the porpoise which has a blunt, rounded nose. Both are like man in one respect. They must come to the surface to breathe. But unlike man, who cannot hold his breath for more than three minutes, they could stay down some thirty minutes at a time.

They were like man in another way. They were intelligent. Along with their air-breathing cousins such as whales, they were the most intelligent creatures of the sea except man - who also must be reckoned now as a creature of the sea.

The dolphin, peering into the glass jeep, seemed to be smiling. The smile might be just the natural turn-up of the corners of the mouth, but it gave the boys confidence that here was someone who would never do them harm and just might become a good and faithful companion.

If anyone could win him over, Roger could. He had a way with animals. So had Hal. But Hal was so big and powerful that animals were a little afraid of him. They seemed to feel that they had nothing to fear from his young brother.

Roger turned off the motor and drifted. He tapped on the glass.

'Hi there, Mr Bottle. Come over and say Howdy-do. You're the finest gentleman in the sea. Come and get acquainted.'

He kept on talking quietly and the dolphin seemed to be listening. 'I don't suppose he can really hear me,' Roger said.

'He can hear you.'

'I don't see any ears.'

'He has ears, but they are very small. He does most of his hearing without ears.'

'How can you hear without ears?'

'You can't,' Hal said. 'But the dolphin can. Sound makes vibrations in the air or water. Delicate nerves all the skin of the dolphin feel these vibrations. Different sounds make different kinds of vibrations, and the dolphin can tell one from another. The sound doesn't have to be strong. Scientific tests have shown that even the splash of a falling drop of water causes a dolphin to turn his head in that direction and look. He knows pretty well what is going on around him at all times.'

The dolphin was talking back. His speech was a sort of whistle and sounded friendly. It came not from his mouth, but from the blowhole in the top of his head.

'The dolphin has no vocal cords,' Hal said. 'But he has a big vocabulary just the same. They've made

tape recordings of the dolphin's whistles and they find he has thirty-two different kinds of whistle. Each one means something different. Friendliness, fear, anger, weariness, pleasure, distress, a cry for help, and so on.'

'Well,' Roger said, 'that's one way the dolphin is not like us. No human beings talk in whistles.'

'That's where you're wrong,' his brother said. 'The bushmen of Africa talk in whistles. So do certain tribes in the Amazon jungle. Some Mexican Indians use whistle language, but can't express as many different ideas and feelings with it as the dolphin can. In the Pyrenees there is a whistling speech. Canary Island shepherds on mountain peaks three miles apart talk with each other in a whistling language.'

'And the dolphin has another language - a language of clicks. It's not every human being that knows two languages. But the dolphin does. Dolphins that have been around human beings develop a third language - an imitation of the speech of the humans. In an oceanarium they get to understand what their trainer tells them to do, and they try to repeat what he says. They don't do too well with it because of the lack of vocal cords. But they understand it well enough to follow instructions. They even learn to answer in a low enough voice so that they can be heard.'

'What do you mean, low enough voice? Can't you hear a high voice?'

'Not if it's too high for our ears. Sound is measured in kilocycles. A man can't hear any sound above twenty kilocycles. A dog can hear up to forty kilocycles. A bottlenose dolphin can hear sounds above a hundred and twenty kilocycles. He can make sounds that high, but it doesn't take him long to notice that his human friend doesn't hear them. Most of his talk to his fellow dolphins is up in that range, but he learns that he must get his voice down if he wants to talk with us. He must think us pretty stupid.'

'I wish we had some fish to feed him,' Roger said. 'Then perhaps he'd stick around.'

'That would help,' said Hal. 'But it isn't really necessary. You have to feed a cat or dog if you want to keep it. But a dolphin may stay with you just because he likes humans. You've seen them gambolling along beside a ship. They're not looking for food, but just want to play and enjoy the admiration of those creatures up on deck that they seem to think are very much like them.'

'And so we are. They breathe air and so do we. They don't wear scales as the fish do, but have skins as smooth as ours. They have very highly developed brains and we think we have too. We are built more or less alike. We are mammals and so are they. We lived on land for ages and so did they. They once walked. They took to the sea again, but if you take a dolphin apart you find that what are now fins were once legs and all the joints are still there including five complete fingers. We don't know why they decided to go back to the sea, but today man also is going back to the sea - at least you and I and thousands or millions will in the future.'

'Look - a moray,' Roger said, pointing at a greenish black tail projecting from a hole in the precipice.

The dolphin saw it too and at once undertook to capture the vicious moray eel, a choice meal for a dolphin.

Mr Bottle's jaws closed on the tail, then he paddled strongly backwards, trying to dislodge the

snakelike creature from its retreat.

Roger thought Mr Bottle would win easily, for he appeared to weigh about four hundred pounds and the moray would not tip the scales at a hundred.

But the more the dolphin pulled, the tighter the eel wound itself into the rock crevice. Its muscles expanded and gripped the walls of the crack so firmly that it could not be pulled loose.

Mr Bottle had to give up and go to the surface for a breath of air. Then he came down and lay on his side, contemplating the moray, tilting his head to one side as if thinking things over.

A scorpionfish swam lazily out of the next hole. The scorpionfish is one of the most venomous inhabitants of the sea. The dolphin eyed it thoughtfully.

Then he chased it, swept down below it, and came up like a thunderbolt to plunge his hard bottlenose into the fish's belly. One blow was enough to kill the fish.

Then the dolphin seized the scorpionfish by the belly and jammed the poisoned spines into the moray's tail.

The moray relaxed like a punctured balloon and was easily pulled out of its hole. It was six feet long and six feet of good eating.

The performance gave a good idea of the almost man-like brain of the dolphin. He knew the scorpionfish had poisonous spines. He also knew he needed a tool to dislodge the eel. He didn't seize the fish by the back where the spines were but on the underside where there were no spines. He used this deadly tool to kill the moray eel.

"I can't believe my eyes," Roger said.

"You can believe them," said Hal. "Exactly the same thing happened in the fish tank of Marineland of the Pacific near Los Angeles. Spectators looking in through the glass windows on the side of the tank saw the whole act."

The glass jeep now floated lazily, without movement, near the coral cliff. The dolphin returned from his meal to rub his nose against the glass just where Roger's fingers were tapping it.

"It looks as if he'd like to get closer," Roger said. "Would it be all right to open the hatch?"

"Why not? Go ahead."

Roger dropped the hatch. Immediately the dolphin swam beneath, poked his nose up into the jeep, and whistled a friendly greeting. The jaws were open and the teeth looked sharp. Roger, a little timidly, reached down and stroked the creature's neck much as he would have petted the neck of a dog or cat. The dolphin made a series of soft clicks almost like a purr.

Chapter 5

Mr Bottle and the tiger

This happy scene was interrupted by a savage visitor. A huge tiger shark that had been swimming around idly at some distance, minding its own business, suddenly became interested in that open hatch. It came over at full speed, pushed Mr Bottle out of the way and thrust its whole head up into the jeep. Its jaws also were open, but how different they were from those of the dolphin. They were armed not with one row but with five rows of deadly teeth, the largest and most terrible being in front, the others getting smaller, the last row far back in the jaw not more than a half inch long and sharp enough to tear a man to pieces.

The shark is believed to be the only animal with five semicircles of teeth. They all tilt backwards so that once they grip their prey it cannot pull loose. The teeth are so keen-edged that they are used by primitive tribes as razors for shaving. They have been known to cut a man in two at a single bite.

The shark is believed to have been the first creature to grow teeth. Later they were adopted by the bony fishes, amphibians, reptiles, mammals, and humans. Even the great tusks of the elephant go back to the shark's invention of teeth.

The shark liked teeth so well that it was not satisfied to have them just in its mouth. It grew them all over its body. The scales of the shark are really teeth. Every scale is pointed and sharp like a tooth, made of the same material, covered by dentine, and has a central pulp canal containing a nerve.

These denticles gave the tough hides of most sharks a roughness like that of sandpaper that can scratch or tear a swimmer's flesh. In fact, before sandpaper was invented shark hide called shagreen was used by carpenters to smooth hard wood. The teeth are so large and close to each other that it is difficult to drive a harpoon into the hide. Even bullets bounce off.

But the best, or worst, of the teeth are in the mouth. Why five rows? The shark is a tremendous eater and it may use its teeth a hundred times in a day. As the front teeth wear out the row just behind moves up to the front and another row begins to form far back in the mouth. The result is that the shark always has good teeth no matter how long it may live.

'I never saw such teeth,' Roger said. 'The front ones must be four inches long.'

'Shark's teeth are the largest in the fish world,' said Hal. 'After all, they've taken a long time to evolve. Fossil shark teeth are found in rock a hundred and thirty million years old. And they are very much like those of today. So it must have been many millions of years before that when the earliest sharks began to be equipped with teeth.'

'I don't see any molars,' Roger said. 'All the teeth appear to be cutters.'

'You're right,' said Hal. 'They don't grind. They slice like a knife. The lion has terrible teeth but they can't compare with a shark's. The lion has to chew and worry at a carcass to get a mouthful - but a blue shark or tiger or mako can slide up to a victim in the sea and spoon off ten pounds without

slowing down. Its teeth go through hide and flesh and muscle as if they were soft ice cream.'

'Shark bite must hurt like the dickens.'

'Strangely enough,' Hal said, 'it may not hurt a bit. It happens so quickly and is so clean that it may not be felt

until later. The nerves don't have time to talk back. A Malay pearl diver swam up to his boat and said to his friends, "I don't know whether a shark bit me or not." They pulled him in and saw that he had been bitten in half just below the heart.'

Roger, shrinking against the side of the jeep, felt himself all over.

'Just want to make sure that I haven't been bitten in half,' he said. 'Why, that monster must have enough teeth for a dozen men.'

'Enough for twenty-two men,' Hal said. 'A tiger shark has about seven hundred and twenty teeth and a man has only thirty-two. Of course I don't need to tell you that not all sharks are the same. Some have blunt teeth and seldom use them in fighting. The thresher shark fights with its tail and its bill, not its teeth. The whale shark has no teeth - it can't bite you, but it inhales you. The basking shark is one of the biggest of all, about forty feet, but is quite harmless. It feeds on tiny things no bigger than mosquitoes.'

'I wish this thing would go away,' Roger complained. 'I'm getting tired of its company.'

The tiger had no intention of going away. Instead, it gave a strong thrust of its tail and sent itself farther up into the glass shell. Now it might be able to reach either of the boys although they had plastered themselves up as tightly as possible against the glass.

The shark twisted itself within reach of Roger. Its jaws were about to close on his shoulder when it gave a violent start and dropped out of the hole.

'What happened?' gasped Roger.

'Your dolphin came to the rescue. He rammed his hard head into the shark's tummy.'

'Would a shark feel that?'

'Not if it struck his armour plate. But his underside is soft, and the dolphin knows it. Dolphins have often killed a shark by one blow where it hurts most.'

But this shark was by no means dead even though its small enemy had struck it harder than a mule could kick.

It wheeled about and went straight for Mr Bottle. The terrific size of the creature made the boys fear for the dolphin's life. Nearly all marine animals of the Great Barrier Reef are larger than their cousins elsewhere. The tiger was a good thirty feet long. It must have weighed at least seven tons, and the four-hundred-pound dolphin looked like a toy beside it.

The shark came on with amazing speed, maintaining its reputation as the fastest of all fish. In short bursts it could do fifty miles an hour.

The shark was not only the fastest and largest of fish, but the most dangerous. In that flashing moment Hal remembered what they had been told by one of the leading-surgeons in Sydney. He had treated hundreds of cases of shark bite.

It is possible,' Dr Copleson had said, 'that sharks in some other parts of the world are harmless, but in our waters they are certainly not. Here is a collection of over a hundred reports concerning men who have been attacked by sharks. As you can see, eighty per cent of these cases were fatal. We have here in Australia five sorts of sharks that attack men: white sharks, tiger sharks, hammerheads, grey nurse sharks, and makos. As Australians, we are ashamed to have to say that Australia leads the world in shark attacks and deaths.'

The boys would never forget the tiger's eyes as they looked at that moment. They were blacker than onyx,

Powerful, calm, and cruel. No wonder that the English sea captain who in the sixteenth century had first placed one of these monsters on display in London named it from the German word Schurke meaning villain. Schurke became shark. It was still the villain of the sea.

The boys were astounded by the gape of those open jaws. Now they understood the Australian report that a great white had been cut open and the remains of a whole horse found inside. This was possible only because of the elastic muscles between the upper and lower jaws - they stretch like rubber bands so that the villain can take in food larger than its own head.

Before their eyes, they saw this happen. The cavern with its seven hundred and twenty teeth took Mr Bottle's head and shoulders before he could get out a single whistle or click and proceeded to swallow him whole.

It was more than Roger could bear. Mr Bottle had saved him, now he must save Mr Bottle. Forgetting his own danger, deaf to the shout of warning from his brother, he plunged out of the glass jeep and made straight for the villain of the sea.

He had no idea yet what he would do. He had a knife in his belt, but he had sense enough to realize that he might as well attack this monster with a tooth pick. He wished he had a spear gun - but that would probably have been useless. He had no weapons but his bare hands.

He would try the dolphin's favourite trick. He swam beneath the shark, then came up with all the speed he could muster and rammed his hard head into the villain's tummy. The flesh went in like rubber but bounced out again like rubber. The shark didn't seem to mind in the least.

How about the gills? They were supposed to be very sensitive. Roger swam to the right gill and beat upon it with all the force of his fists.

The shark did not seem to feel it. It was too fully occupied in getting down its four-hundred pound mouthful of food. This was a slow process, but very steady, and another inch of Roger's friend had now disappeared.

Roger could at least be glad that the shark had not bitten Mr Bottle in two. There was no need to bite if it could be swallowed whole. If the shark changed its mind and closed its teeth that would be the end of Roger's dolphin. He must act fast, but what could he do?

He remembered that no fish liked to have anything on its back, whether it was octopus, giant squid, conger eel or sea snake. Or man.

He swam up and came down straddling the back just behind the head.

This bothered him much more than it bothered the shark. Roger was not protected by a rubber suit but wore only swimming trunks since these tropical waters were very warm. The teeth that covered the tiger's back pierced his legs. Trickle of blood began to turn the water pink.

The tiger switched violently. It had caught the smell of blood and that made it all the more determined to get this meal down as quickly as possible.

Through the pink mist Roger saw Hal coming to the rescue. Roger wanted to win this battle all by himself. What could his brother do? Nothing more than he could.

There was one thing he had not tried. He had battered the belly and punched the gill and tried to distract the creature by straddling its back.

But those great black eyes. They were more tender than stomach, gills or back. Roger leaned forward and sank his thumbs into the two black pools.

The shark took notice of him for the first time. It thrashed about violently, churning up the water and frightening away the reef fish. It took to swimming around in a circle, its tail beating violently while the tortured dolphin's tail beat as violently in front. Here was something new in natural history - a monster with a tail at each end.

Roger was nearly unhorsed by the frenzied creature's leaps and surges. He must not lose his grip and fall off. He pressed his bare legs more tightly against the cruel teeth, regardless of the pain, and dug his thumbs deeper into the eyes. His mount was now circling at such speed that Hal was left hopelessly behind.

Roger could see that his strategy was having some effect. The shark was loosening its hold on the dolphin. Roger had spoiled its appetite. Now it could only think of escaping those cruel thumbs.

Mr Bottle evidently thought that at last there was some hope of escape, and wriggled vigorously. The teeth no longer held him, but still he could not pull loose. The muscles of the great fish's throat held him fast. How could Roger help free him from those great rubbery pincers that gripped his head?

The boy decided it was time for the last act. He leaned forward with the idea of helping the dolphin prise himself loose, but could not reach him. He saw that he did not need to put his thumbs back in the shark's eyes; the pain he had already inflicted was enough. Enough to make the shark forget its meal, but not enough to rescue the dolphin.

If he could only get hold of the dolphin's tail and pull him free. Suddenly it occurred to him - there was a way to do that.

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