

photo: Ray Fisher

Jerry Greenberg relaxes at home between assignments.



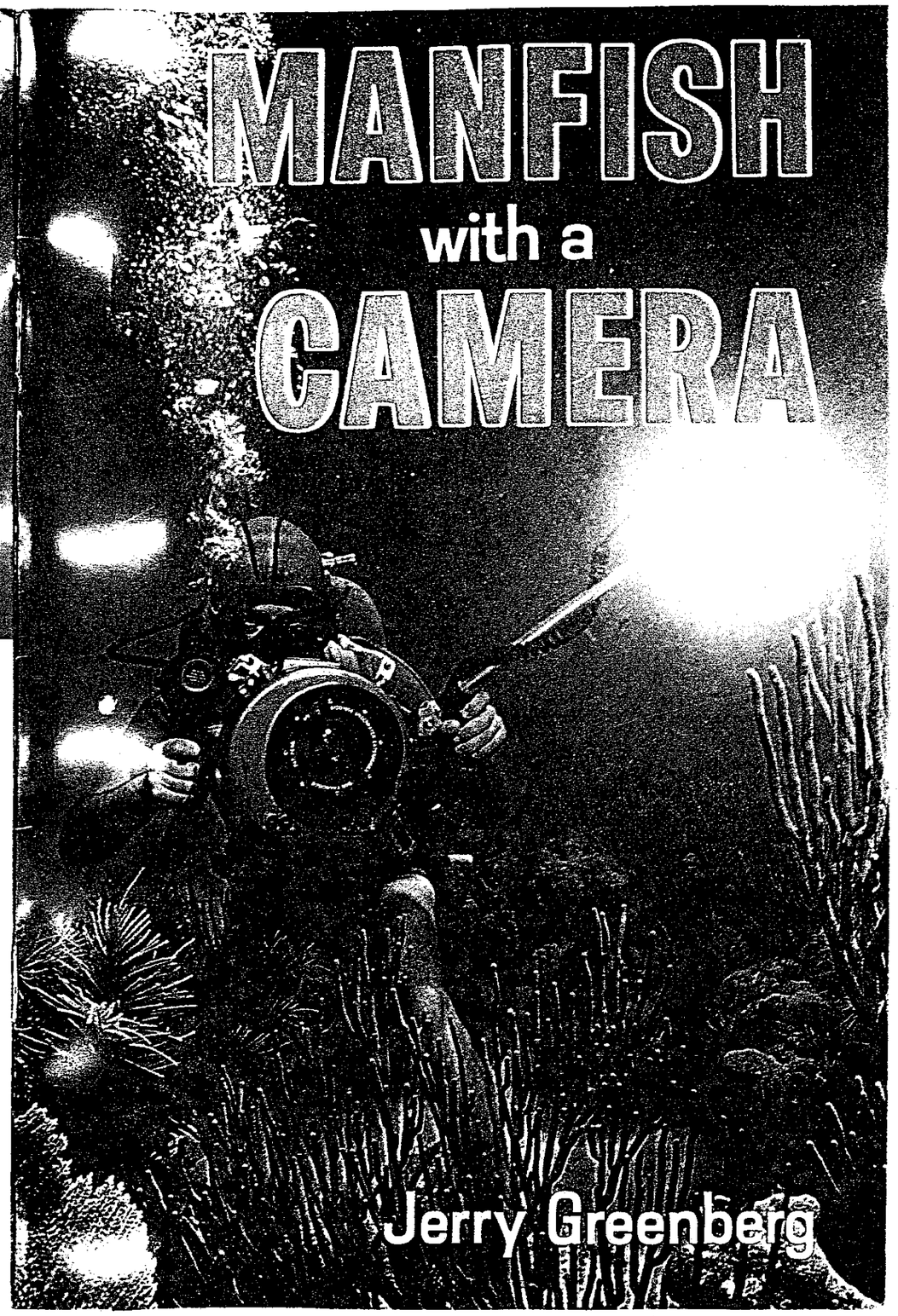
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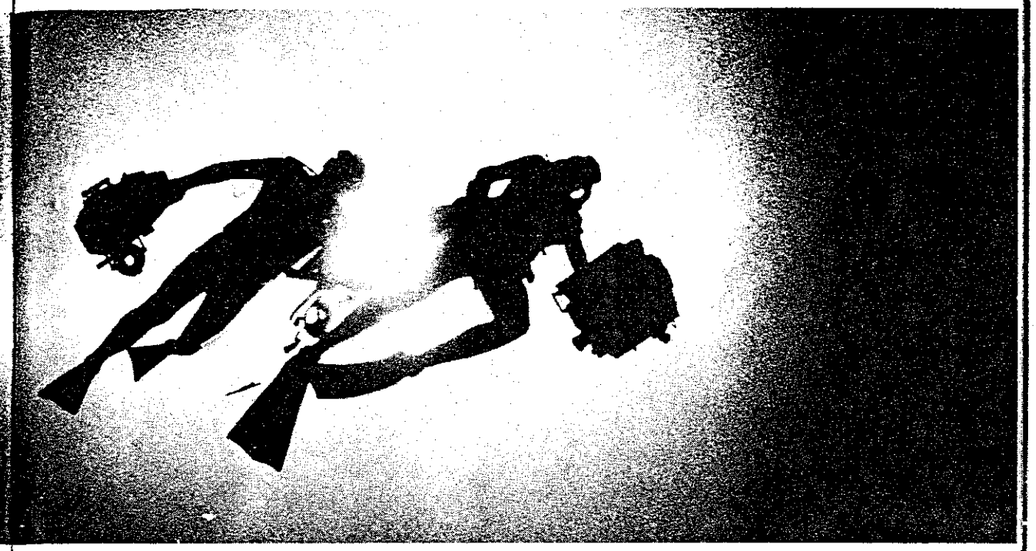
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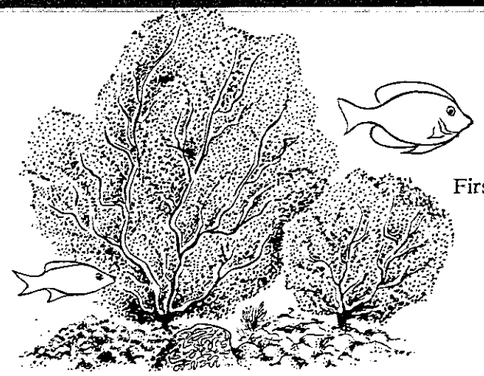
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with a
CAMERA
by Jerry Greenberg





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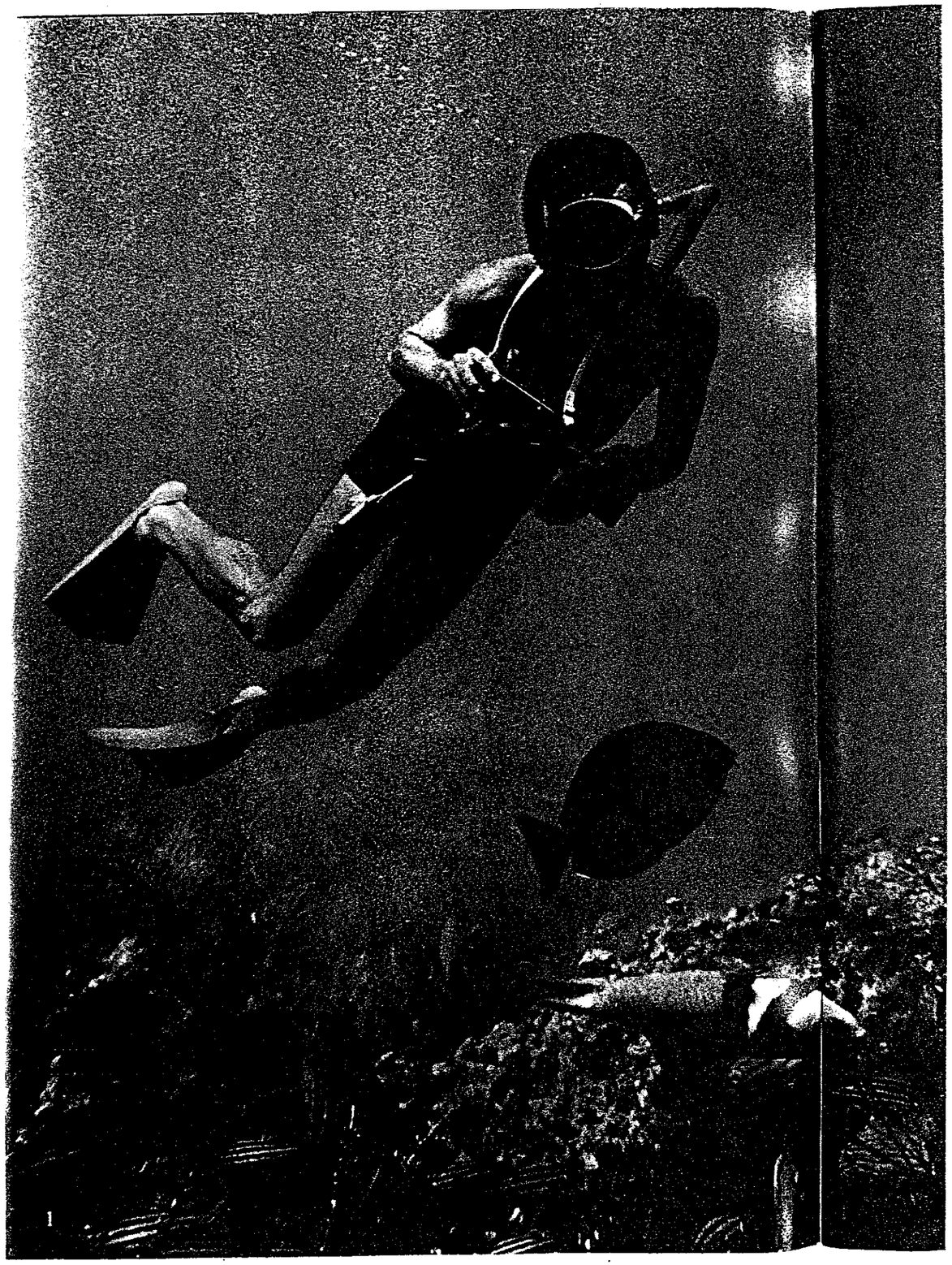
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Foreword

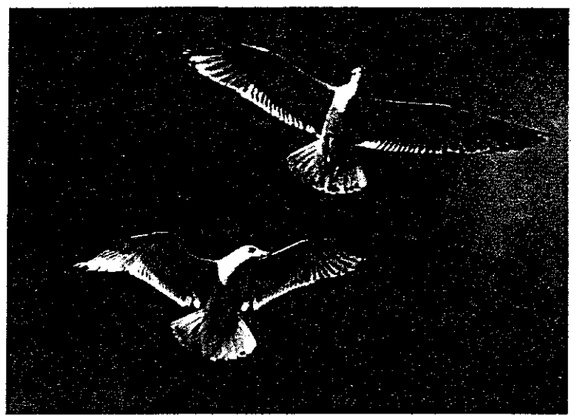
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It really isn't that simple. Recently I gave a talk at a photo-journalism conference covering my many years of experience behind a camera. I realized then that my early interest in this field was more than just the marriage of spearfishing and photography.

My fascination with the sea began long before I ever put on a mask and fins or looked into the lens of a camera. As a boy in Chicago I haunted the reef exhibit at the Field Museum and the fish tanks at the Shedd Aquarium. I saved every National Geographic Magazine article on marine life I could wheedle out of my dentist.

Jules Verne's classic story, "20,000 Leagues Under the Sea" was a great inspiration to me. I must have read it through countless times in my youth and now find myself reading this fabulous adventure to my three children. Other memorable reading by authors such as Dr. William Beebe, Zane Grey, Guy Gilpatrick and J. E. Williamson held me in rapt attention.

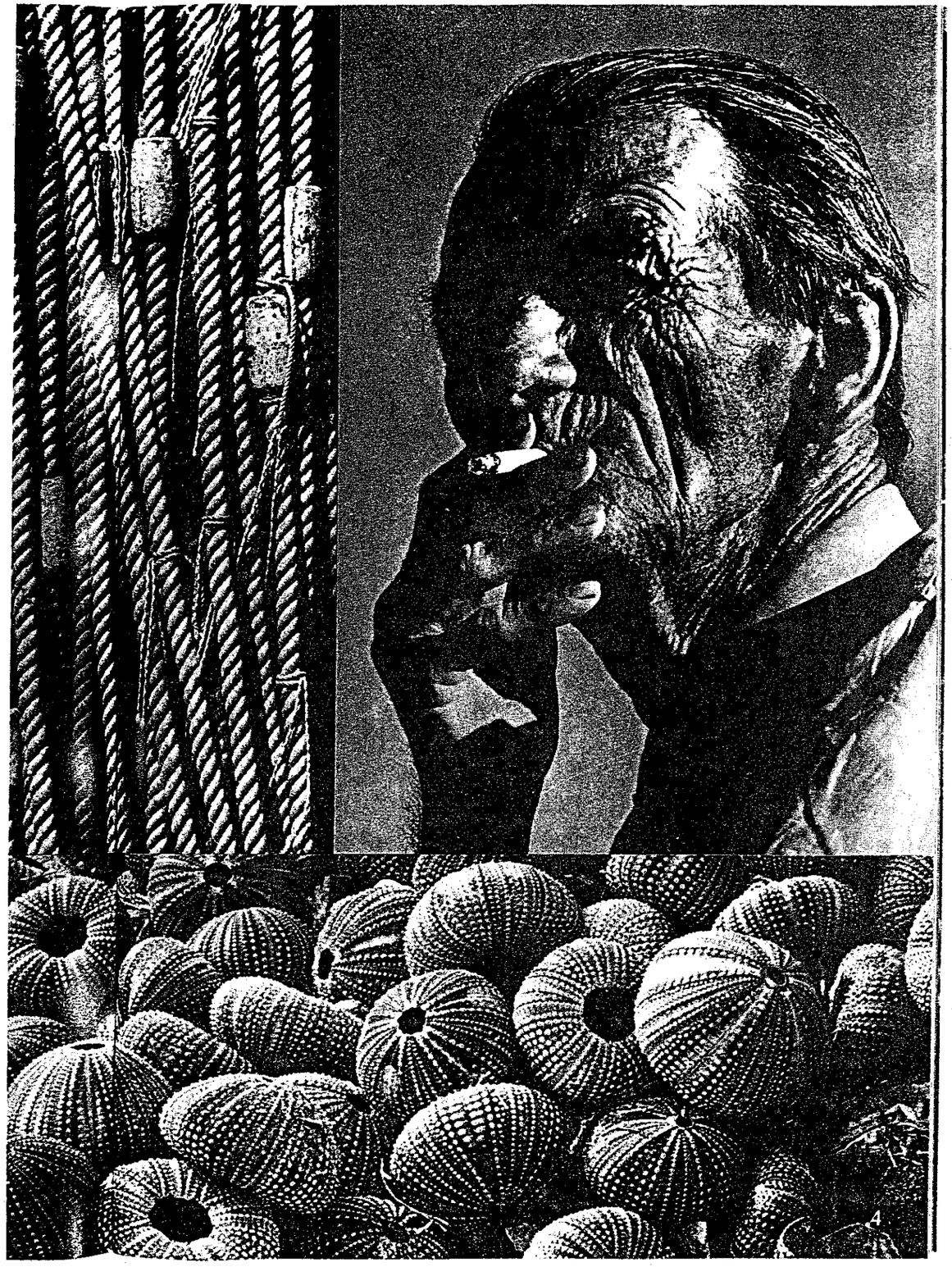
With no hope of joining their esteemed company, I submit the following record of my first 20 years as an underwater photographer.



Beachcombing with a camera

After a stint in the army, it was time to select a college. I heard that the University of Miami had a special course in Marine Biology and headed for Coral Gables, Florida. My suitcases bulged with a recently purchased Leica camera, a vintage Rolleiflex, developing equipment and a copy of Breder's "Marine Fishes of the Atlantic Coast." I enrolled and was fortunate to land a job as student assistant to Dr. Luis Rivas, a zoologist studying *Gambusia*, a minnow.

My real love was beachcombing with a camera. There was raw beauty in the rows of sun-bleached nets and floats spread out to dry, the fragile porcelain-like sea urchin shells that lined the beaches and the rotting dismasted hulls of old ships. I listened to sea yarns told by leather-faced fishermen and decided in what direction I wanted my life to go.





Paul Dammann and Jack Drimba with an 800-pound catch of jewfish speared at Lower Matecumbe Key.



Horsing up a struggling jewfish is back-breaking work.

Spearfishing with the dead-end kids

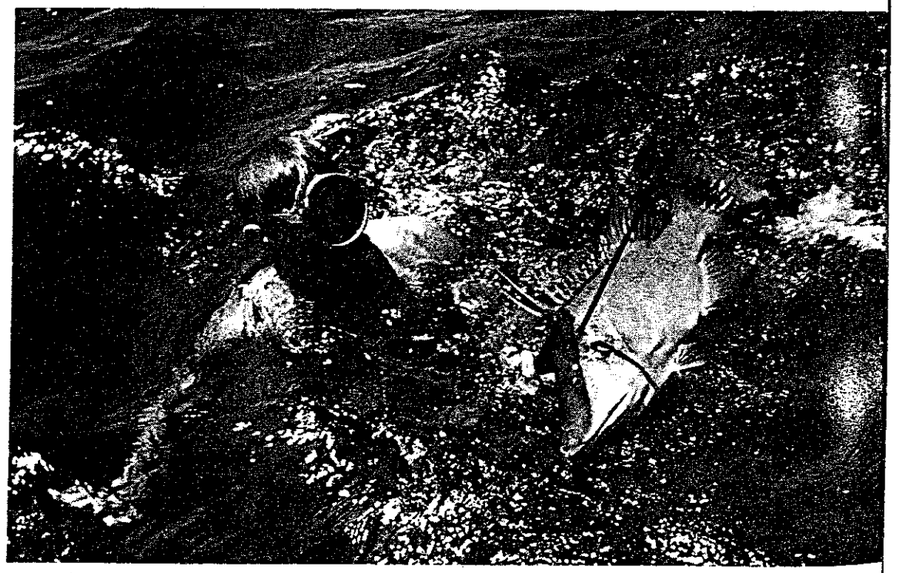
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An average day's catch of grouper, gutted and ready for market.



Mean-tempered green moray eel slowed down a lobstering jaunt and the boys had to kill it.



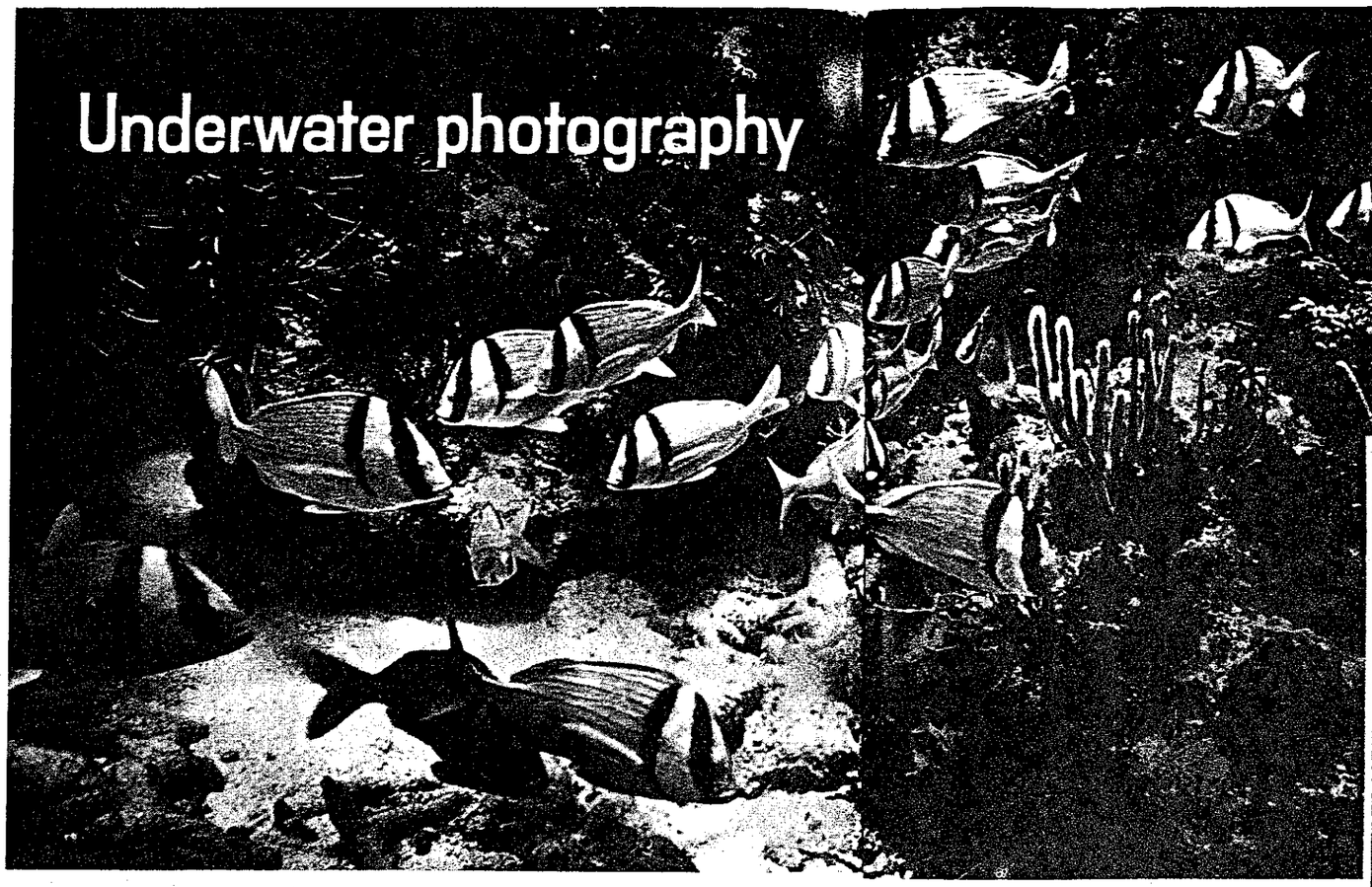
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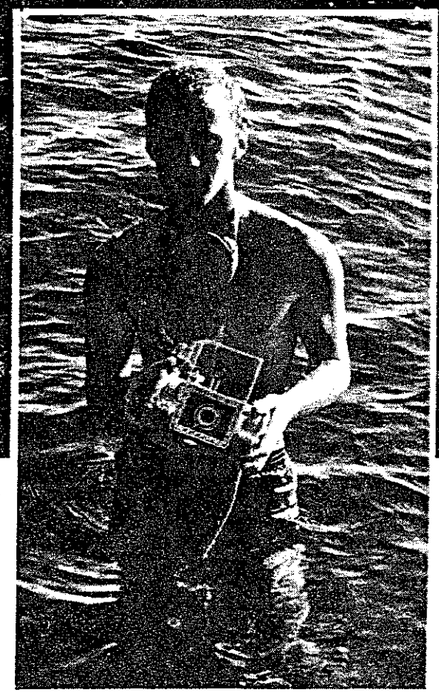
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It wouldn't take long to fill the boat with fish. Many times one more big fish would surely have swamped us. The catch averaged about 400 lbs., but some days ran 800 to 1,000 lbs. Grouper and snapper brought in 15c to 20c lb.

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Underwater photography





School of porkfish swim past my lens in one of my first underwater shots.

1951. This bronze housing held my old Leica camera and weighed eleven lbs.

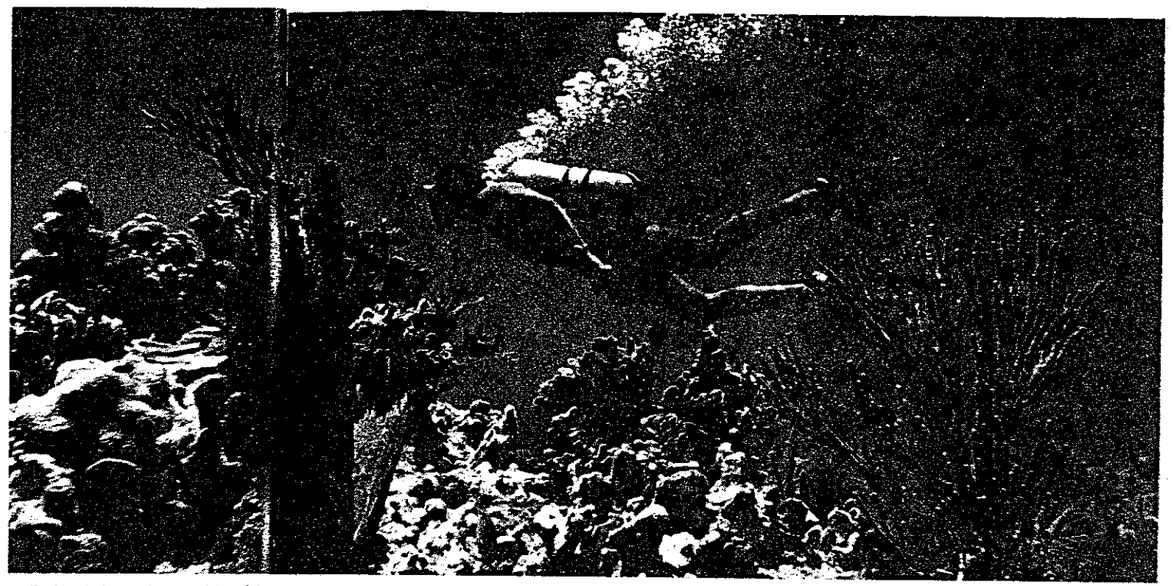
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Rather than jeopardize my Leica equipment, I purchased a Robot Luftwaffe model camera, which had a useful 50 exposure spring motor. A special lucite housing was made for it, but the results of preliminary work in Biscayne Bay were not encouraging. The one inch square negative had poor quality and my case proved undependable in more than 20 feet of water. Finally, I found the answer to my problem in the 11th edition of the Leica Manual. It contained an article by Peter Stackpole, a Life Magazine staffer. He described a metal housing made for his Leica in California. I sent my check for $160 and received the chrome-plated bronze housing some months later. It weighed 11 lbs. and took my old Standard Leica. I used it with a 28 mm. Hektor lens which was the widest angle lens available for the Leica. Its fast F 6.3 aperture was considered the optical miracle of the time. This housing, camera and wide angle lens opened up new vistas of underwater photography. Taking pictures with this 11 lb. millstone around my neck before I had an Aqua-lung wasn't easy, but I got some good photos on my lung-busting trips to the bottom.



The stingray, a study in graceful movement.

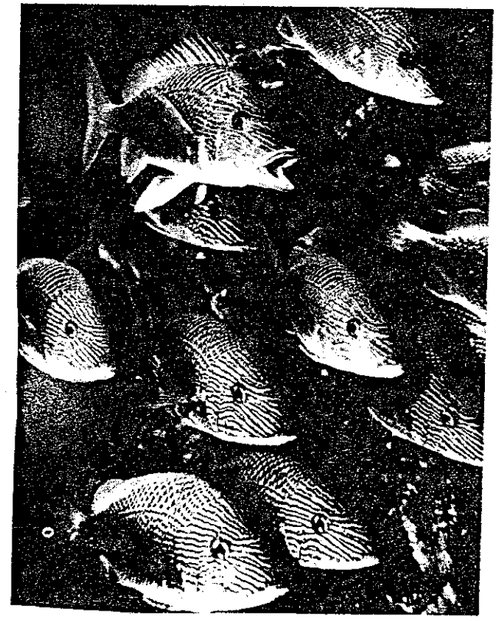
Roaming the reefs



Colorful Molasses Reef is host to an incredible variety of soft and hard coral, and a myriad of vivid-hued tropical fish.

The latter half of the 1950's was the most productive time of my photo-diving career. During that period I manufactured Seahawk camera housings, published "Underwater Photography Simplified," experimented with flash bulbs and a submersible electronic flash, and took my first color pictures.

My favorite spot was the Molasses Light area, where I spent many a happy hour roaming the reefs. My first attempts with color on this reef were quite striking. Part of this easy success was having the right tools to work with. My equipment consisted of several Leicas in Seahawk housings and a Rolleiflex in a Rolleimarin housing. Both cameras had flash attachments for distance shots of 7 - 10 feet. I had my Rolleimarin altered so that I could use 35 mm. film in my camera with a Rolleikin attachment. This enabled me to focus and compose on ground glass utilizing the longer than normal 75 mm. lens on a 35 mm. format, which created a moderate telephoto effect. The Rolleikin also afforded me 36 exposures for each loading, saving inestimable time surfacing and reloading. I used Anscochrome, which was the fastest color film then available. About this time I got my first big magazine assignment, the Pennekamp Park story.



School of white grunts strike a pose.

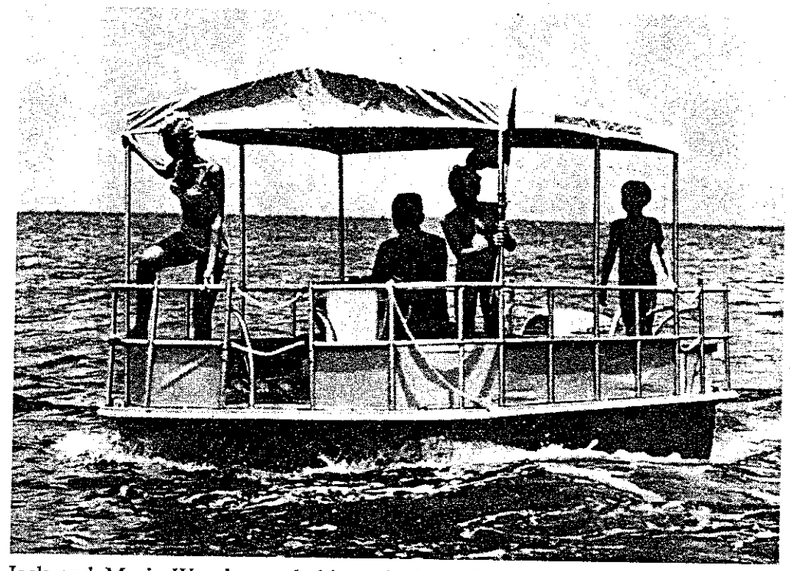


Surgeon, or doctorfish, eyes me.

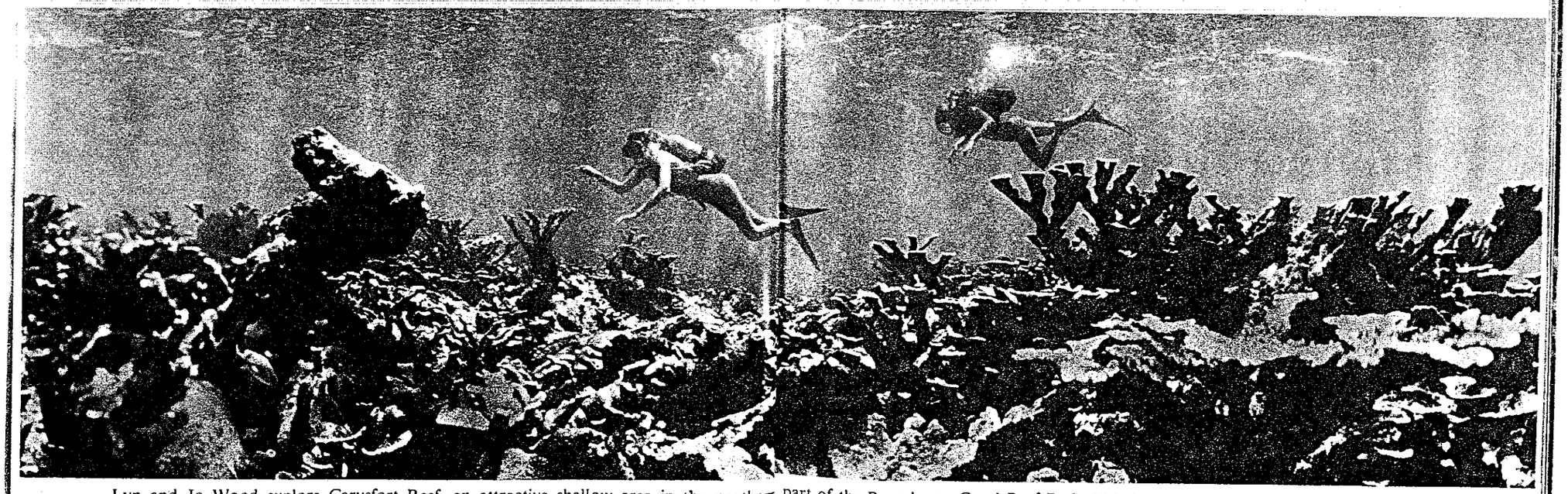
Park in the sea

My main ambition after four years in college was to be a staff photographer for the National Geographic Magazine. Some friends with connections inquired on my behalf. The only openings at that time were for work in the darkroom or cleaning the executive washrooms. Not wanting to start at the top through the influence of friends, I decided to continue my free-lancing.

Ten years later I had my first photo essay and cover in the January 1962 issue of the Geographic Magazine. The subject was the John Pennekamp Coral Reef State Park, a 75 square mile area off Key Largo, Florida. I like to think I got the assignment because I was the best man for it. The real reason was probably that the magazine's underwater expert was in Africa photographing Hottentots, and I happened to be in the right place at the right time.



Jack and Marie Wood rented this patio boat for their first visit to the park.



Lyn and Jo Wood explore Carysfort Reef, an attractive shallow area in the northern part of the Pennekamp Coral Reef Park. This is an excellent area for the novice diver.



There were many exciting moments during the month and a half I spent on this park assignment. Once, in the soft light of late afternoon, I got a stunning shot of a diver swimming into a school of silvery spadefish. I took a series of overlapping pictures of Carysfort Reef with my Rollei. When spliced together, this became the world's first underwater panorama of a coral reef. By the time coverage was fairly complete, Hurricane Donna whipped through the Keys causing tremendous damage both above and below the water.

Although the assignment was officially over, I felt something was still missing. I decided to go out on my own and photograph the reef sharks. I got the most exciting shot in this series when a ten foot lemon shark rushed in and snatched a snapper so close to me I could touch it with my fins. This supplied the missing excitement I needed for my story.



N.G.S. © 1962

On this first Geographic assignment, I used a Leica in Seahawk housing and electronic flash.



photo: Ray Fisher

Jerry Greenberg relaxes at home between assignments.



photo: Ed Brady

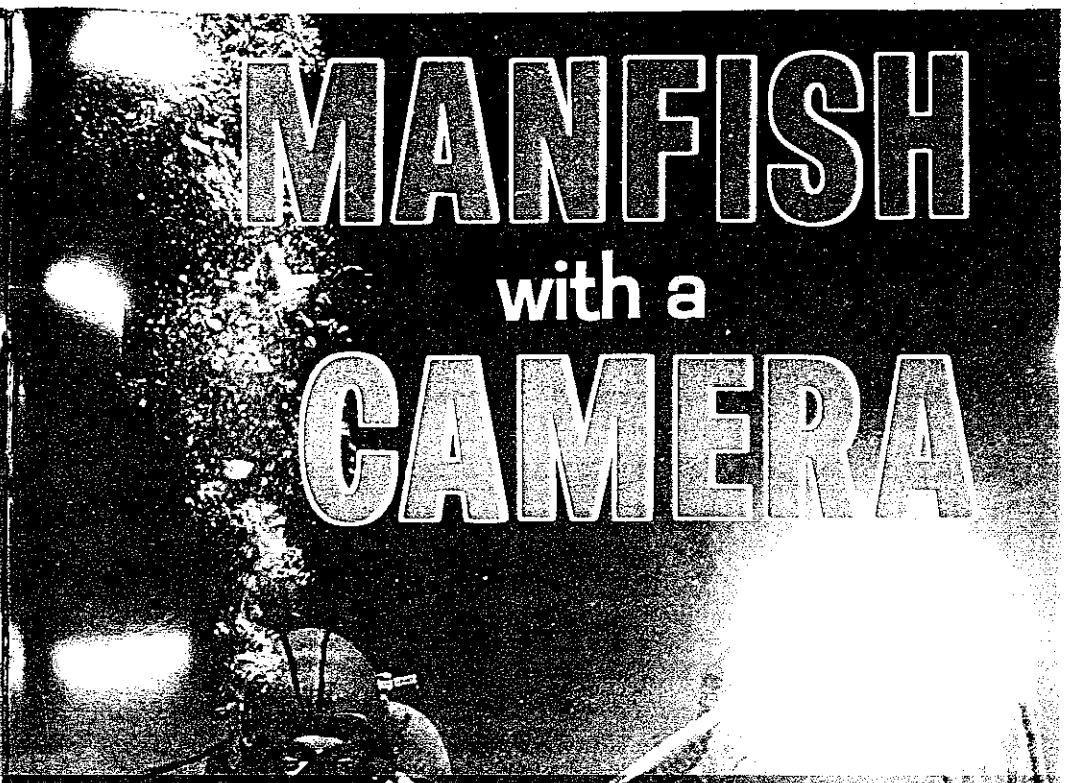
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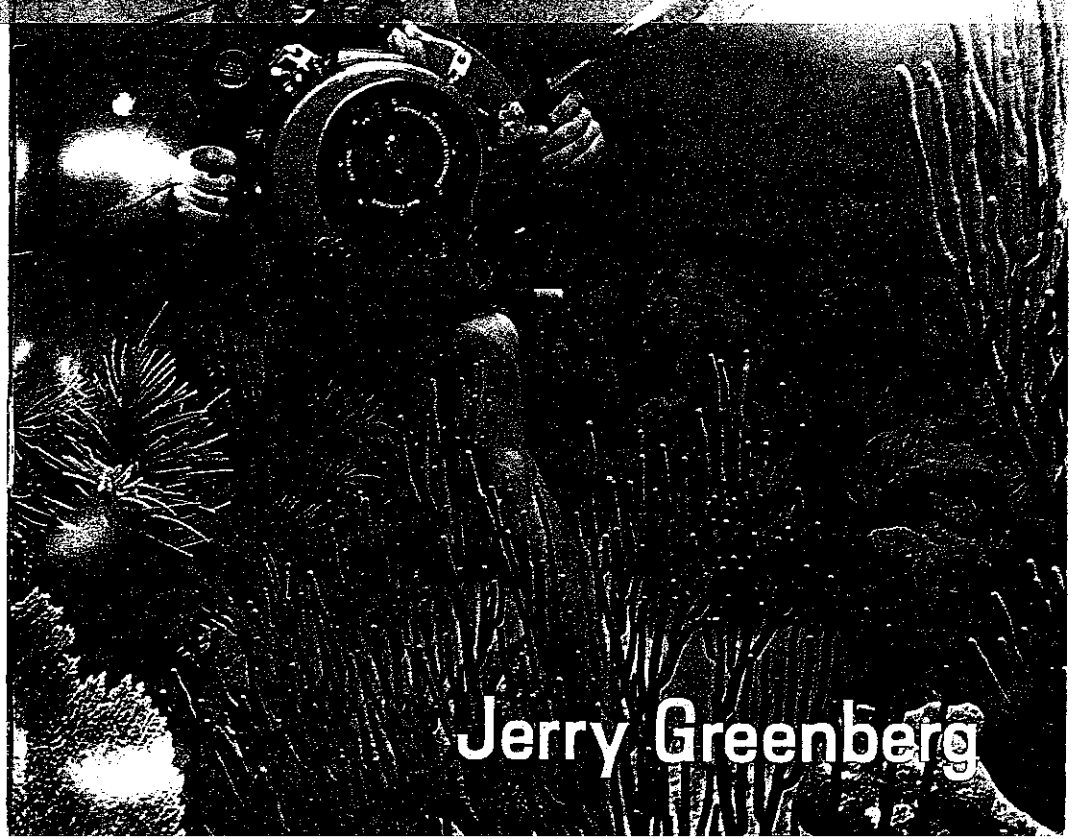
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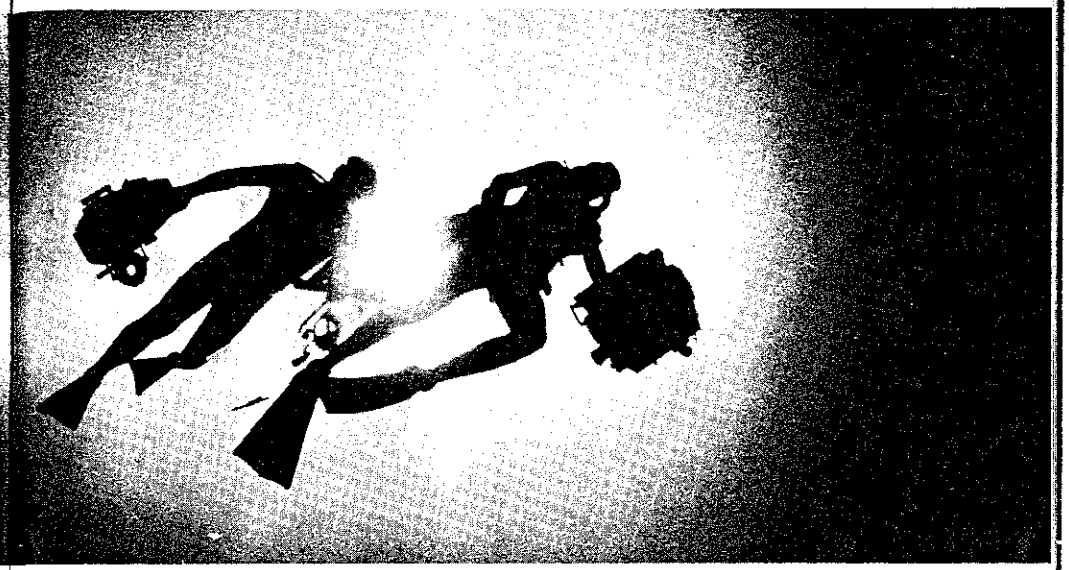
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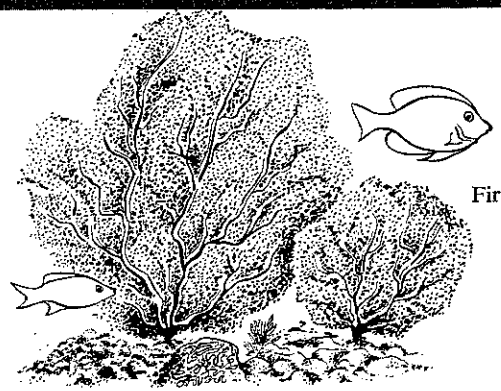


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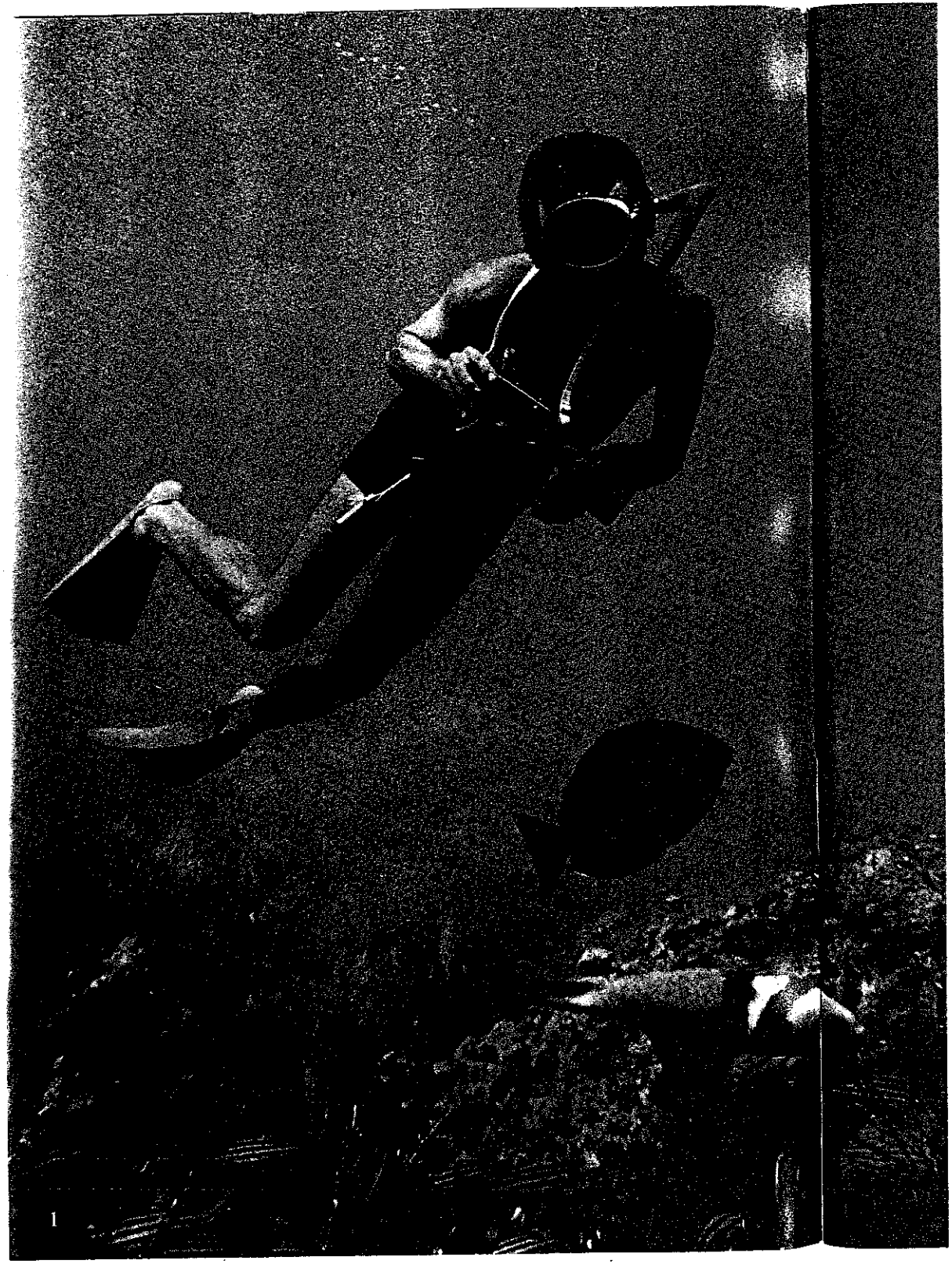
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Foreword

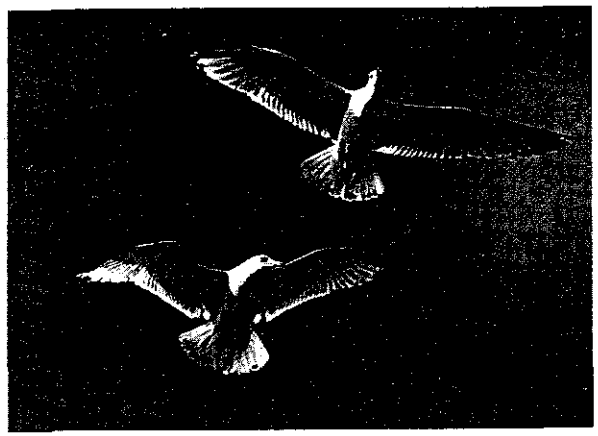
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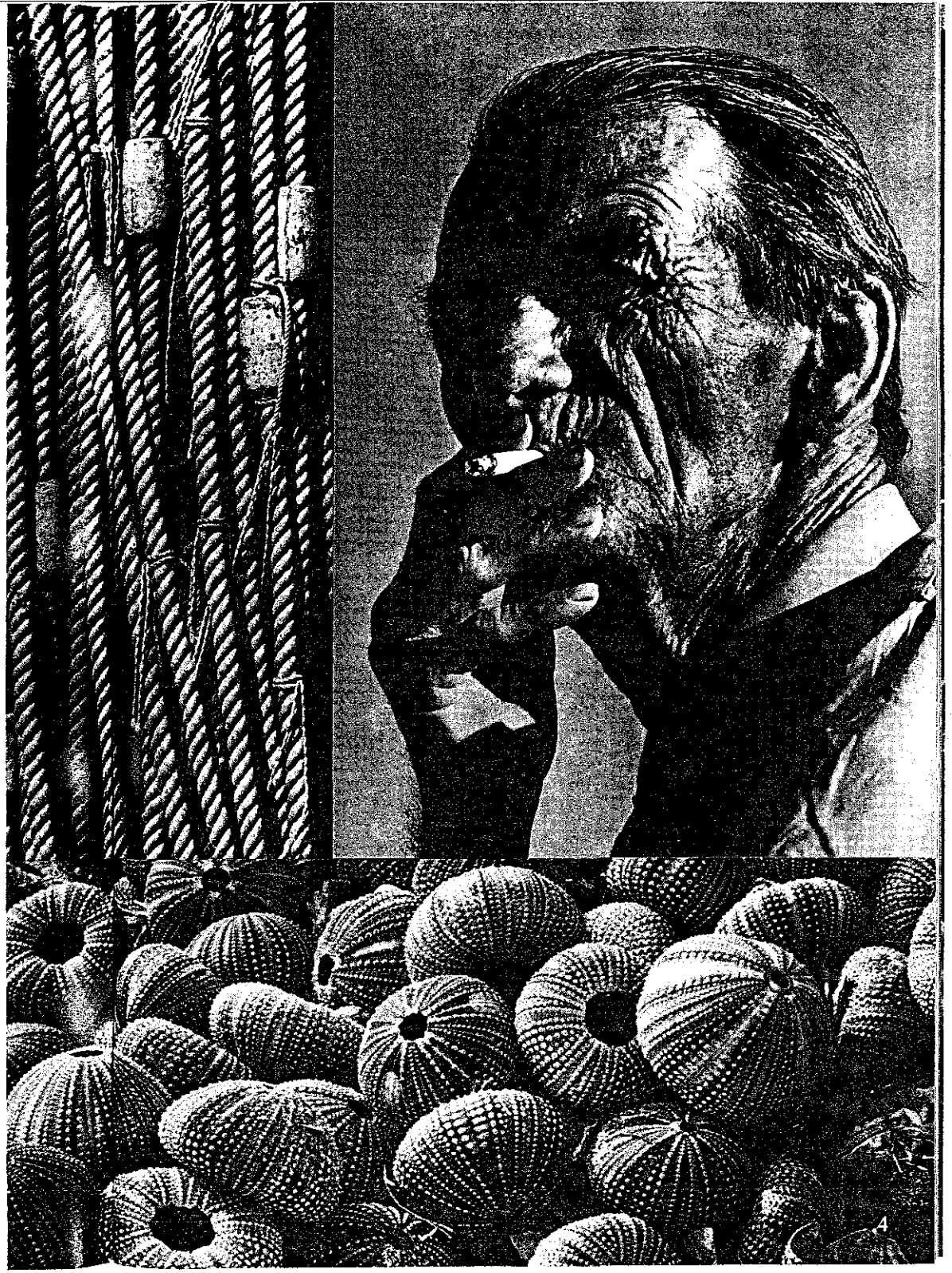
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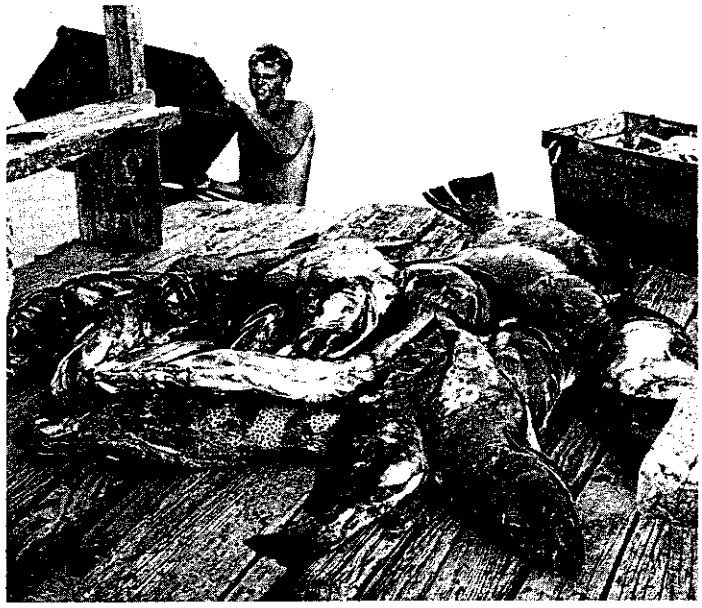
Paul Dammann and Jack Drimba with an 800-pound catch of jewfish speared at Lower Matecumbe Key.



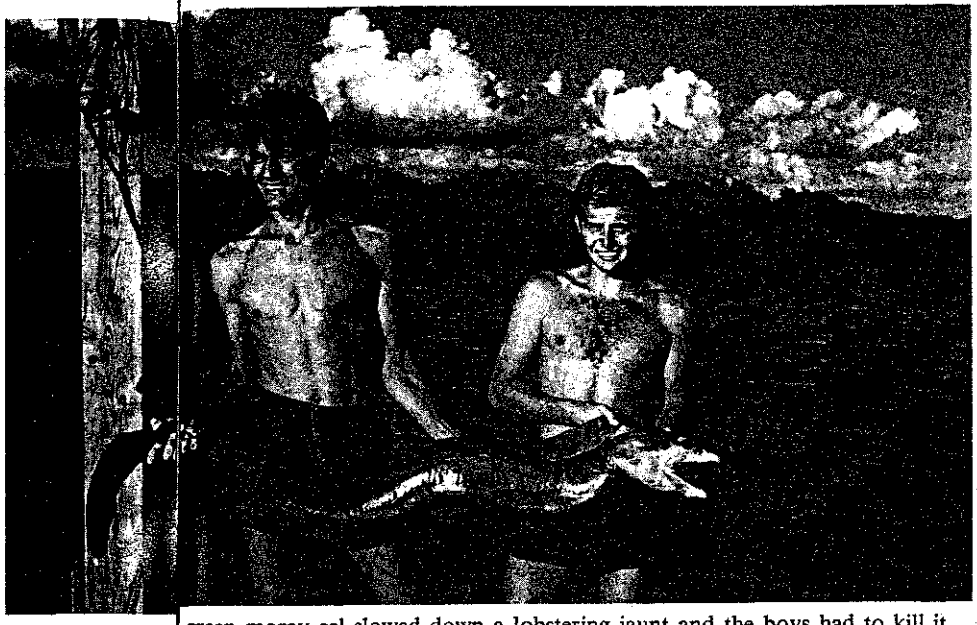
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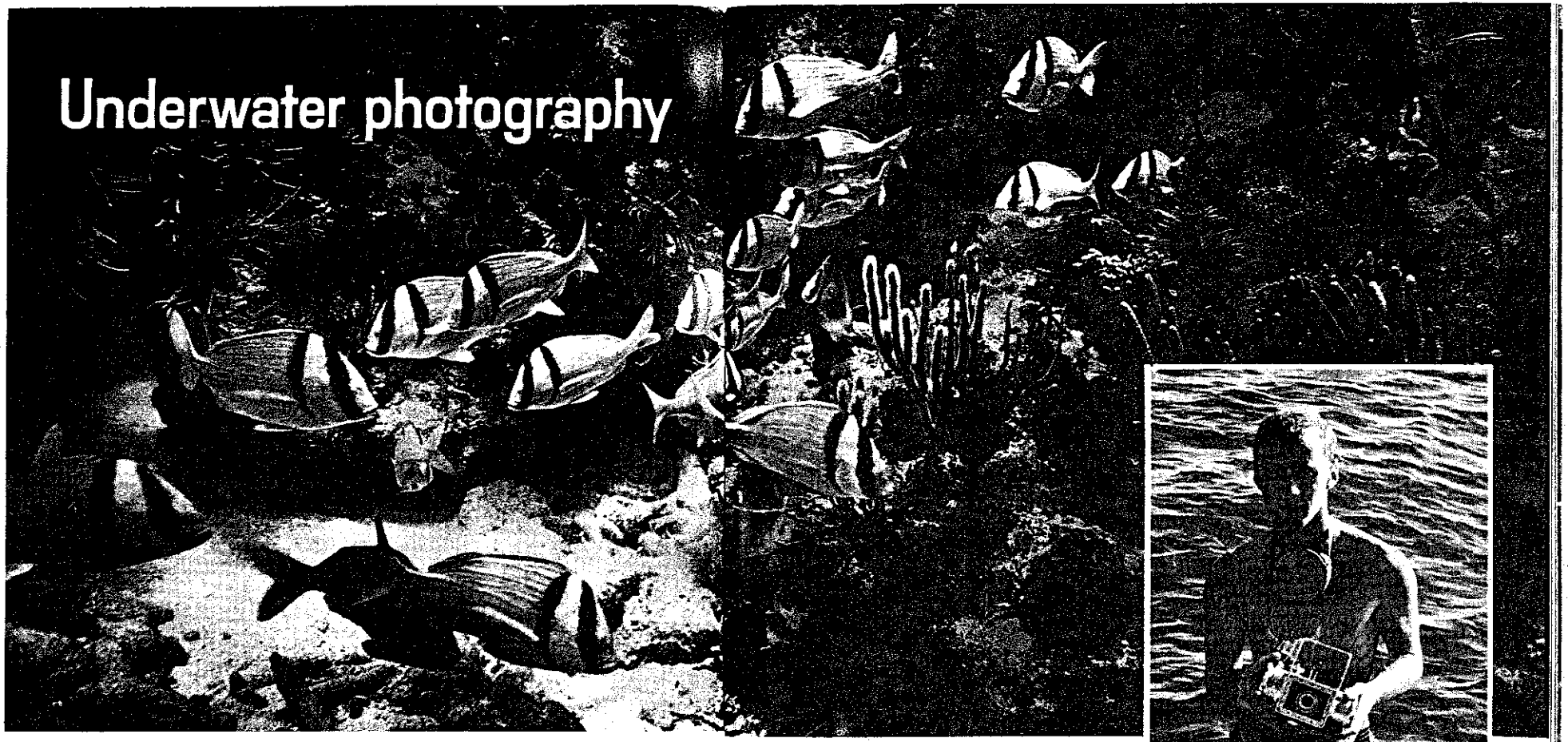
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Underwater photography

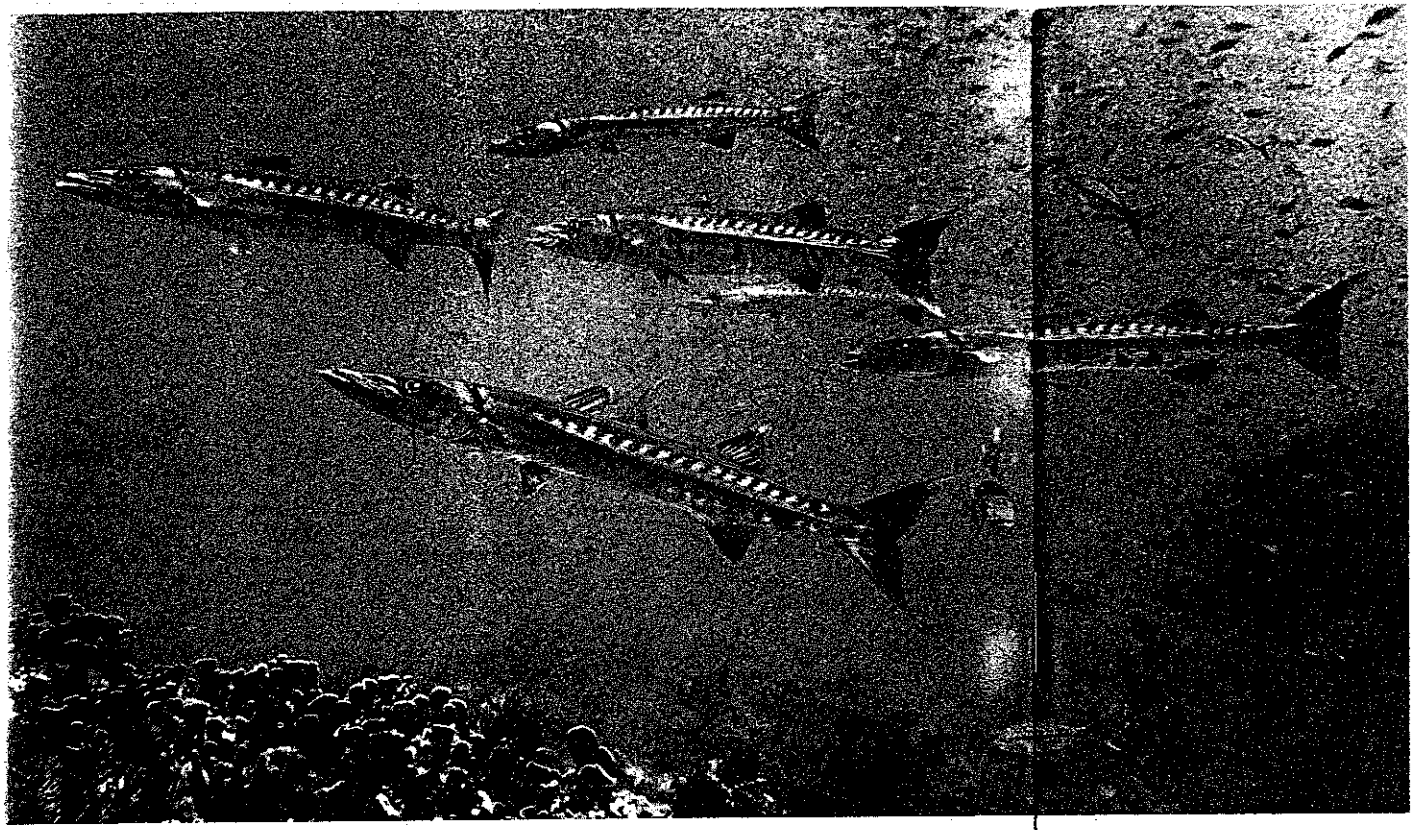


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Rather than jeopardize my Leica equipment, I purchased a Robot Luftwaffe model camera, which had a useful 50 exposure spring motor. A special lucite housing was made for it, but the results of preliminary work in Biscayne Bay were not encouraging. The one inch square negative had poor quality and my case proved undependable in more than 20 feet of water. Finally, I found the answer to my problem in the 11th edition of the Leica Manual. It contained an article by Peter Stackpole, a Life Magazine staffer. He described a metal housing made for his Leica in California. I sent my check for $160 and received the chrome-plated bronze housing some months later. It weighed 11 lbs. and took my old Standard Leica. I used it with a 28 mm. Hektor lens which was the widest angle lens available for the Leica. Its fast F 6.3 aperture was considered the optical miracle of the time. This housing, camera and wide angle lens opened up new vistas of underwater photography. Taking pictures with this 11 lb. millstone around my neck before I had an Aqua-lung wasn't easy, but I got some good photos on my lung-busting trips to the bottom.





Top: Wolf pack of barracuda. Bottom: Blue angelfish over brain coral, taken with a Leica in home made plastic housing.

The years 1952 and 1953 were important in my development as an underwater photographer. During that time I met another diver named Ed Fisher, who drove a jalopy crammed with pole-guns, specimen collecting jugs and Aqua-lung air bottles. He introduced me to the freedom of reef diving with scuba. My breath-holding trips to the bottom ended, and I became a manfish with camera, but no salary. All during this time my father kept me alive with weekly checks. Although Skin Diver Magazine used my stuff for several covers, it was a no pay relationship. I finally hit pay dirt when Leica Magazine used an article of mine Christmas, 1952. This led to a Parade Magazine assignment on Hope Root's record breaking dive.



Breath-holding ends, scuba diving begins.



Hope Root displays recovery tag from previous unofficial record-breaking dive.

Deep dive to death

Hope Root, a stocky 52 year-old New York lawyer, became interested in deep-water diving when he moved his practice to Miami. He made an unofficial test dive on a calm summer day in 1953 and went down to 350′ easily. The success of this dive added fuel to his desire to break the official record of 306′. He hoped to gain financial rewards from product endorsements and a book. It took him until December of that year to prepare for the event.

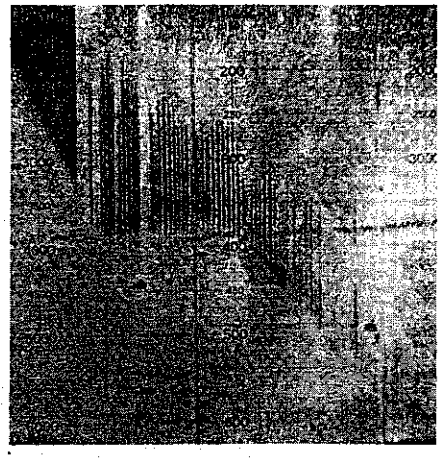
On the day of the dive small craft warnings were out. Root's friends warned him to postpone the dive, but he was either too embarassed after all the publicity to cancel, or perhaps it was just stubborn pride. He decided to go ahead. When I photographed Root on the boat, his mouth smiled, but his eyes were sadly serious. Refusing a safety line, he entered the warm Gulf Stream. He paused at 70′, and as he looked up the rays



Moments before the ill-fated dive.

of the sun flashed on his mask. Then he disappeared into the indigo depths. The last I saw of him were his exhaust bubbles dancing toward the surface. I could follow him no further.

The sonar traced Root to the record breaking depth of 400′. At this point he seemed to be conscious. He stopped, went down another 50′, paused again and then plummeted to below the 600′ level like a rock. The control boats joined with a Coast Guard helicopter in a futile search. Hope Root was never seen again.





Sonar chart tracing Root's descent and last known photograph of him.

Feeding the pulps

After publication of Jacques-Yves Cousteau's best selling "The Silent World," magazine editors became aware of an untapped source of exciting adventure stories. Life Magazine had Peter Stackpole, National Geographic had Luis Marden, and Stag, Men, etc. had Fisher and Greenberg. These pulps had a voracious appetite for new material, and we helped feed it. Most of the stories were true, but some were embroidered to the point of pure invention.

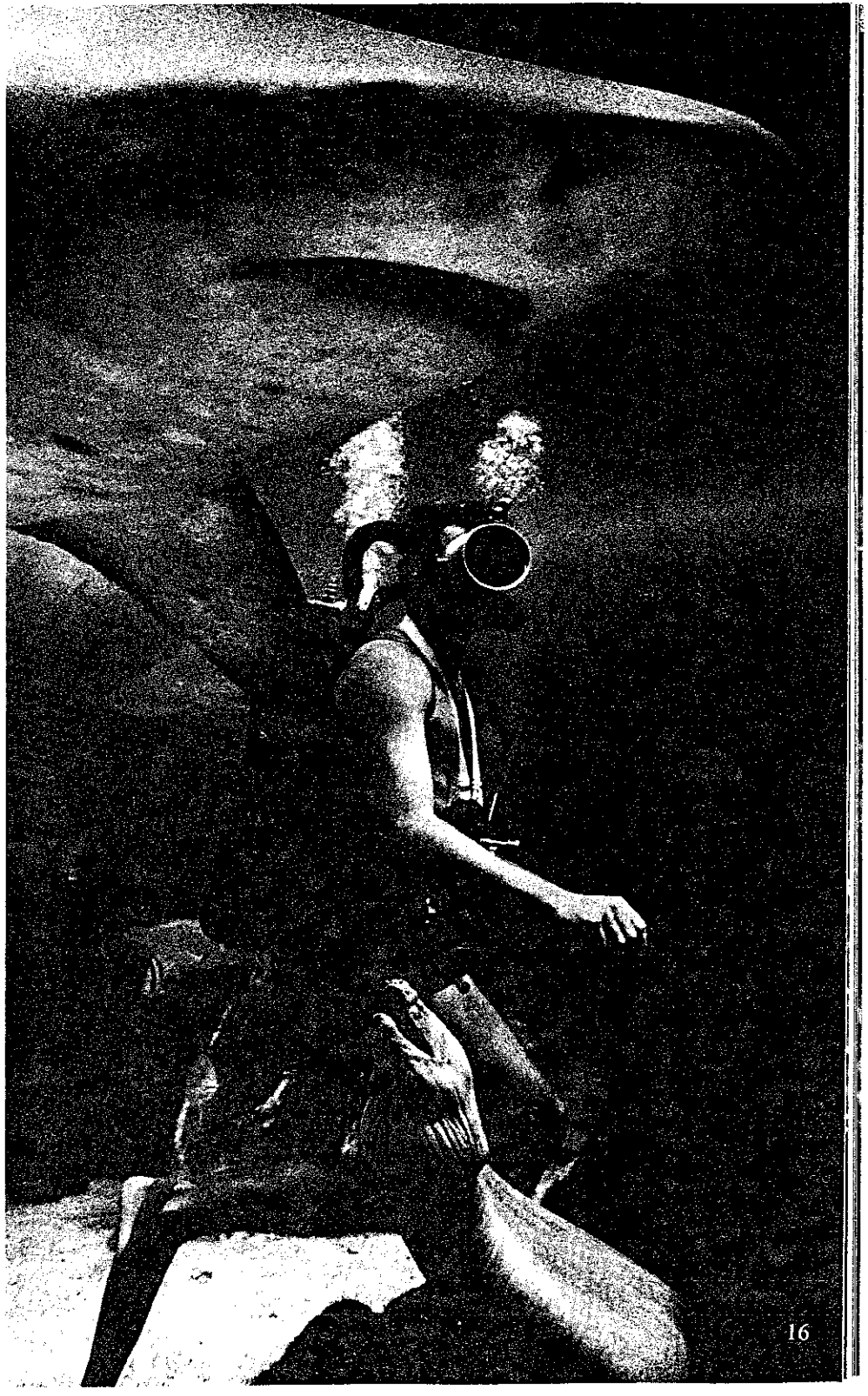
The titles of our epics bordered on the ludicrous. A poorly planned episode with an underwater tow sled became "My Blood Was His Bait." Diving around a school of barracuda was "Killer Pack at Marker Two." When the management of Marineland graciously permitted us to work in their shark tank, the resulting story was "Monsters Below." One story, a diver who finds a fortune of gold in a septic tank, was called "Diving in Dreck for Doubloons." The editors wisely felt we had finally overstepped the bounds of decency and rejected it.



Victim of bogus diving accident.



A real danger: stinging jellyfish.



A nightmare come true from "Monsters Below."



Air reserves are lowered for the long day's dive.



The 24-hour endurance dive begins as Ed Fisher unpacks his gear 30′ below, at the site of the dive, French Reef.

24 hours beneath the sea

For some time Ed Fisher had envisioned a 24-hour marathon dive to test man's ability and stamina underwater. When Paul Arnold, a co-designer of the Divair regulator, asked Ed to think up a promotional stunt, he jumped at the chance. I was signed to handle the photographic coverage. While I was busy working on my flash camera, Ed scurried around town filling his formidable shopping list: a CO^2 gas gun, rubber-powered arbalette, inner tube, lots of line, underwater flashlight, waterproof notebook and grease pencil, candy and figs in waterproof containers, leather gloves, wool socks, signal gun, wire, balloons, pliers, collecting net, needle and thread for repairs, hot water bottle and syringe for drinking water, hammer and chisel, and a rat trap for catching dinner the easy way. All this equipment was neatly contained in his knapsack.

The day of the dive, August 21, 1954, rolled around. The weather was perfect, with a bright sun and a flat calm sea. We dropped anchor on French Reef, a beautiful coral forest in the Florida Keys. At 1500 Ed Fisher, loaded down with submersible survival equipment, struck out for his underwater campsite. The spot he chose was at 30 feet, with a clean white sand bottom that led to a slight indentation in the side of a reef wall.

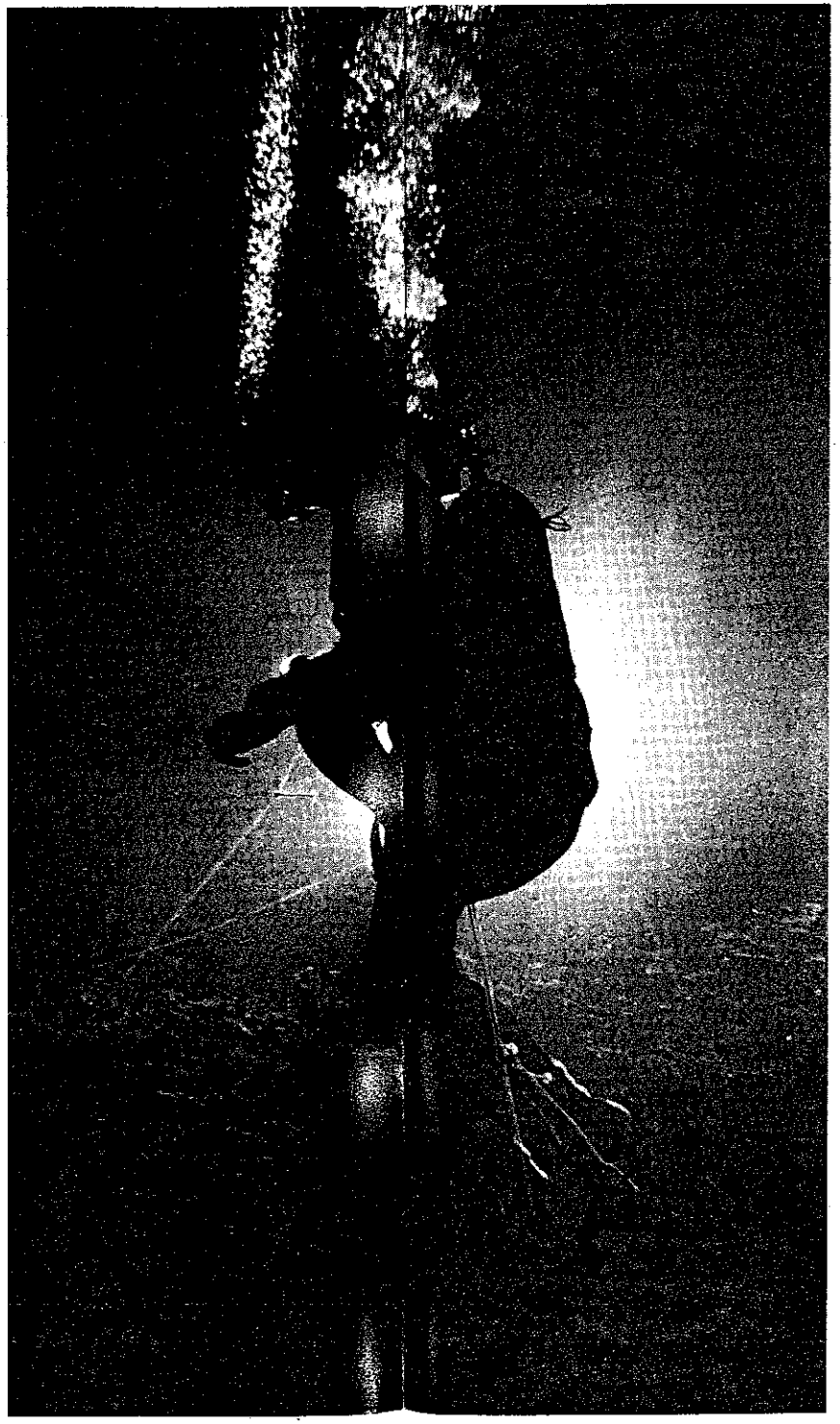
Ed opened his knapsack and secured it to the side of the reef. Next he set up his bed by fastening lines to the coral and tying on an inner tube. When the tube was inflated, the lines held the tube level, forming a perfect easy chair for underwater naps.

For the first three hours I was at his side. I documented his actions as he ate raw speared fish, drank bouillon through a hot water bottle, changed air tanks, observed and collected marine tropicals and created a new kind of graffiti by chiseling his name and the date on a brain coral.

The hours slipped by and a luminous summer moon bathed the sea bottom in an eerie blue light. Fish and animals active during the day went to sleep and the night creatures came out to feed and prowl the reef. This first night dive enthralled me so that I made it a night to remember by stepping on a sea urchin. I ignored the pain long enough to give my extension flash rig the acid test. I ran off 50 feet of wire, mounted my flash on a tripod and shot a series of night photos. When my film and energy were exhausted I went topside to rest.

In the morning when new air bottles were sent down Ed returned a message: "Won't last more than one hour safely." I grabbed my camera and scuba gear and joined him on the bottom. He was shivering from the cold and the skin on his fingers was shriveled like a prune. Obviously the marathon was taking its toll and it looked like the end of the dive. Ed then surprised everyone by deciding to stick out the balance of the dive which was six hours. As time dragged on he kept busy getting his gear in order. At 1500 the 24-hour dive was over.

Ed wearily climbed up the ladder. The strain of the dive was evident on his face. We peeled his wet suit painfully from his body and doused him with fresh water. For two days he was pretty shaken and sick, but by the end of the week he was diving again.



Innertube becomes a submarine sofa for the night.



Wet suit clings to Ed's tenderized skin.

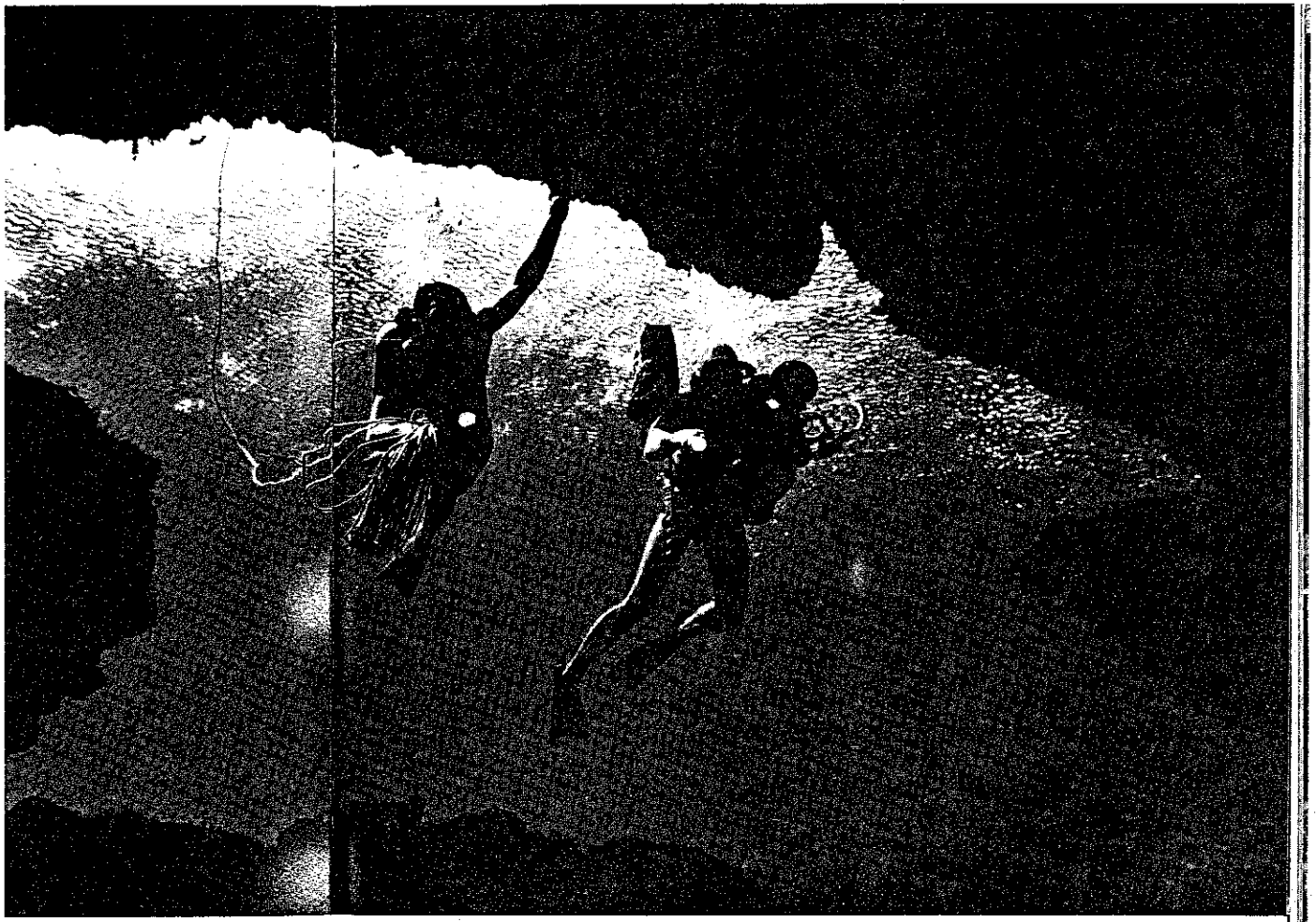


Ed's hands were as wrinkled as prunes.



Diver recovers tusk of an extinct mastodon.

Cave diving



Equipped with flashlights, safety line and pressurized cameras, a team of cave divers enter the mouth of a natural hydrant.

After the 24-hour dive, Ed Fisher worked as a consultant on the pilot film for a science fiction TV show, "Captain Fathom." His main function was to haul model submarines through the water with wires and act as stuntman for the star. Most of the filming was done in a shallow area of Florida's crystal-clear Weeki Wachee Springs. Whenever Ed had a break he would swim over to the big spring upstream and peer down into the depths. The water was always incredibly clear with a visibility of several hundred feet in all directions.

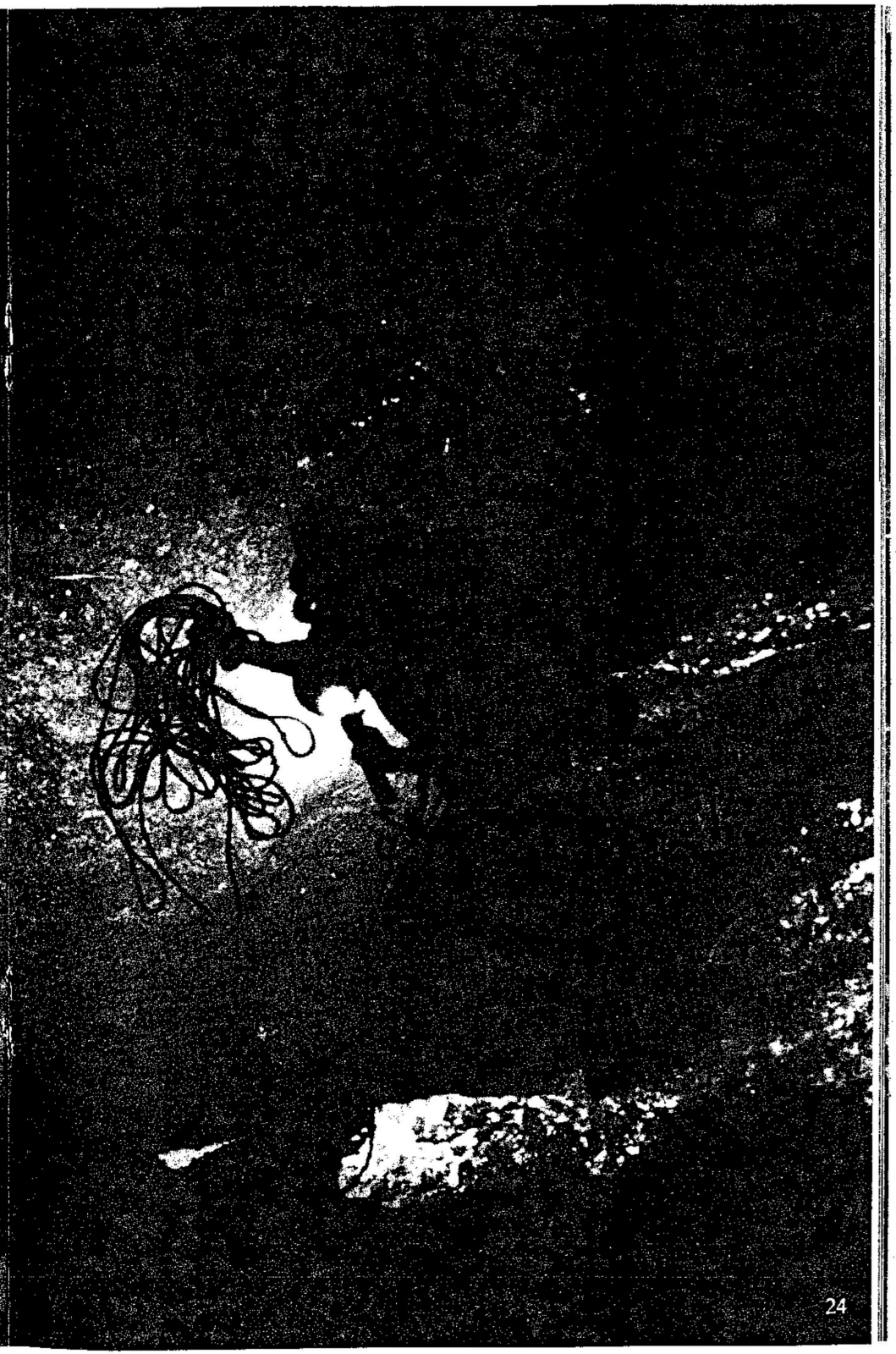
The main pool, 200 feet in diameter at the surface, tapered like a funnel to a point 55 feet down and into the mouth of a natural hydrant. Thousands of gallons an hour roared out of that hole, gushed up into the pool, and then ran off in a river to the sea. This underwater phenomenon was part of a huge network of subterranean rivers hundreds of feet deep that supplied the entire state with water. Many places, such as Weeki Wachee, Silver Springs and Wakula, where the hydrant broke to the surface, were tourist attractions. Other hydrants, off the beaten path, had never been explored by divers.

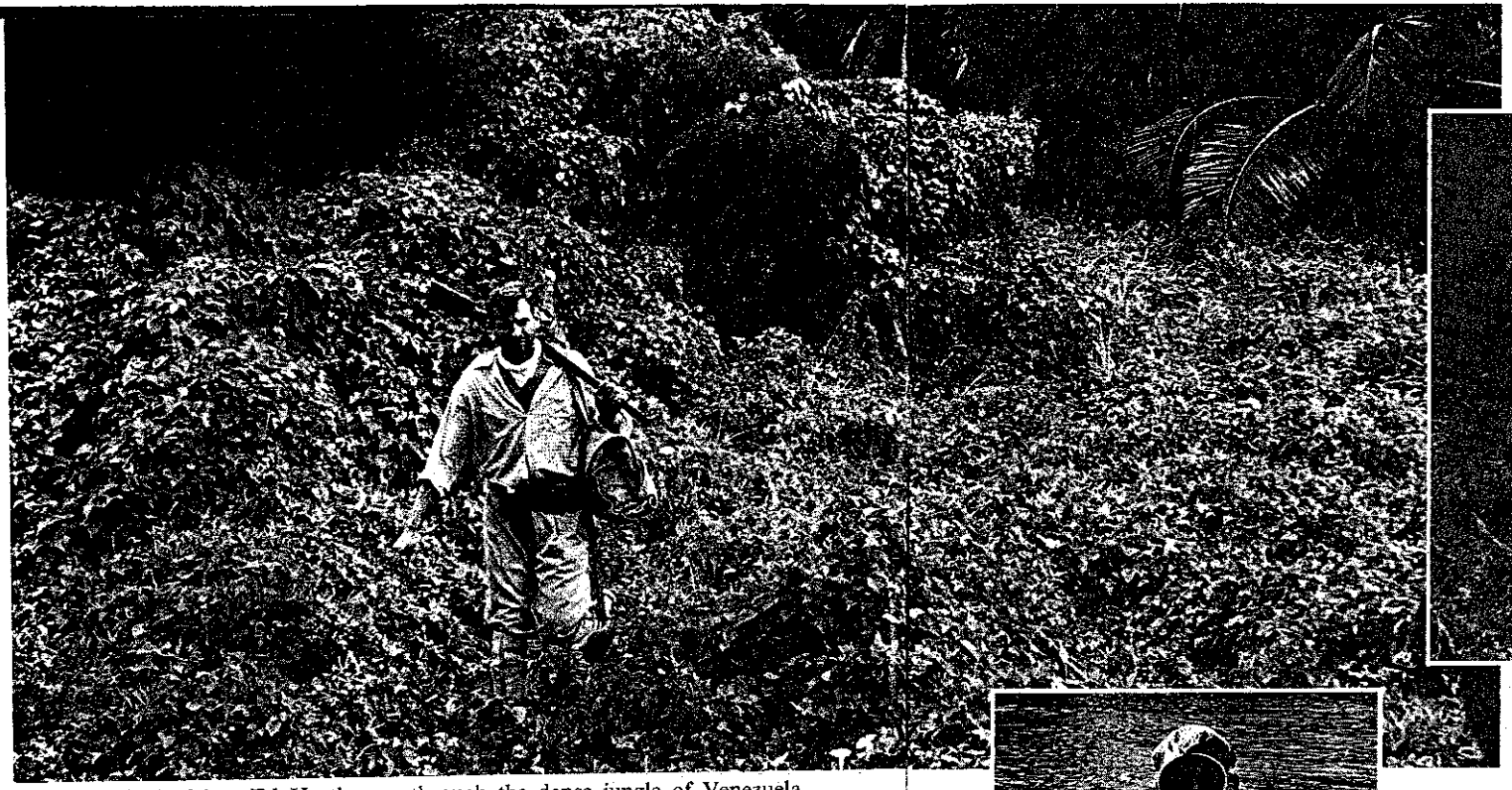
Sports Illustrated gave Ed and me an assignment to shoot the first color flash pictures in these tunnels. The copy was to be written by Coles Phinizy, whom we knew from the Hope Root story. The first week of photo-diving in the hydrants taught us a lot. We learned what it was like to claw our way through raging currents in narrow twisting tunnels lined with jagged rocks. We were smashed against ceilings, twirled about like leaves in a storm.

Our masks were ripped from our faces
while boulders and debris showered down on us.
Lights failed and left us groping
in the pitch blackness
for our safety line.
Once, when Ed's reserve valve wasn't working,
he ran out of air deep inside one of the
chambers of a nameless spring.
He took turns with me on my mouthpiece,
and we made it to the sunlight.
We used double tank rigs and
even pressurized our cameras
with miniature bottles and regulators.

Cave photography was difficult.
The color film available then was so slow
(ASA 10) that I had to use large screw base
flash bulbs. Their size created problems
in waters up to 100 feet deep,
where the pressure would sometimes
cause the bulb to implode,
leaving its base wedged in the socket.
This rendered my synchronized
flash useless and I would be
forced to fall back on an
open flash technique. With my camera
shutter on "bulb," I flashed the
scene with a manually operated gun. This
was simply an extra flash arm
worked off the batteries in our diving
flashlight.

We were the first to produce
publishable color photographs of
cave diving. (Sports Illustrated, Oct. 1956)
We discovered the thrills
of diving amid the catfish and eels, but most
of all, digging out prehistoric
bones of mastodon, camel and sabertooth tiger.





Diamond fever drives Ed Hartley on through the dense jungle of Venezuela.



In search for a fortune in diamonds, Ed scoops up the rocky bottom of the piranha-infested Rio Apure.

Diamond river caper

Hoaxes have always appealed to me, and Ed and I once turned to the fascinating field of photo-fiction, a nice name for phony stories. We did one on diamond diving in the piranha-infested rivers of Venezuela. Ed Fisher became Ed Hartley, an oil rig inspector on Lake Maracaibo who headed into the jungles on weekends to hunt for diamonds. I became Monk Monkhauser, a former war correspondent with the Abraham Lincoln Brigade in the Spanish Civil War, now free-lancing.

We never left home. The heavy foliage of Miami's Crandon Park was our jungle, and the Coral Gables Waterway became the legendary Diamond River. A plaster-of-paris snake became the deadly fer-de-lance when photographed in front of a Seminole Indian Village hut. We made wax leeches and shot Ed burning them off with a cigarette on Miami Beach. My future wife, Idaz, found pieces of glass that resembled uncut diamonds, and the resulting story was a gem.



Eureka! First diamond found today.



A kiss for a perfect one-carat gem.

We sold the story under a third assumed name to a leading men's magazine. The editors were so enthralled with the yarn they commissioned an artist to do a special cover. The feature created a sensation, and we laughed all the way to the bank. The joke turned out to be on us: gold and diamonds have since been found in Venezuela!



The stingray, a study in graceful movement.

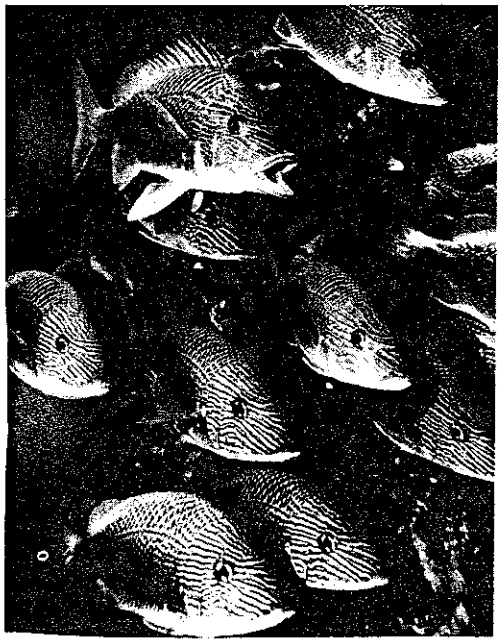
Roaming the reefs



Colorful Molasses Reef is host to an incredible variety of soft and hard coral, and a myriad of vivid-hued tropical fish.

The latter half of the 1950's was the most productive time of my photo-diving career. During that period I manufactured Seahawk camera housings, published "Underwater Photography Simplified," experimented with flash bulbs and a submersible electronic flash, and took my first color pictures.

My favorite spot was the Molasses Light area, where I spent many a happy hour roaming the reefs. My first attempts with color on this reef were quite striking. Part of this easy success was having the right tools to work with. My equipment consisted of several Leicas in Seahawk housings and a Rolleiflex in a Rolleimarin housing. Both cameras had flash attachments for distance shots of 7 - 10 feet. I had my Rolleimarin altered so that I could use 35 mm. film in my camera with a Rolleikin attachment. This enabled me to focus and compose on ground glass utilizing the longer than normal 75 mm. lens on a 35 mm. format, which created a moderate telephoto effect. The Rolleikin also afforded me 36 exposures for each loading, saving inestimable time surfacing and reloading. I used Anscochrome, which was the fastest color film then available. About this time I got my first big magazine assignment, the Pennekamp Park story.



School of white grunts strike a pose.

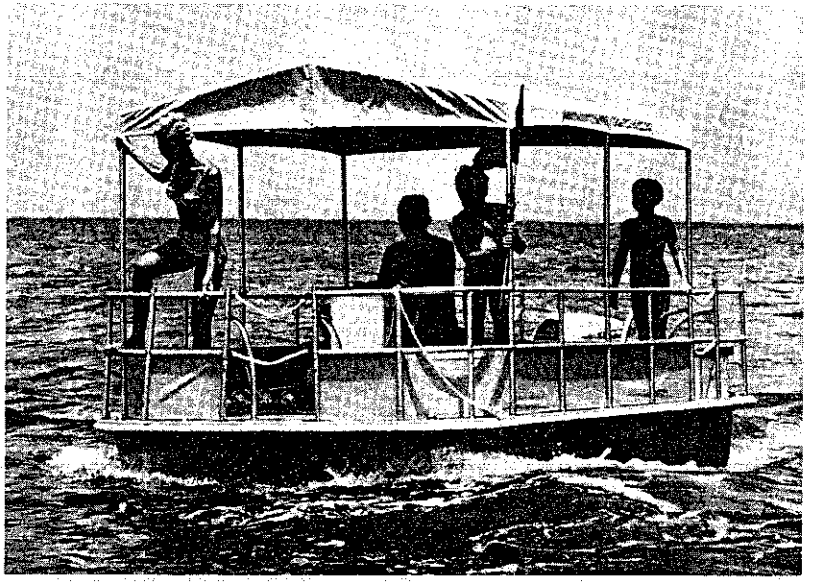


Surgeon, or doctorfish, eyes me.

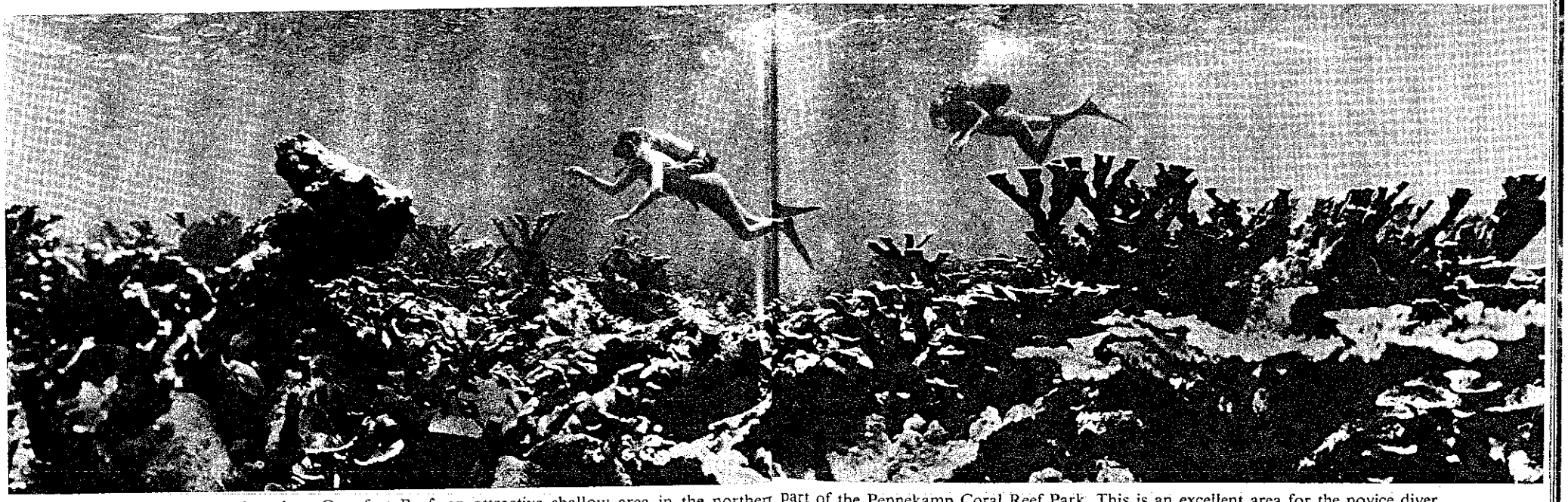
Park in the sea

My main ambition after four years in college was to be a staff photographer for the National Geographic Magazine. Some friends with connections inquired on my behalf. The only openings at that time were for work in the darkroom or cleaning the executive washrooms. Not wanting to start at the top through the influence of friends, I decided to continue my free-lancing.

Ten years later I had my first photo essay and cover in the January 1962 issue of the Geographic Magazine. The subject was the John Pennekamp Coral Reef State Park, a 75 square mile area off Key Largo, Florida. I like to think I got the assignment because I was the best man for it. The real reason was probably that the magazine's underwater expert was in Africa photographing Hottentots, and I happened to be in the right place at the right time.



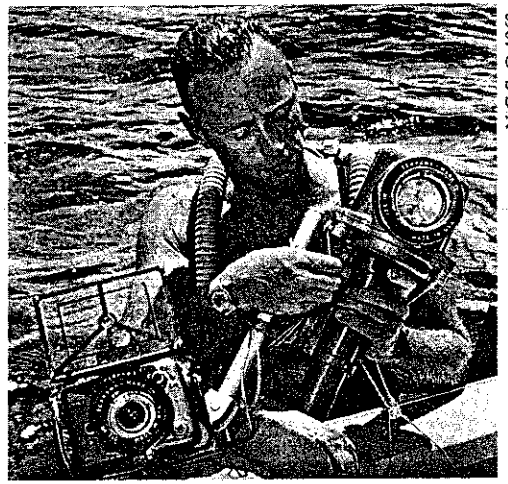
Jack and Marie Wood rented this patio boat for their first visit to the park.



Lyn and Jo Wood explore Carysfort Reef, an attractive shallow area in the northern part of the Pennekamp Coral Reef Park. This is an excellent area for the novice diver.

There were many exciting moments during the month and a half I spent on this park assignment. Once, in the soft light of late afternoon, I got a stunning shot of a diver swimming into a school of silvery spadefish. I took a series of overlapping pictures of Carysfort Reef with my Rollei. When spliced together, this became the world's first underwater panorama of a coral reef. By the time coverage was fairly complete, Hurricane Donna whipped through the Keys causing tremendous damage both above and below the water.

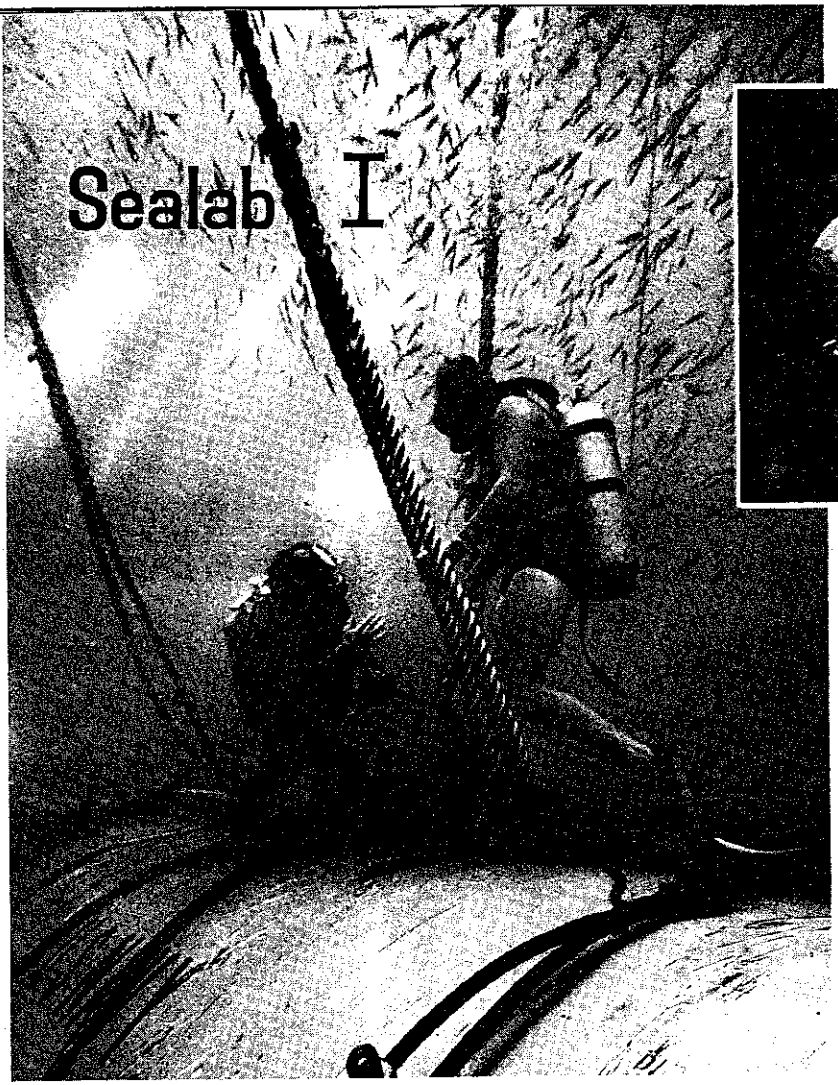
Although the assignment was officially over, I felt something was still missing. I decided to go out on my own and photograph the reef sharks. I got the most exciting shot in this series when a ten foot lemon shark rushed in and snatched a snapper so close to me I could touch it with my fins. This supplied the missing excitement I needed for my story.



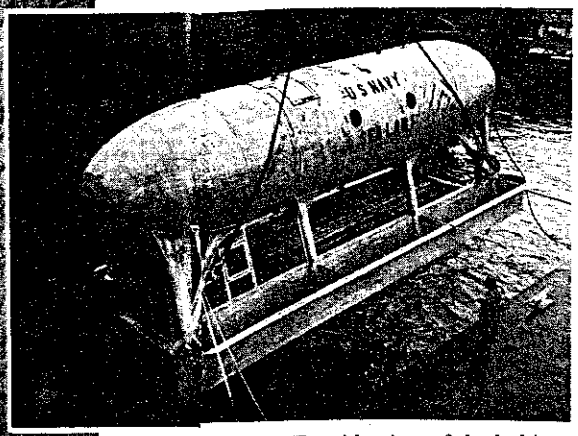
N.G.S. © 1962

On this first Geographic assignment, I used a Leica in Seahawk housing and electronic flash.

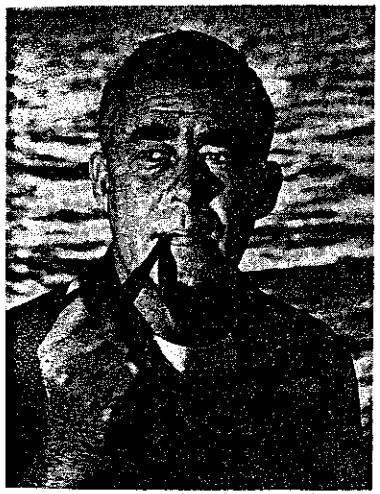
Sealab I



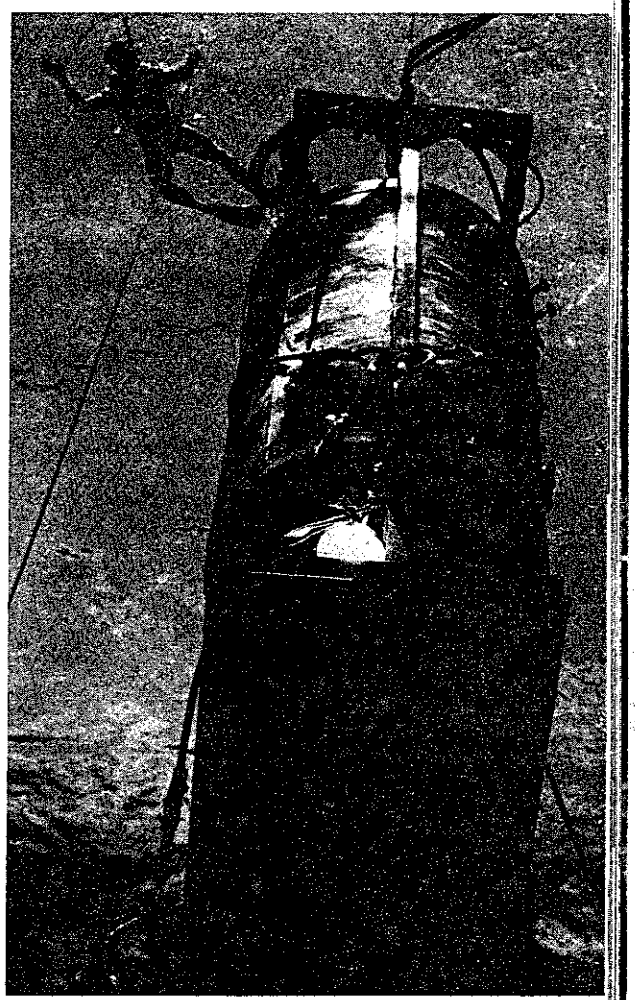
Support lines are checked as Sealab is lowered in clear Bermudan waters.



Topside view of the habitat.



Captain George Bond, director.



Submersible decompression chamber used on site.

Life Magazine called me early in 1964 to cover the U.S. Navy's first man-in-sea project. Sealab I was a cigar-shaped habitat, 10′ in diameter and 40′ in length. Inside, it resembled a house trailer, with four pipe bunks, refrigerator, hot plate, head and shower. It was to be lowered 192′ down in clear Bermudan waters.

The project director, Capt. George Bond, was a pioneer in the work that led to the formulation of the nitrogen saturation theory, which was to be tested on this project. Basically, this theory holds that a diver underwater for 30 hours has absorbed as much nitrogen as his tissues can hold. He could, in principle, remain at the same depth level for a much longer period without having to decompress any longer than for that first 30 hours.

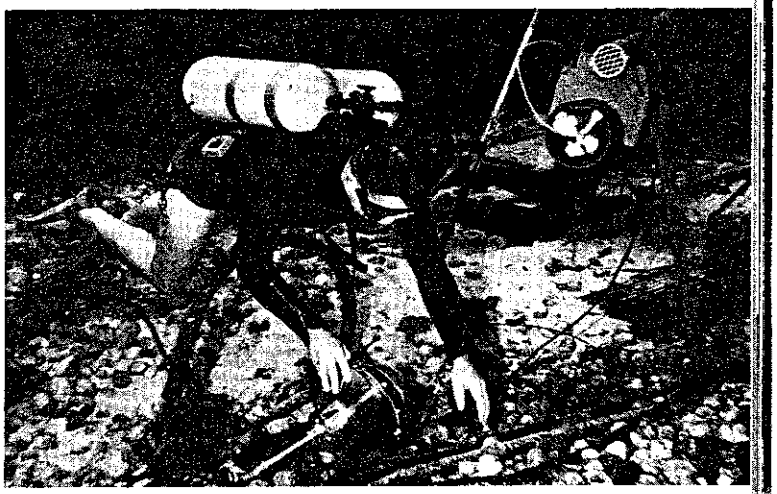
The entire experiment seemed jinxed. Just as Sealab was about to be launched, a tragic military air accident made it necessary to use Sealab personnel to retrieve bodies. Cdr. Scott Carpenter, astronaut turned aquanaut, was out due to a motorbike accident. Bad weather set in. I broke out in pimples for the first time from sheer nervousness. Finally, on July 23, Sealab was lowered.



Blood samples and pressures were taken daily.



Manning prepares hot lunch in the galley, 192′ down.



Aquanaunt Thompson adjusts lights for shark experiment.





Robert Thompson



Robert Barth. Jr.



Sanders Manning



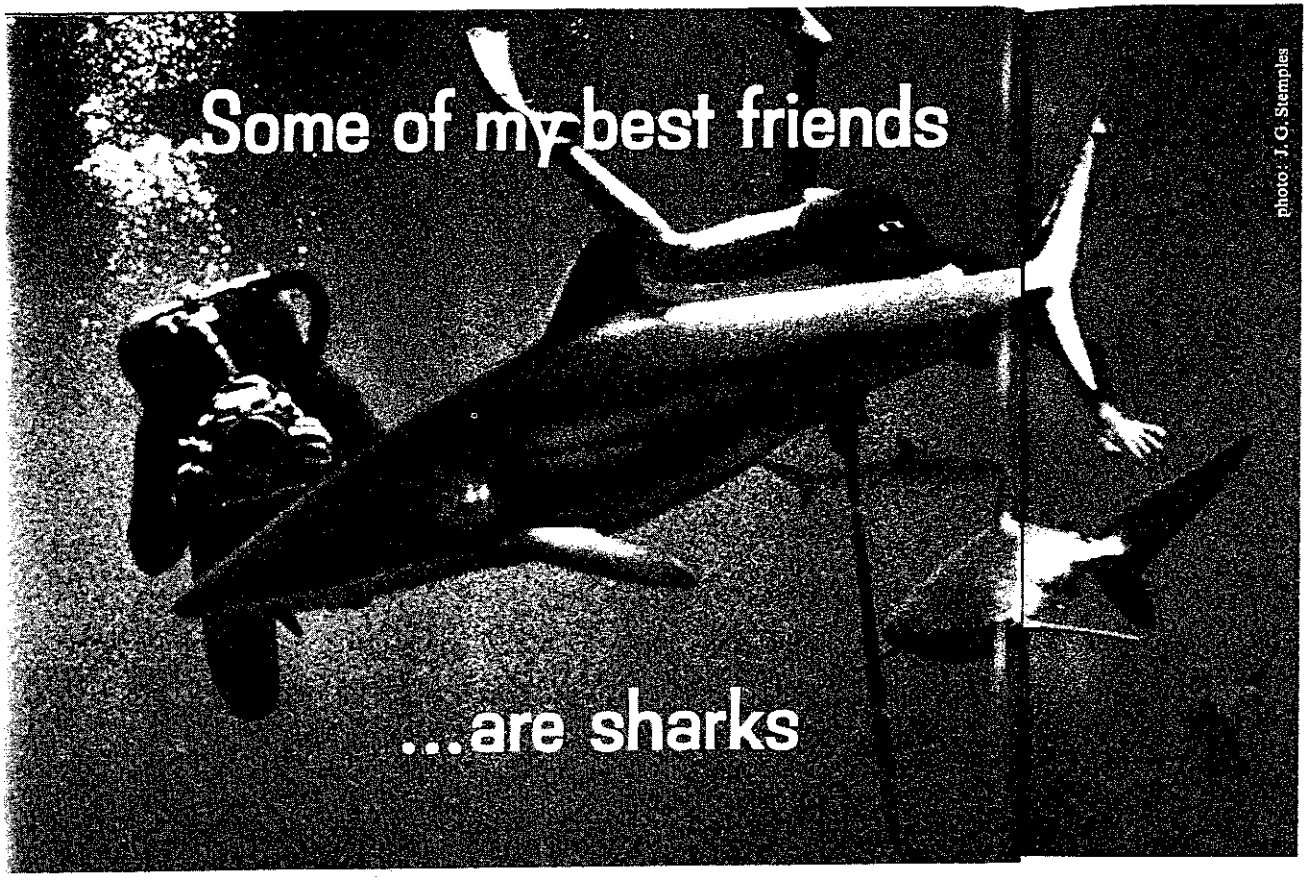
Lester Anderson

Topside support teams made daily deliveries of air bottles and mail.

Sealab carried her own atmosphere in large tanks at her base. Water, electricity, and communications came through an "umbilical cord" from the support vessel nearby. The air pressure inside the lab was equal to the water pressure outside, enabling the men to come and go with ease. The air mixture contained 80% helium, which made the men's voices sound as high-pitched as Alvin the Chipmunk.

As the men overcame their initial lethargy, they began their daily routine of underwater tasks, constantly monitored by Capt. Bond on closed circuit TV. I photographed them from outside the habitat. My gear worked fine at that depth but I didn't. I was slightly "stoned" from nitrogen narcosis and sometimes didn't know where to point my lens. My reflexes pulled me through and I got some good shots.

On the seventh day near tragedy struck. Aquanaut Manning, diving alone on a photo mission, passed out. He was saved by Anderson, who pulled him back to safety. Two days later a hurricane was reported heading toward Bermuda and the project was cut short. The aquanauts were slowly raised to the surface. In all, the decompression time was two days, 7½ hours, a small price to pay for a nine-day stay at 192′. Captain Bond proved his theories and techniques and the U.S. Navy launched a new era of undersea exploration.



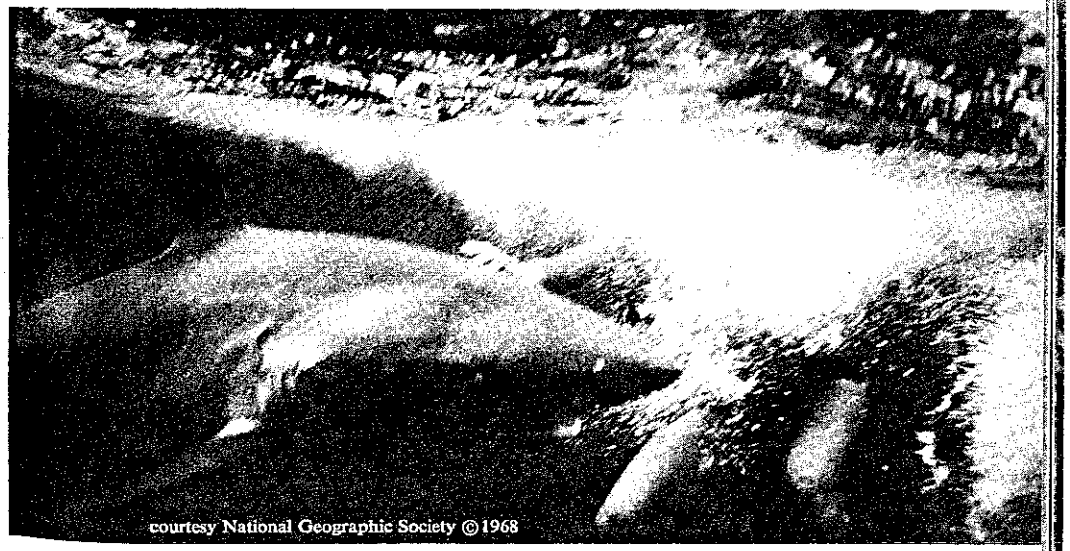
I met my first shark when spearfishing twenty years ago. I had just speared a muttonsnapper and that must have attracted it. It was a sleek six-foot blacktip and it swam toward me in an erratic fashion. I was alone, unarmed and scared. I did the only thing I could under the circumstances . . . splash and yell. That did the trick, and a frightened shark and a pertrified diver parted company. Since then, I have come to accept sharks as part of the underwater ecology.

The idea of doing a general shark piece for National Geographic appealed to me. I did some artwork outlining my plans and sent them up to Editor Bill Garrett. He liked the idea, and after several stops and starts I was in the shark business. The story was to center on shark research being carried out at the University of Miami's Institute of Marine Sciences. I enlisted the assistance of Sonny Gruber and Don Nelson, then research assistants involved in shark behavior. They were also top-notch divers with courage. They proved this one day when we were testing a recently constructed shark cage in the

Gulf Stream. During our lunch break, one of us tossed off an empty soda can, which seemed to come alive in the water. A large silky shark was poking it with his snout. We started to feed it scraps. It seemed almost tame. While the shark was being distracted with food, Don and I quietly slid into the water. Don was armed with a 12 gauge shotgun bang-stick and I had my camera ready. While I was still dangling on the surface, the silky nosed right up to me. After a frantic splash caused it to bolt momentarily, it spun around and got so close to Don that he had to push it away with his hands. Not wishing to become a manfish-burger, I yelled "Kill it." The silky came around a third time. Don jammed the bang-stick into its head and the shell went off.

A typical situation while photographing sharks—Don Nelson protecting me from the rear while I get a close-up of a silky.

Don fends off a furious attack by a ravenous silky.



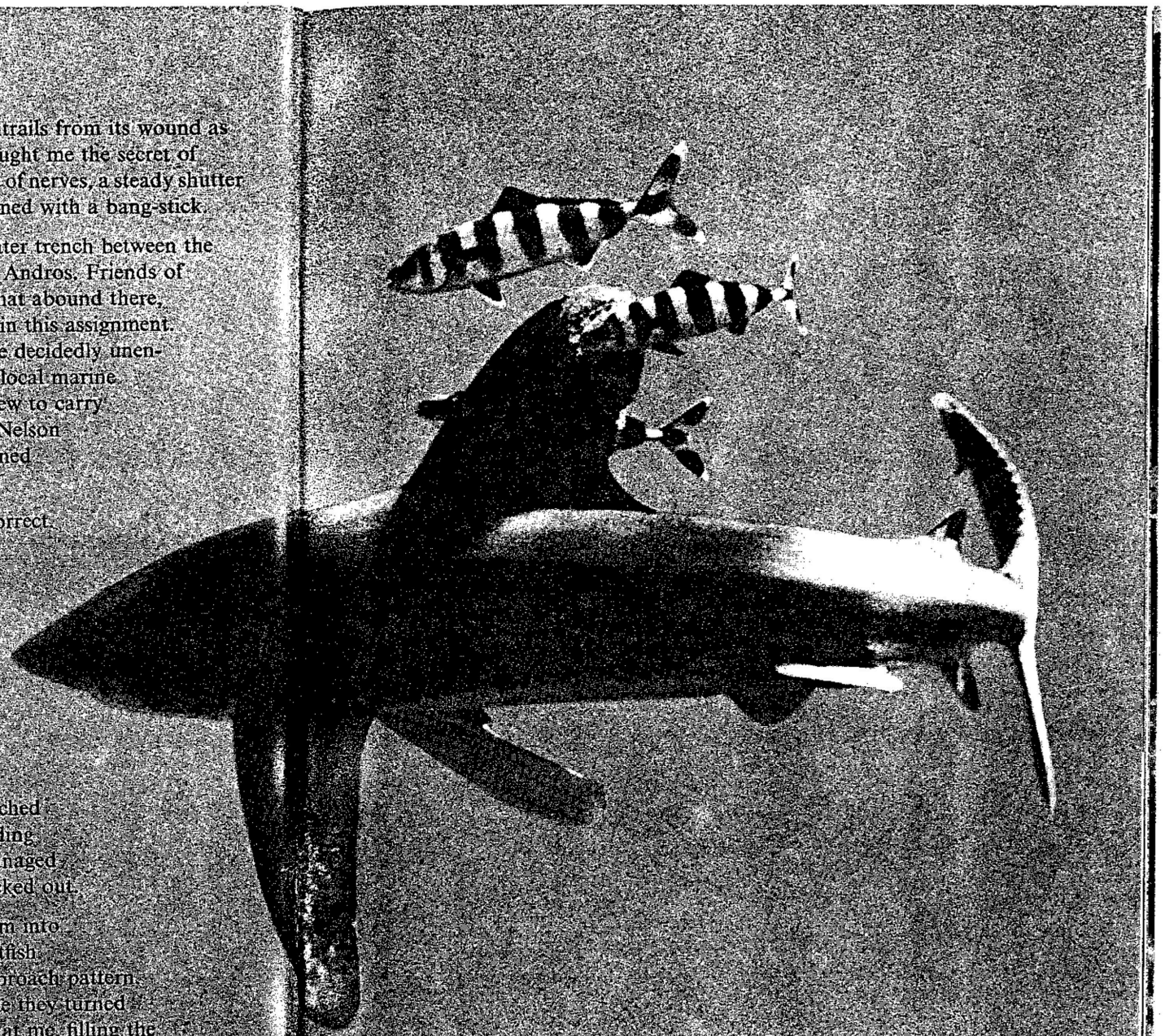
The shark bolted off, trailing blood and entrails from its wound as it spiralled uncontrollably. This episode taught me the secret of successful shark photography . . . a good set of nerves, a steady shutter finger and a reliable man at your back, armed with a bang-stick.

Tongue of the Ocean (TOTO) is a deep water trench between the Bahamian Islands of New Providence and Andros. Friends of mine boasted of the "blue water" sharks that abound there, and I became determined to include them in this assignment. The illustration editors of Geographic were decidedly unenthusiastic, so I traded off my services to a local marine acoustics firm for the use of a boat and crew to carry me to the TOTO area. Shark expert Don Nelson came along with Jack Stemples, who designed the lightweight anti-shark cage.

My information on the TOTO area was correct. I was in shark heaven. I sent one of my friends over the side to test the sharks for courage. They passed. I quickly entered the water and a five-foot silky immediately gave my fins a taste test. Another silky, a three-footer, mouthed my light meter and damaged it. Don swam to my side to keep the sharks away from my feet and I started to concentrate on photography. Jack launched and entered the shark cage and began feeding the converging sharks. One small silky managed to get into the cage with Jack and was kicked out.

A magnificent pair of whitetip sharks swam into view, followed by a retinue of striped pilotfish. They were wary at first and started an approach pattern. The distance from us diminished each time they turned away. Finally one big whitetip came right at me, filling the viewfinder of my Nikon. At the last second it veered off, presenting me with a classic profile.

After two days of exciting adventures photographing these sleek pelagic animals I decided not to push our luck further and we headed back. The photographs appeared in the February 1968 edition of National Geographic Magazine.



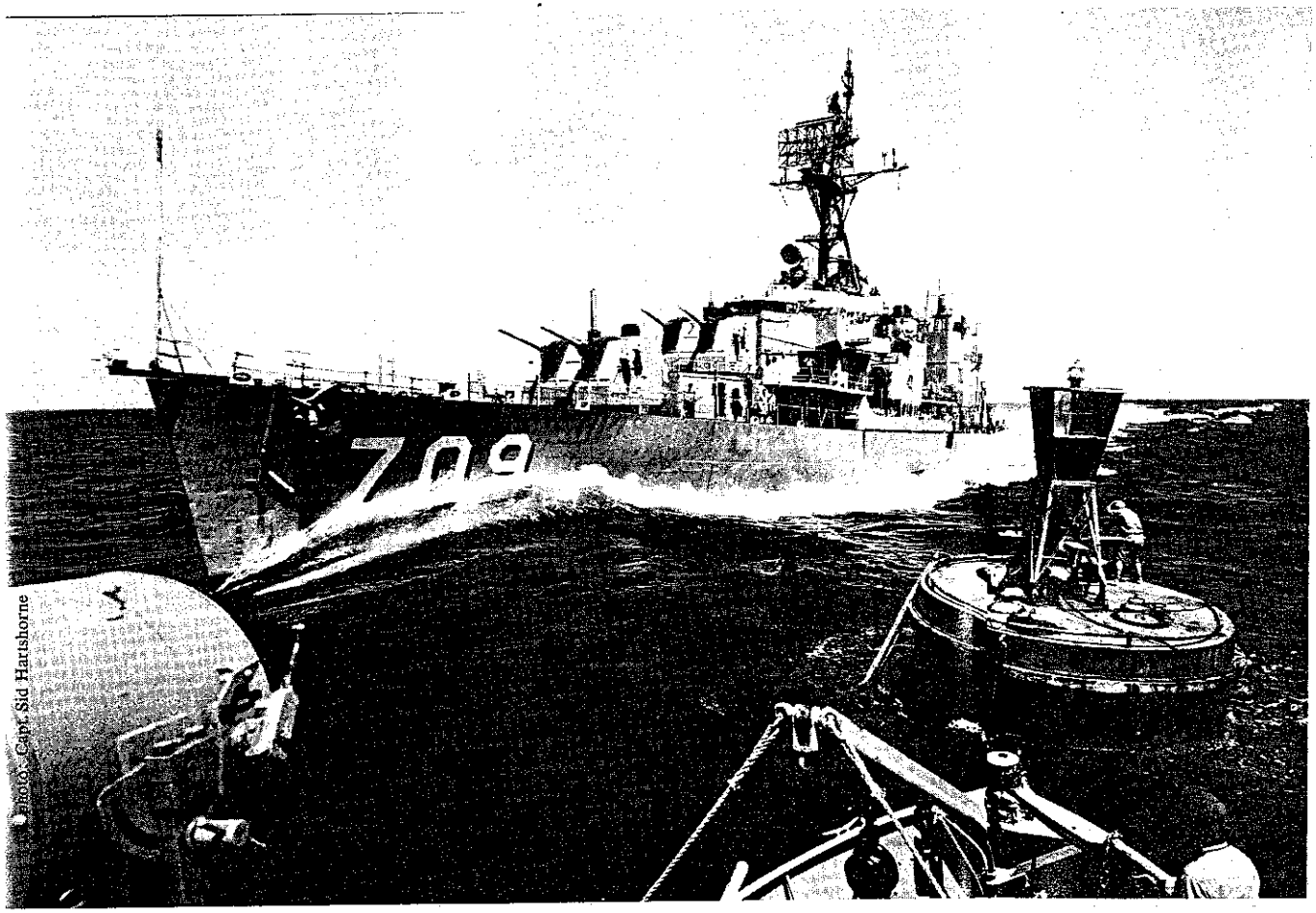


Photo: Capt. Sid Hartshorne

Gordon Sammis, on the control buoy, holds his head in disbelief as the destroyer approaches off course. It almost swamped him, drowned me, and could have swept the entire camera array platform along with it.

Diver swims supercase down to camera platform.



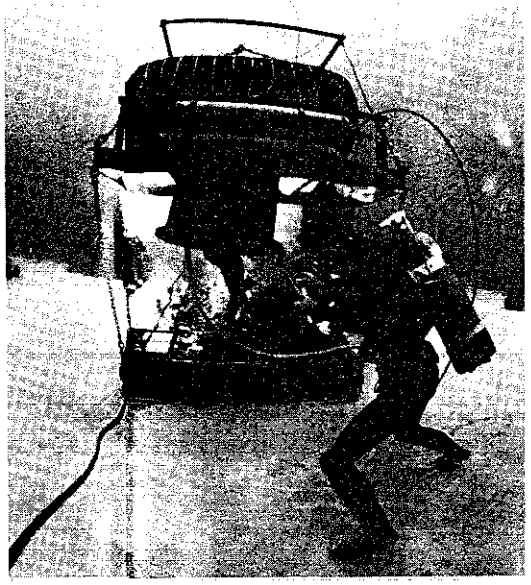
7 sons of supercase

"Secret" security clearance was necessary in order for me to do various work for the U.S. Navy. I have photographed a nuclear submarine underway, destroyers and mines underwater. One such job entailed getting a photographic mosaic of the hull of a fast moving destroyer. Half the destroyer's length had to be photographed simultaneously. Supercase, a special housing built around the Nikon F single lens reflex with a 250 exposure motor magazine, made the project possible. We used a series of seven supercases mounted on a portable platform, 30′ below the water and fired electronically from a surface buoy. I recommended Tongue of the Ocean as the site of the tests, and spring or summer as the best time. Naturally, the Navy chose to run the tests in late winter, a perfect time for high winds. After many difficulties were overcome, the big day arrived and the huge destroyer started its runs past the platform. I was in the water taking additional detail studies of the bow wake and propellers. On one high-speed run, the ship was 30′ off course. Before I knew it the bow of the destroyer was cutting toward me like a huge butcher knife. I forgot about pictures and swam like hell out of the way. It passed 25′ from me, the sudden onrush of noise warning me that the propellers were next. I started to take photographs as they roared by me. The turbulence was so great that my mask and camera were almost wrenched from me in the submarine maelstrom. Above me, on the surface control buoy, the crew and equipment were in imminent danger of being pitched into the sea by the wake. At that moment it occurred to me that photographing sharks might be far less dangerous work.

Submersible science

Illustration of research equipment is often like "show biz:" it needs to be dramatized. My golden rule in these situations is "Thank God for backlighting." It saved the day when National Geographic assigned me to photograph marine science for the book "World Beneath the Sea." By taking my pictures at night, I was able to get an exciting view of a diver using the door-like lock-out chamber of the submarine Deep Diver.

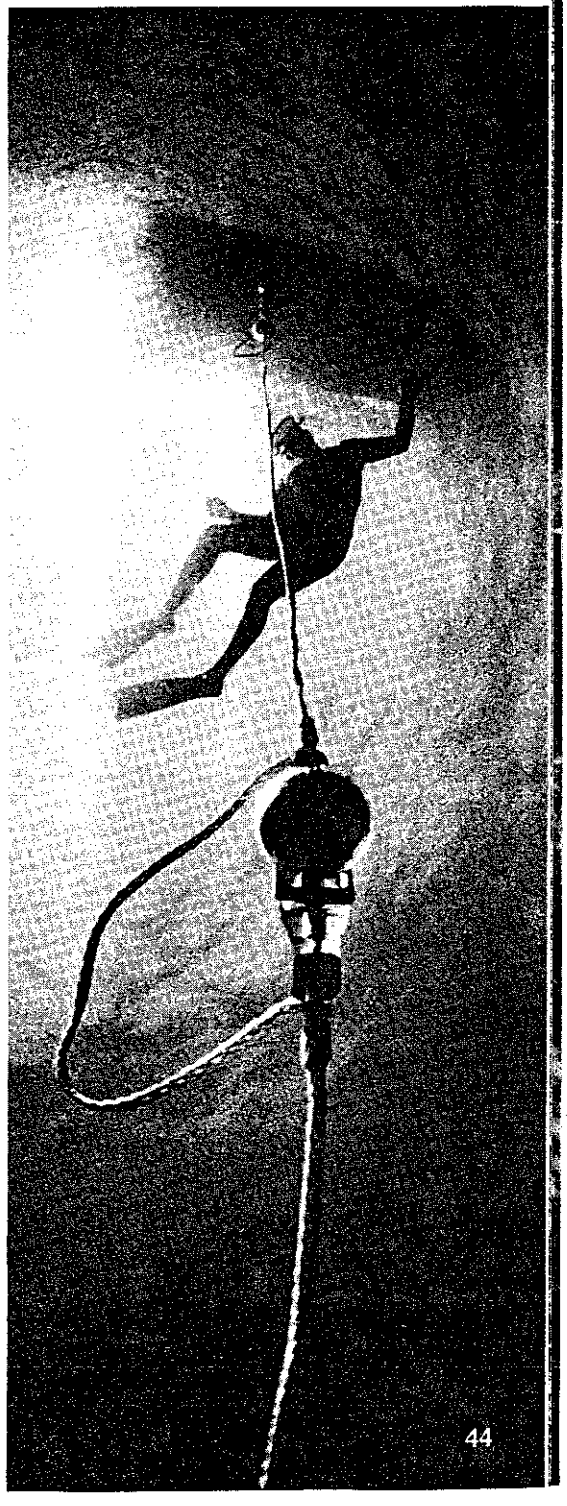
One research item, a $7,000 water sampler, fascinated me — not for any photogenic qualities, but because it had a unique triggering device . . . a candy life-saver that melted away in water. An entire expedition was delayed once when a crew member ate up all the candy.



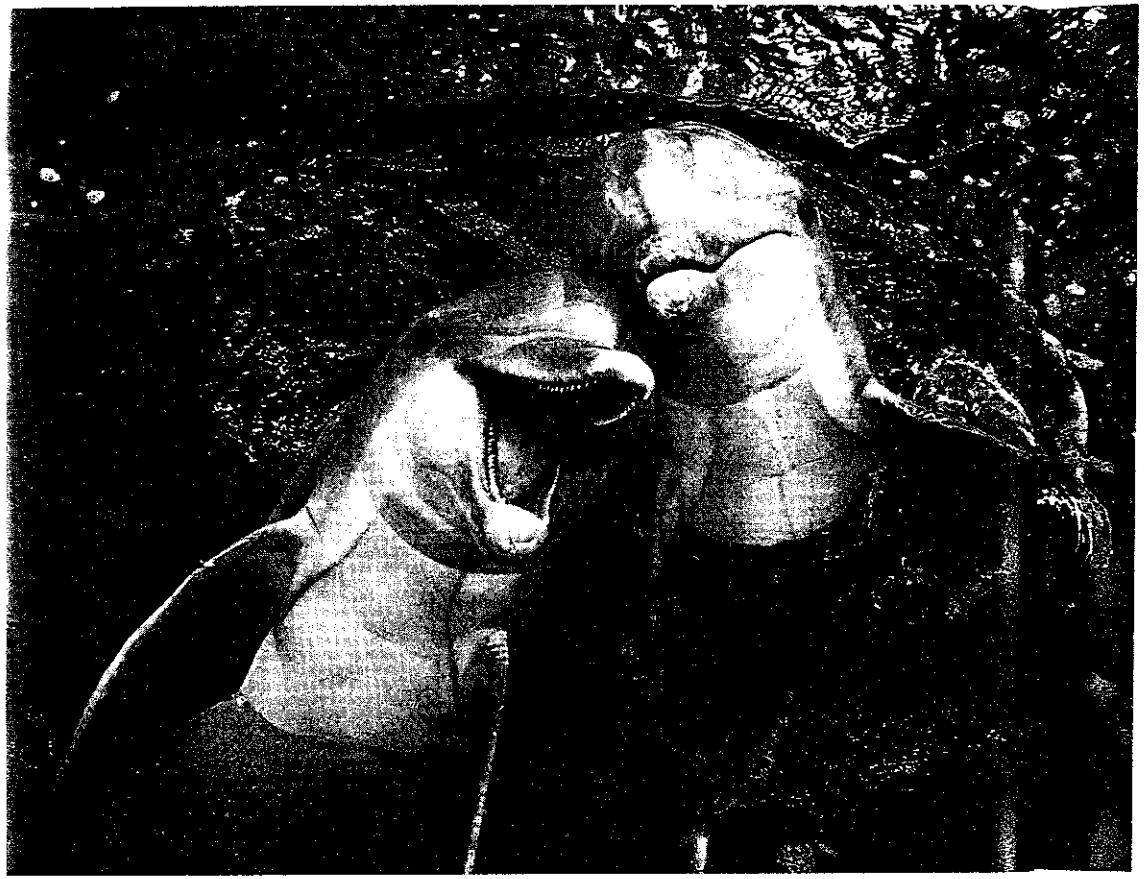
SPID, a new molded-rubber underwater dwelling.



Time exposure with open flash dramatizes moment when scientist leaves research sub Deep Diver, for a night diving probe.



Meter clocks speed and course of current.



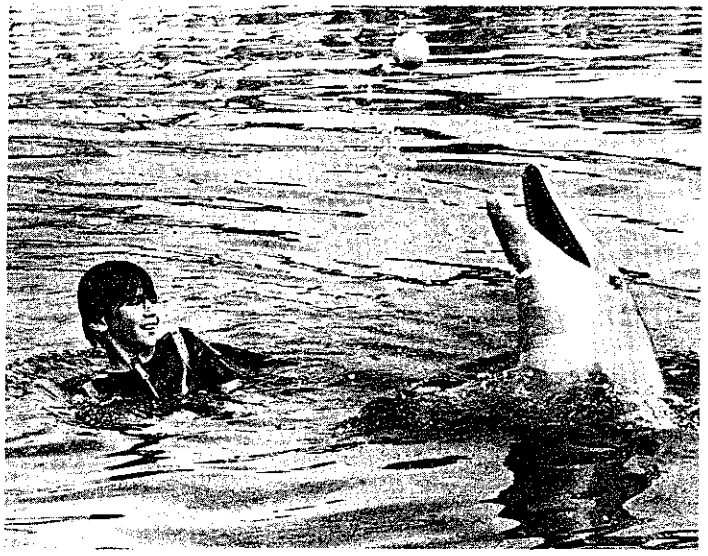
Clicking with dolphins

An assignment to shoot four kids on vacation cavorting with trained dolphins for a children's book was offered me by American Heritage publishers. I agreed on condition the story be shot topside due to poor visibility in the water. What should have been a "dry" story ended up quite the opposite. The playful animals would rush in to me and use their flippers to splash salt water on me. In self defense, I wore a swim suit and used my amphibious cameras. I shot one of my best pictures this way, two happy dolphins clicking with a photographer. It made the cover of the book, "My Dear Dolphin."



A hand-to-mouth conversation conducted by Cynta, one of the de Narvaez children who spent their Easter school vacation playing with the trained dolphins at Floridaland, near Sarasota, Florida.

My son Michael came along to help. One look at the dolphins and it was love at first sight. He put on his wet suit and dove in to play with them, and that was the end of any work or assistance from him.



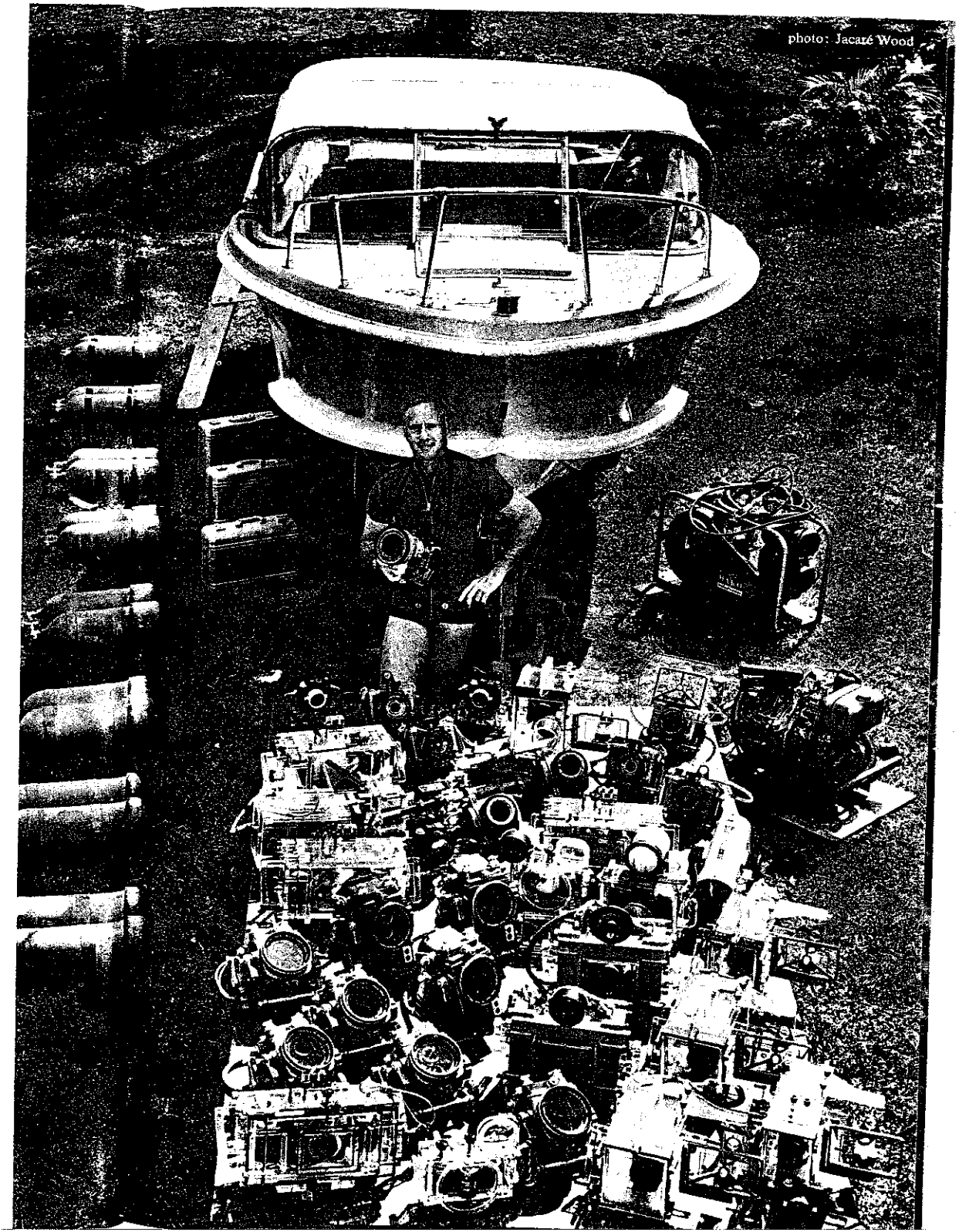
20,000 dollars under the sea

On a recent assignment in the Virgin Islands, I had a vast array of underwater cameras worth close to $20,000 at my fingertips. They ranged from micro close-up cameras to systems that cover a 140° panorama. When working, I leave them suspended from special lines off the side of my diving boat. In this way I can reach them without surfacing.

Having a lot of equipment is no guarantee of good results. There have been many times when I have had to use only one camera on an assignment. In this situation I prefer my Nikon F single lens reflex with action finder prism, encased in an aluminum housing. I like electronic flash for close-ups and for subjects up to seven feet away. For greater distances I find the blue-coated flashbulbs best. I try to stay with Kodachrome II in clear water with flash. Ektachrome X is handy for available light, and High Speed Ektachrome is a must when the light level is low, the water dirty, or the dive deep.

I keep hearing about the riches found beneath the sea. Some of those riches must be the expensive and irreplaceable equipment I have lost and the boat in this photo that was shipwrecked off Bimini. All had a proper Viking funeral.

Despite such heartbreaks, the real riches of the sea lie in the future. Photos are there to be taken, and new adventures call.



What the well-dressed underwater photographer keeps in his closet.