

## Guana Harbor Club, Abaco, Bahamas

### *Make Your Christmas Plans Early*

"If you're going diving at Christmas," I always tell my buddies, "you'd better get your reservations by the 4th of July. Otherwise you won't find much available." Last year I failed to follow my own advice. I expected to stay home by the hearth to indulge in eggnogs and angel songs. Then, the first winds began to blow and the chill factor dropped way below. I called my travel agent and uttered but one word. "Help." She went right to work.

Though I found a couple of possibilities of reservations being canceled at resorts I had visited before, I like to keep moving, looking for new ventures for myself and new stories for you, our readers. After a great deal of contemplation, I selected the Guana Harbor Club, on Great Guana Cay in the Abaco district in the Bahamas, a remote destination I knew absolutely nothing about. The brochure showed attractive quarters and palm-lined white beaches, and it indicated scuba diving was "available." And so were rooms. I signed up.

My Bahamas Air flight landed at Marsh Harbour International Airport and after passing through customs I boarded a land taxi (\$4/person) to Windsong Marina, where the 40-foot watertaxi to Guana Harbor waited to motor its passengers for \$8/person (but a \$30 minimum) for the 35-minute ride. As we approached, Great Guana Cay proved to be as attractive as pictured. And nestled in the palms was the tiny town of Guana Harbor, whose 81 residents, descendants of loyalists who left America during the Revolutionary War, retain the customs and architecture of New England two plus centuries ago.

Upon arrival at the Club I was greeted by Glenda Williams, the lovely owner, who immediately served me a complimentary Guana Grabber, which I quickly reordered, and reordered again, since I found it greatly increased my intellect and perception. My room, one of 19 in two buildings and less than a minute from the central building, contained twin beds, a large dresser, a couple of tables and an armchair, and a screened porch with lounges. And a complimentary bottle of chilled champagne, which helped me make my final decision as to whether to be productive or waste the rest of the day.

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My one reservation about venturing to the Bahamas is that the winter months can be chilly and cold. At Great Guana Cay, which is farther north than Miami, that was surely the case. Thick sweaters were mandatory for evening wear and the normally clean white sand beach at the hotel door remained covered with sargassum weed, blown ashore by the continuous westerly wind. I worried the first night that the blow would affect the diving and, of course, it did indeed.

Five minutes from my room was Seven Mile Beach, this one washed clean by the strong surf. Its irregular shape is punctuated by large and attractive outcroppings of ancient coral. From 50-100 yards offshore the barrier reef breaks the surface in a few places and on calm days I found the snorkeling excellent. All the usual tropical fish were present, a few curious barracuda, and a healthy variety of coral. After my first snorkeling venture I pursued the so-called "available" diving, which would have to be arranged by Glenda, herself, since the hotel had no facilities whatsoever. This year the primary dive contact turned out to be Jeff Kerr, who lived in the harbor on his cement-hull ketch. Jeff and his wife had been in Guana Harbor for only a few months and though he was an eager and proficient diver, his familiarity with the sites was, I suspect, a bit limited. With only six tanks to his name, he had to make the 18-mile roundtrip to Marsh Harbour each time two divers wished to join him in an undersea safari. He did have a two-hose hookah on board, with a compressor capable of supplying air to 100 feet; had more divers been at the hotel, the hookah would have been put to the test. For tanks-only diving, Jeff used an inflatable to take us to the reefs.

With a few exceptions where dropoffs are nearby, (e.g., Bimini, Small Hope Bay on Andros), much of Bahamas diving is on patch reefs which pop up out of white sand bottoms. Some are small, some are large, but the depths are shallow and the scenery is roughly the same. Here I found some small walls dropping off to 50 feet or so, coral canyons and cuts, and small caves. The coral was healthy and undamaged, with fans, gorgonia, small sponges, and some plume and featherduster worms. The marine life was typical: butterflies, angels, trumpets, cowfish, wrasse, hogfish, snappers, a few barjacks, parrots, barracuda, small groupers, morays, triggers, small tropicals, and a couple of nurse sharks. The dives were pleasant, and would be especially so for novices, but I had no surprises or discoveries. The most exciting scene occurred when a large school of Atlantic spadefish appeared from deeper waters and seemed to enjoy our company. One way I judge the quality of my dives is how many photos I take on a single tank. In the Red Sea I used a 36-frame roll on every dive; here, it took three tanks to spend a roll. Because of the winds, visibility dropped as low as 40 feet (the high was 90, or so). Water temperature was 74°, which brought chills at the end of each dive even to those attired in quarter-inch tops.

I had heard that good wrecks abound in these waters, but Jeff said the weather just didn't permit a journey to them. A local resident explained that I could find another guide on the island, a PADI instructor named Carl Wilson, and though I left a message with his brother that I wanted to go diving, I never heard from Wilson. There was a dive operator at Treasure Cay, Glenda explained, so I asked her to contact him. She was informed that a boat would pick me up at the Guana Harbor dock. The boat arrived, but it turned out to be rigged for fishing and the captain knew nothing about diving. Glenda seemed relatively unconcerned about my plight and it was not until the last day that I learned of dive boats operating

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from Conch Inn (Dave Wiltfang) in Marsh Harbour and at Dave Gale's Island Marina, Parrot Cay, Hopetown (about nine miles away). Each supposedly would have picked me up, since many of their sites are nearby, so I don't know whether they have extraordinary underwater vistas unknown to Jeff Kerr. Frankly, I doubt it. But it's good to know of their whereabouts, since Jeff Kerr will most likely weigh anchor someday and head off to God knows where and dear Glenda will need someone to fulfill her "scuba diving available" promise.

Yet for a nondiver coming to the semi-tropics to pass the time, the Guana Harbor Club proved pleasant enough. There is no golf, no tennis, no nightlife. This time of year the swimming is questionable. But the setting is beautiful, the atmosphere home-like and informal, the accommodations comfortable, the food quite decent. The dinner menu listed sea food varieties, lobster, shrimp, conch, steak, veal, turtle steaks, and chicken, to be served with salad, vegetables and homemade pie and ice cream. What we were served was indeed tasty and well-prepared, though many of the selections were unavailable each evening because the supply was exhausted or because the cook had forgotten to remove them from the freezer. Breakfasts included eggs, grits, sausage, fresh fruit and even fish, while lunch menus offered lobster, fish, conch, salads and sandwiches. The nighttime social life would be frequently enhanced by visiting yacht folk who sought safe moorage in the harbor before moving on.

In retrospect, my stay was quite pleasant and the diving decent, but nothing special. The cool weather conditions are common that time of year in the Bahamas. And the hassles? Well, they're to be expected when traveling to these remote little out island-resorts if you don't do the research and advance contact required. I can only urge that if you're giving thought to traveling next Christmas, now's the time to pick your place and get the deposit in the hands of your travel agent. If you don't, then when the first snow falls and you just have to get away, you may find yourself spending Christmas looking for Jeff Kerr, only to find that he's sailed off to other ports-o-call. There are no promises that Carl Wilson will answer his door, nor can you be assured that this time a dive boat, not a fishing boat, will arrive from Treasure Cay.

But now you do know that Dave Wiltfang or Dave Gale can send a boat. Glenda would never tell you. So I will.

Divers' Compass: Winter doubles ran from \$50-\$70 (two-room suite); with breakfast and dinner added, the price increases \$18/person. . . Rates had actually decreased \$10-\$15/day since 1978, which probably tells a bit about the economy and the travel business these days. . . Jeff Kerr charged \$25/tank, including pack and weights. . . there was plenty of hot water, though one day we were without cold water because someone had left a faucet on all night. . . I picked up tar on the soles of my feet on Seven Mile beach, but baby oil removed it easily. . . wind surfers could be rented (\$20). . . regardless of what anyone tells you, be sure to confirm your departure reservations before leaving the airport at Marsh Harbour

### The Caribbean For \$4

Even if you were a geography major in college, it's still likely that you have a difficult time with the geographical relationship between the islands of the Caribbean and the United States. Although most of us see the Bahamas as tropical outposts, as our travel reviewer points out, winter there can be cool, especially when you're on an island farther north than Miami.

Grand Cayman is less than 500 miles from Miami, but it's more than 1000 miles from St. Thomas. Bonaire is about 500 miles from Trinidad, and both are less than 100 miles off the coast of Venezuela.

If the Caribbean is a puzzle to you, then try a map from the *National Geographic*, which now has a 1981 superb 24 x 32-inch Caribbean map which not only puts all the islands in perspective, but also, on the reverse side, has 40 small detailed maps of the major islands and island clusters. It's a real bargain at \$4.

Send your check to *National Geographic*, Washington, DC 20036, and request the map of the Tourist Islands of the West Indies.

and arrive an hour before your return trip, even though Bahamas Air is always late. . . .

## *From Our Readers' Travel: Part IV*

**HAWAII:** In our November/December issue, we wrote of a real tourist ripoff when diving Haunama Bay. Judging from the number of complaints we received from Hawaiian shops and divers, our cheery little publication is well-read in Honolulu. Many divers said we gave all shops a bad name and others cried that we had defamed all diving in Hawaii. Rita Hall, who bills herself as a Hawaiian diver, writes, "If you had gone far enough down the list of shops, you could have made a dive on a corsair airplane in 90 feet of water. . . How about some exciting pinnacles in 85 feet--we have lots of exciting two-tank packages on Oahu." John Arnold says it's "too bad the writer missed the true beauty of Haunama Bay because he only apparently saw the shallower end of the reef. . . it's a marine sanctuary with turtles, 4-5 foot parrot fish and triton trumpets, just to mention a few." But Cynthia

### **For Teenagers Only**

For teenagers there are summer basketball camps, tennis camps and football camps, so why not scuba camps? Well, there is such a shindig, and this year, after 12 years on Grand Cayman and one on Grand Turk, Scubacamp will be held at the Reef House Resort, on Roatan. Young men and women, 12-18 years old, can choose from two sessions. The first, July 1-21, emphasizes tropical and marine biology under the tutelage of Dr. Joseph Britton, associate professor of biology at Texas Christian University. The second session features a course in underwater photography. Not only will students earn certification in 18 dives, but they will sail and wind surf, take excursions to Mayan ruins, and engage in other activities, some of which will remain unstated. The price is \$1275 for the three weeks. For information write Thelma Clark, Director, Scubacamp, 200 Ansel Road, Geneva, OH 44041 or phone (216) 446-2440.

Connors of South Seas Aquatics says that "I agree that Haunama Bay doesn't pose much of a challenge for a certified diver, yet there are plenty of good reef sites accessible by boat. . . enclosed is a gift certificate for a free two tank dive so the author can see the real beauty of underwater Hawaii." Well, thanks Cynthia, it won't be too much longer before we hop one of your boats for review of full Hawaiian diving, but we'll be paying our own way--and not identifying ourselves. In retrospect, we might have been a little hard on the tourist diving in Haunama Bay--though the story is true--but we do believe that if an experienced diver wants a challenge, then a Hawaiian boat dive is a much better way to get wet.

Elsewhere in the islands, Tom Shockley and Lisa Choquette continue to excel in the experiences of our readers. Florence Nelson of Scottsdale, Arizona says, "A fantastic outfit. Cave specialists. Their 130' deep dive is an experience to be savored for years.

Herb Cook (Columbus, Ohio) writes, "Tom and Lisa take time to know their divers, let their divers pick the sites, and spend as long as 30 minutes going over the dive plan, with constant reference to the marine life in the several books aboard. Kona's reefs do not match those in the better Caribbean spots, but the marine life and Tom and Lisa more than make up the difference."

**HAWAII TIPS:** The weather can get pretty ugly December through February, so you best wait to visit Hawaii in other months. On Maui, dive with Central Pacific Divers in Lahaina.

**BAHAMAS:** Frank Davies, of Scuba Tours International, writes that "Small Hope Bay is the finest and oldest in the Bahamas. . . Dick and Rosie Birch are just great folks. . . Dick says the secret of his success is horney divemasters. . . try the chicken dive to 180 feet to get your picture taken with the chicken fish." (But first read our review in the April, 1980 issue). . . Riding Rock Inn on San Salvador is one of the best organized operations in this hemisphere and the diving is among the tops

in the Bahamas, but some of our readers are beginning to complain that the divemasters occasionally get a little lazy. Divers in search of real thrills best head elsewhere, but photographers love it. George Hodges, of Port Huron, Michigan, writes: "great for photography--tame fish help--with fully equipped photo lab and overnight processing." . . . G. C. Gunnison (Girard, PA) writes that "Chub Cay is a really great new dive spot. Reefs have only seen divers for one year. It's the home of eagle rays. I saw many, some as close as ten feet. The host and hostess are exceptional. . . Several divers had little complimentary to say about the diving out of the Out Island Inn, (Exuma), but one diver (who didn't include his name) said he rented a boat and found fantastic reefs outside Stocking Island "so the potential is there."

## Two New Hopes To Repel Sharks

### —A Steel Mesh Diving Suit

A fine steel mesh diving suit, which clings to the body like a jogging outfit, is now being touted as the answer to shark attacks. The suit creator, Jeremiah Sullivan, recently sported the 16-lb suit in a swarm of blue sharks in Southern California waters. One hungry seven-footer slipped up alongside, tentatively tasted the steel mesh, and quickly fled. Ron and Valerie Taylor have also tested the suits in Australian waters with a number of shark species present, including hammerheads and grey reef sharks, and reported the same results.

Sullivan got the idea for the suit when he learned of research determining sharks' fearful reaction to metals such as rusty steel. The study suggests that sharks are disturbed by the galvanic electric current occurring in seawater. Furthermore, because sharks' teeth can be broken off biting metallic objects, a suit

which clings to the body, Sullivan believed, would not only prevent sharks' teeth from bothering the diver but would chase the shark away.

Because the suit is flexible, a diver may swim in it. Its sixteen-pound weight means that most divers won't need weight belts—unless they're wearing a full wet suit. The suit will be a boon to researchers of shark behavior, underwater photographers, and film crews—all of whom now rely on bangstick or similar devices to keep sharks away—and not always successfully.

Sullivan has great hopes for the suit. Some people claim that if it proves successful—and so far the results are positive—it could "do to diving what the parachute did for flying." Sullivan, we presume, is banking on it.

### —a secretion from the Moses Sole

Nearly two decades ago, marine biologist Eugenie Clark discovered that the Moses sole, a Red Sea flat fish, secreted a milky substance that seemed toxic to certain fish. After further research, scientists began to focus on the shark-repelling attributes of the substance. In the November, 1974 issue of *National Geographic*, startling photographs were published showing sharks about to bite down on the unsuspecting sole, then becoming paralyzed and quickly veering away. In one experiment, where a live sole was tethered in a tank, the shark approached with jaws wide open, ready to clamp down but the shark came to an abrupt halt. Its jaws seemed to lock. It shook its head violently, then thrashed about the tank to shake loose the paralyzing effects of the powerful venom. In another experiment, Dr. Clark reported that over a 17-hour period two sharks made repeated attacks on the helpless sole, but upon inspection little Moses showed "not a scratch." Once in the Red Sea, a barracuda took a cheap shot at a Moses sole being

held in a diver's hand, but stopped short of the final attack, shook itself convulsively, and disappeared faster than it had arrived.

Recently, researchers at the New York University Medical Center isolated the compound called *paradazin*, and conducted further tests to determine just how and why it affects shark behavior. When sharks were exposed to the substance, they exhibited their "escape response," quickly turning away from the toxin's source. Some sharks lost equilibrium, turning upside down and over on their sides.

Though everyone has great expectations for the shark-repelling paradazin, it's a long way from the marketplace. The Moses Sole, of course, can't be captured and milked in any quantity, so the researchers must duplicate the substance in the laboratory to make it economical. Once that's complete and the repellent becomes commercially available, it will conceivably be sprayed on a wet suit for a full day's diving protection.

# Training Divers for Blowups

## *NOAA Divers and Drysuits*

To a diver wearing a dry suit, the loss of buoyancy control seems especially life-threatening. As he starts to float upwards the air in the suit expands, further increasing his buoyancy and his rate of ascent.

Because of the frigid (and sometimes polluted) waters in which NOAA divers operate, many of NOAA's 400 men and women have elected to wear dry suits to perform their tasks. So, according to NOAA Diving Coordinator Morgan Wells, NOAA recently conducted tests to investigate what might be considered "diving flowlore" concerning blowup. "We found we could do a lot of things experienced divers said couldn't be done with dry suits."

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*"...divers rocketed to the surface as fast as five times the normal rate, rising the 100 feet in only 20 seconds."*

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In a week-long exercise conducted at the Naval Surface Weapons Center's Undersea Weapons Tank at White Oak, Maryland, the NOAA team found that with proper training and techniques, an accidental blowup need not become a life-threatening situation. Inside the Navy's towering tank, the NOAA team intentionally created blowup situations in water depths as great as 100 feet. "This exercise was potentially dangerous and normally could not be done in open water," Wells explained. "But we felt compelled to duplicate as closely as possible conditions NOAA divers would face and attempted to develop techniques allowing the divers to be in control during a blowup."

One of the most common causes of dry suit blowup is loss of neutral buoyancy when a diver accidentally drops his weight belt, (which usually weighs 30 to 40 pounds). Monitored by closed-circuit television and with a safety diver alongside every moment, members of the NOAA team intentionally dropped their weight belts while 100 feet down in the tank. At the standard ascent rate of one foot per second, the normal and safe time of ascent from this depth is 100 seconds. In the blowup situation, however, the divers rocketed to the surface as fast as five times the normal rate, rising the 100 feet in only 20 seconds.

Should this occur to an untrained diver, the likely result would be death from an air embolism. So, "during a dry suit blowup, a diver must know what to do immediately," Wells said. "He or she has to start exhaling and attempt to maneuver into a position that will slow down the ascent rate.

"In a wet suit the diver has much better control over the rate of ascent. In a dry suit the air inside the suit expands as the diver rises, increasing the diver's buoyancy and speeding up the ascent to the surface. This in turn increases more rapidly the volume of air in the

lungs."

NOAA diver Cliff Newell of the National Marine Fisheries Service, Wood Hole Laboratories in Massachusetts—a White Oak team member—faced this problem once during his career. Working at about 100 feet, he had increased the buoyancy of his suit to aid him in moving clumps of cement blocks from one location to another, a technique sometimes employed by professional working divers. But Newell's buoyancy became positive and he slowly began to rise. The normal solution would be to vent the suit to decrease buoyancy. However, Newell was using both hands to hold the cement blocks, and he knew if he let go with even one hand—which he must do in order to vent—he would drop the heavy blocks and rocket to the surface.

Newell did the only other thing possible. He exhaled continually as he rose. As the water pressure around him decreased, the volume of his air suit increased, causing it to balloon. Only his awareness of the need to exhale prevented his lungs from ballooning like his suit and probably causing an embolism.

As it was, the only damage to Newell was to his pride. By the time he reached the surface his suit had ballooned to more than three times its normal size and he floated helplessly on the surface until retrieved by tenders.

Dry suits have an air supply valve and an exhaust valve. The supply valve in some suits is connected to the diver's air supply for inflation while in other suits the diver must inflate them orally. The exhaust valve allows the diver to release air from his suit.

For the valves to do their job, as one NOAA diver learned, the diver must be able to control them. Sometimes this isn't as simple as it sounds. A NOAA diver wearing a chest-mounted "horse-collar" BC decided to increase slightly the amount of air in his suit to change his buoyancy. Rather than using the buoyancy compensator, he slipped his hand under the compensator harness and pressed the suit's inlet valve. Instantly his suit began to inflate. The expansion pushed the back of his hand against the harness. He tugged and pulled, but was unable to remove his hand, still pressed solidly against the inlet valve. His suit ballooned as air flowed into it unimpeded. Shortly, he was bobbing about on the surface, his suit vastly over-inflated. Again, the diver exhaled constantly en route to the surface and avoided an embolism.

The worse possible dry suit blowup situation for a diver is when he loses buoyancy control while working upside down. In an inverted position, air accumulates in the legs and feet, often pushing off the diver's fins. Before the chest or shoulder-mounted

exhaust valve can function properly, the diver must maneuver into a position which permits the air in the suit to flow to the chest area.

If a diver gets into a chest-up horizontal position, not only can the suit's air be vented properly, but the rate of ascent can be slowed down as the amount of body resistance against the water is increased.

Perhaps the most significant fact to emerge is that while dry suit diving does carry risks peculiar to the equipment used, these are not insurmountable. A diver can experience a blowup without injury or loss of life, if the diver knows what to do.

The research has some pertinent points for dry suit divers:

- *Procedures to follow during a dry suit dive can vary depending upon the model suit being worn.*

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*"When possible a quick-release shoulder harness should be worn with the weight belt to reduce the possibility of accidental belt loss."*

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- *No one should engage in dry suit diving until having completed a special training course.*

- *While emergency blowup venting procedures can be taught, this must be done under very controlled conditions.*

- *Ankle weights should be worn with dry suits when possible. They help keep the feet down in blowups, give stability, and help keep fins on in the event air gets into the suit's feet.*

- *When possible a quick-release shoulder harness should be worn with the weight belt to reduce the possibility of accidental belt loss.*

- *Front-mounted buoyancy compensators should not be worn with any dry suit that has a purge valve on the front.*

And finally, as every diver knows, *exhale* all the way to the surface. NOAA divers were uninjured because they followed the rules and exhaled along their speedy and unwanted trip upwards. The exhale response must be fast and automatic. If so, it will prevent injury and, most likely, save a life.

A version of this article, written by William J. Brennan, originally appeared in the Winter, 1981 issue of the NOAA magazine. *Undercurrent* accepts all responsibility for editorial changes.

## Four Decompression Meters

### *And then there were two; or maybe only one*

From the time we first wrote about the SOS decompression meter, sold in the United States by Scubapro, we've been especially interested in the automatic monitoring of decompression—or no decompression limits—during diving. On one hand, proponents of the SOS meter claim it served them well during their dives, but on the other hand scientists and researchers find no scientific basis whatsoever for the meter. Through 1976 Scubapro's claims about the meter were downright deceptive, but after a series of articles in *Undercurrent* and pressure from other sources the instructions were changed and claims for the meter's validity were greatly reduced.

The simple facts about the SOS meter are:

- It does not follow the U.S. Navy tables.
- It does not follow any accepted decompression or no decompression tables.

- On a single dive up to 90 feet, the meter face permits less bottom time than the U.S. Navy tables.

- On a single dive deeper than 90 feet the meter gives more bottom time than the U.S. Navy tables permit.

- Because the face of the meter is inaccurate instructions must be followed which are not printed out on the face. For example, one must take decompression stops for dives at 100 feet or deeper, even though the meter

face indicates that decompression is not necessary and bottom time still remains.

- For repetitive dives, the meter gives a variety of information; there is virtually no way for the sport diver to determine if the meter is correct or incorrect on these dives. In our April 1976 issue, we reported that researchers Red Howard and Kurt Schmitt discovered a number of repetitive dive profiles in which the SOS meter seriously exceeded the Navy tables, sometimes providing as much as 2-3 times the bottom time allowed by Navy tables. An article by Schmitt, Howard and Bradner (all from Scripps Institution of Oceanography) appearing in the *Medical and Biological Engineering Journal* (September, 1976) reports that one diving test team suffered decompression sickness following a repetitive schedule provided by two calibrated meters and indicated that other cases had been reported.

Although the instructions for the meter have been tightened up substantially over the years, the meter itself has not been changed. We ourselves have encountered scores of divers who ignore the printed word and follow the face of the meter for their decompression instructions, a practice bound to cause problems. Divers who claim to be following the meter (and not

observing the tables) still show up bent at recompression chambers, some seriously injured. At least one of these divers has sued Scubapro. The suit was settled out of court, with the plaintiff and his attorney agreeing not to disclose the terms of the settlement, an agreement which certainly protects Scubapro's public image and its perceived liability for the device.

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*"Who says safety is the primary concern of the industry?"*

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The facts about the meter's operation are clear and indisputable. Yet, the Italian manufacturer continues to produce it without modification. Scubapro continues to market it without fully disclosing all the facts needed to permit divers to use it correctly. Retailers continue to sell it without having any understanding of the full range of limitations. Training agencies fail to inform their instructors about it. Instructors fail to inform their students about it. And the magazines pretend it's not even there.

So who says safety is the primary concern of the industry?

### **The Farallon Meter**

In 1975, when Ralph Shamlian was president of Farallon (he is now President of Tekna), Farallon touted their new Decomputer, a major advance in decompression meters for divers, so they said. The meter was plagued with problems, however, and was eventually yanked from the marketplace. In early 1976, the Consumer Product Safety Commission issued a formal recall. The following year a Farallon representative told *Undercurrent* they had "licked the engineering problems" and expected the new meter to be out shortly at a price of \$60-\$80.

That, too, never happened. More problems developed and when Farallon was eventually sold to Oceanic, the new company, Farallon/Oceanic, scrapped the meter. Recently Bob Hollis, Farallon/Oceanic president, told *Undercurrent* they have no intention of coming out with a new meter. Anyone who still has one of the old devices kicking around may return it for a full refund.

### **The Dacor Dive Computer**

In January, 1979, Dacor introduced a prototype of their Dive Computer at the New Orleans DEMA convention. The remarkable device would indicate depth, time the dive, time the surface interval, indicate maximum depth, time repetitive dives, indicate the ascent rate and serve as a full-blown decompression meter. Lights would warn the diver five minutes before the dive would have to end. If it were not to be a decompression dive, a light would flash when a stop would be required and the L.E.D. readout would tell the diver at what depth he must stop to decompress.

Though testing had not been completed, a Dacor spokesman told *Undercurrent* that the first models would be in the stores by June, 1979. The major problems were licked, he said, and it would be only a matter of final testing before production began. Two full pages on the Dive Computer in the 1979 Dacor catalogue displayed Dacor's confidence in their new product.

Nevertheless, in February, 1979, after seeing many diving products come and go, we wrote: "Whether the device has the same spread in the 1980 catalogue will be determined by their tests, their quality control, the meter's reliability and, most important, diver acceptance." We could hardly wait for this significant new device, especially since it would perform all these functions for only \$395.

Unfortunately, we're still waiting. The meter has yet to come on the market. For Dacor, the reasons are not easy to stomach, especially after the major investment of capital and time to develop and market the device. Jim Foley, Dacor national sales manager, told us that their first delay came after the Italian company they selected to produce the units burned to the ground—destroyed in that fire were their molds, which took several months to replace.

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*"No 12-hour battery by that manufacturer or any other manufacturer—has yet to meet the power requirements of the Dacor Dive Computer."*

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But if that were all that happened the unit would be available. The Dive Computer required a rechargeable battery with a 12-hour life to keep track of the interval between dives. A battery manufacturer (whom Dacor will not disclose) told them, Foley said, it could meet Dacor's specifications and would provide the battery when they were ready for production. So Dacor proceeded with development even claiming that it would be rechargeable from an automobile cigarette lighter in 4-6 hours. But they had no battery and when they displayed the prototype at the DEMA convention they used an outside battery source for power.

When production time finally arrived, the battery manufacturer was unable to deliver. No 12-hour battery by that manufacturer—or any other manufacturer—has yet to meet the power requirements of the Dacor Dive Computer.

So there sits the Decomputer, on Dacor's shelf, waiting for someone, someday, to come along with an adequate power supply.

### **The Cyberdiver II**

In April, 1978, we reported on the Cyberdiver, supposedly the first commercially available "state-of-the-art electronics" decompression meter. The Cyberdiver II, with moderate changes from the first model, does everything the Dacor Computer was supposed to do with one major addition. The Cyberdiver is fitted on



## Nitrogen Narcosis

### *Are the Effects Real?*

As all divers have been taught—and some have experienced—nitrogen narcosis (rapture of the deep) begins to have an intoxicating effect at about 100 feet. As one descends, the symptoms become more severe due to the increase in the partial pressure of nitrogen.

Widely accepted notions of the negative effects of narcosis, may, however, have to be reevaluated by the diving community if one accepts the results of a study recently conducted by the Commercial Diving Center at Wilmington, California. The tests showed that in some cases the four subjects involved could actually *perform better* after twelve hours of nitrogen saturation than before being exposed to nitrox, a nitrogen/oxygen mixture.

During a series of nitrox dives, tests were given to determine the effects of nitrogen narcosis on the cyclo-motor performance of divers during and after 12 hours of saturation at 165 feet. In fact the four divers adapted quickly and improved their performance during the tests, particularly between the 6th and 12th hours. This was especially true on three dexterity tests: a hand tool dexterity test which requires the subjects to remove nuts, bolts and washers from one location and replace them in the same order in another location; a screwplate test which counts the number of times the subject can install a small screw in a three-minute period; and a peg and collar test, requiring the subject to use forceps to place a pin and surround it with a collar. Performance in a two-minute arithmetic test deteriorated slightly during the 12 hours and performance in an electronic game test to evaluate memory proved the most erratic. Nevertheless, the four subjects still showed improvement between the 6th and 12th hours.

Additional tests will be required to develop statistically significant conclusions, but these new findings about the effects of nitrogen narcosis—or the lack of effects—are already making a few people in the diving industry a bit dizzy.

the high pressure air hose from the tank and reads out tank PSI, thereby eliminating the mechanical pressure gauge—and eliminating the need to strap the device on an arm.

Franco Consadori, vice president of Cybertech, a Canadian firm, told *Undercurrent* that unlike the Dacor unit, the Cyberdiver is able to operate for 12 hours on a nine-volt alkaline battery. A breakthrough in chip circuitry requiring only one-tenth the power needed by other microchips and reduced power requirements for their depth sensors put less demand on the battery. Furthermore, the Cyberdiver display turns on only when the unit is held in a position to be read by the diver. When the position is changed, the device turns off automatically to conserve much-needed battery power.

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*"The Cyberdiver . . . does everything the Dacor Decomputer was supposed to do . . . and reads out tank PSI."*

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The original Cyberdiver was programmed for the Kidd-Stubbs decompression tables, not the U.S. Navy tables. Now, however, the Cyberdiver is programmed for the U.S. tables and can also be programmed by the user for more conservative bottom times, an advantage for cold water or not-so-youthful divers.

Just as Dacor has had its problems, so has Cybertech. Although Cybertech tested the device in the lab at 300 feet, divers who purchased the unit found it flooded in 20-30 feet of water. A tiny hole in the housing would seal under the pressure of 300 feet, but did

not seal in shallow water. The problem was traced to the mold; as soon as it is corrected the Cyberdiver will be available again.

Cybertech executives believe that the purchasers of the Cyberdiver need special training. They will distribute it through NASDS stores, whose staff will provide instructions. The expected retail price is \$1130, which puts the device out of reach of most sport divers. Of the 250 sold previously, most went to customers in Canada, Australia and New Zealand.

### Conclusion

Decompression tables are complex, so an accurate meter to monitor the tables must be equally complex. The SOS meter, which retails for about \$160, is expensive for what it is—a Bourdon tube, a ceramic filter, and a bag which is filled with air. It is at best a back-up device for a diver who forgets the U.S. Navy tables or his time or depth. Tragically, too many divers believe that it delivers far more information. The Dacor Decomputer, which actually is a decompression meter, was expected to sell for \$399 in 1979, but one would expect a much stiffer price by the time it gets to the market—perhaps a price rivaling the Cyberdiver.

The upshot is that you get what you pay for. If you want a decompression meter today, you will have to pony up \$1130 for the Cyberdiver. If you want a device that may back-up your use of the Navy tables on a single dive in one 12-hour period, then the SOS meter will suffice—as long as you know how to use it.

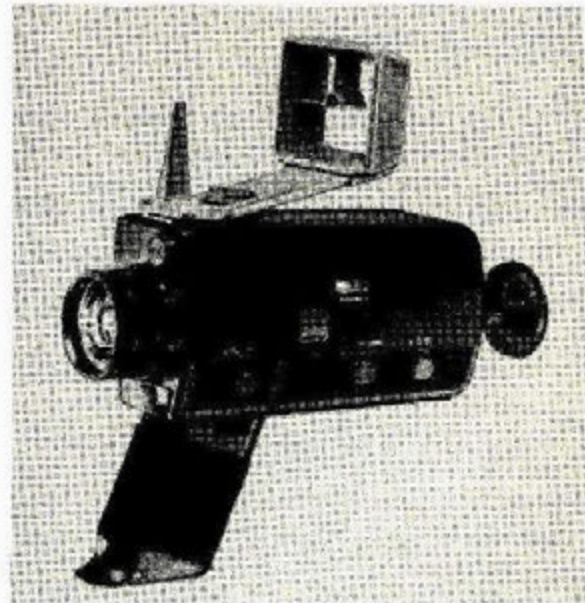
But, if you have any notion of using it for repetitive dives, most likely you've wasted your money.

**DIVING EMERGENCY?  
DIAL  
919/684-4148**

By calling the above number during any hour; day or night, and asking for DAN, the Diving Accident Network, any caller can get immediate help for the treatment of any diving accident.

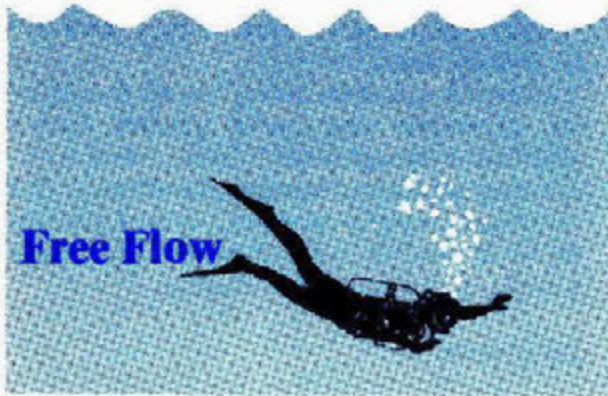
This caller will be connected to one of the specially trained physicians in Hyperbaric Medicine at Duke University in Durham, North Carolina. The physician will directly advise the caller about appropriate treatment or, should the victim need a recompression chamber, help the caller get in touch with any of several regional chambers. Transportation to the chamber can be arranged and the emergency treatment can be scheduled immediately.

The diving network was established with the aid of a two-year, \$270,000 grant from the National Oceanic and Atmospheric Administration (NOAA).



**THE EUMIG NAUTICA UNDERWATER MOVIE CAMERA**

In the Nov/Dec. issue we published a comparison of two underwater movie cameras, the Eumig Nautica and the Fujica Marine. The article contained a picture of the Fujica, but we inadvertently omitted a picture of the Eumig, the camera preferred by our reviewer.



We recently wrote that although the Navy rejects flotation jackets such as the Scubapro stabilizing vest because the tank can't be jettisoned without taking off the jacket, sport divers don't have cause to jettison their tank so there's no reason for the design to be unapproved for sport diving. After we printed that, we began to think, however, about divers in a state of panic who do strange things—such as try to get out of their tank for one reason or another. From our files, we resurrected an old clipping (May, 1980) of a lady diver in Cayman who was found in 20 feet of water, wearing her weight belt—but not her tank and jacket-type vest. That was found several days later, several miles away. She apparently panicked and got rid of the tank—and jacket.

**At a California state prison in Chino, three murderers, a kidnapper, and a man who assaulted a police officer are among thirty inmates studying to be**

commercial divers. The program, which has been in existence for ten years, has trained more than 300 divers for careers in offshore oil rig and saturation diving. The average recidivism rate for inmates is 50-65 percent, but less than five percent of the graduates of this program return. One reason, of course, is the high pay for commercial divers. After they have completed their apprenticeship as tenders, they may earn between \$450-\$765/day and as much as \$100,000 or more per year. Unless they heist Brink's, they would have a hard time duplicating that income in their previous professions. Ex-cons seem to fit right into the diving profession, according to the program manager Bob Schelke. "These men are usually very adventurous. They're roustabouts. They're hard-core charger types. This is a fast-moving industry and the firms show no hesitancy in hiring ex-inmates who do very well in it."

Long-time *Undercurrent* subscriber Kenneth L. Rinehart, a professor of chemistry at the University of Illinois (Urbana—Champaign) wrote to thank us about our coverage of the discovery of didenmins in sea squirts which might lead to drugs which can attack a range of viruses (see *Undercurrent*, January, 1981), but he also sent us a news release indicating that we had attributed the work to the wrong researchers. It was Rinehart himself (while working with Robert G. Hughes) who set up a field laboratory onboard the research vessel *Alpha Helix* in the Caribbean.