

Providenciales, Turks & Caicos, B.W.I.

—Where Diving Transcends Politics

I suppose if the diving weren't so damn good, then I wouldn't give a hoot about the politics of Provo diving. But after I saw a great green turtle, a youthful tiger shark, a grotto filled with black coral, and a school of 15 lb+ Nassau groupers on a single wall dive, then the politics take on special interest.

You see, last time we visited Provo (March, 1980), there was one dive operation (run by amiable Art Pickering) at the Third Turtle Inn. When I tried to make reservations stateside for this trip, I was told the dive business was confused and I should not go there to dive. I headed to Grand Turk (coming up next issue), but once there learned that there was indeed diving at the Third Turtle. So I headed over. Here's what I found:

Art Pickering has been diving these waters for twelve years, and for a good share of those years he's operated right out of the cavernous Third Turtle Dive shop, which is beautifully carved out of the rugged ironshore. Pickering has a reputation for being a hard-charging diver who knows the waters well, so you can imagine what a one-time customer might think when he returns to Provo (after paying his money in advance), only to discover that Pickering has been replaced by someone who has been on Provo for only two months! I sat in the Third Turtle pub and watched it all unfold.

The current divemaster is Steve Small, new to these waters, but well-credentialed after four years at Cayman Kai and three years teaching underwater photography at Brooks Institute in Santa Barbara. As I sipped my pre-dinner rum, Steve ambled in, toting his ubiquitous coffee cup -- filled with coffee. "Buy you a drink?" I asked. He refused. "Coffee's the strongest stuff I drink." We chatted amiably about the day's dive, but as soon as

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Gale Anspach, Third Turtle Manager, arrived, Steve bounced from his bar stool. Gale (a long time diver who managed Cayman Kai before coming to Provo four years ago) had a 60-year-old couple in tow, who had just learned that Art was out and Steve was in. Apparently, they had been coming to the Third Turtle for a few years and now seemed a bit perplexed by the change, even after Gale pointed out the three new dive boats and provided a glowing appraisal of Steve's experience. "Now," I overheard Gale say, "we'll take special care of you." They seemed somewhat assured but then there entered a shoeless, T-shirted and shorted good ole boy with a big grin beneath his bushy beard: Art Pickering. "How y'all doin'?" Art asked me as he bellied up for a beer, but before I could answer he spotted his old customers. It wasn't long before they knew that old Art was in business right next door, a short walk away, doin' that hard divin' just as he always has.

I could see the conflict. I could feel the conflict. Gee, am I loyal to the divemaster? Or to the hotel? Even I had felt pretty damn sheepish, for in order to write this review I first dived a couple of days with Art, and then switched over to Steve without much more of an excuse than "well, I had to prepay a couple of dives when I signed up to come here."

As I took another pull on my rum, I mused that the scene had all the makings of a good Western, with Pickering sooner or later being thrown off the premises for hustling in the wrong saloon. But, it didn't work that way. Though there's some tension in the relationships, on the surface everyone gets along. Pickering gets back a few of his customers, while Anspach and Small retain many. But the pub politics can put a little unwanted pressure on the unsuspecting diver. There are clear differences between the two, and before traveling for fine Provo diving you should know with whom to spend your money.

I began my diving with Pickering, whose shop is located about 100 yards from the Third Turtle. He's in business with Paul Hudson, who, after running operations on Grand Turk and Pine Cay, provides primary shop management, instruction and certification. Provo Turtle Divers, as they call themselves, have a few sets of rental gear, provide overnight storage space for personal gear, and fill their steel tanks to 2100 psi or thereabouts. Pickering's primary dive boat is an uncovered 22-foot Aquasport, which, after a few years of reef running, bears little resemblance to the identical but new Aquasports at the Third Turtle.

I liked Art immediately. He's a burly sort, a good old boy, if you will, who seduces you to dive by saying "we're gonna rock and roll tomorrow." And rock and roll is what we did on the way to the West End, the site of my first dive. The entire Caicos chain is rimmed on the North side by a barrier reef which in places runs as far as a couple of miles offshore. Pickering headed out of the well-sheltered Third Turtle Harbor and shifted into high gear, skimming past hidden coral heads with 12 years of well-honed instinct and know-how. At the appropriate break in the reef he headed for open ocean, where we passed through waves with troughs 10-12 feet deep. My, how the ocean was alive and exciting. But for a moment, I almost lost it! I im-

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agined we would anchor somewhere in these huge rollers, and with the three of us overboard I didn't see how we would make it back alive. But Pickering soon turned the corner and our 30 - minute ride brought us to calm waters. Nine of ten operators I've met in my travels would have never pushed through that water to dive, but for Pickering it was just another business day.

Art gave a brief description of what we were to see, patiently helped us don our tanks, said we'd meet at the anchor, and away we went. At 70 feet, a shallow grotto-like cave was carved in the wall; and as if we were in a rain forest, green, fern-like black coral hung from the ceiling. An enormous sponge several feet across was fastened to the back wall. Outside, a school of a dozen sizeable Jacks swam about. I swam along the wall, looking into the dark blue, hoping to see creatures lurk, but I turned my attention back to the stunning purple hues on the wall: numbers of purple sponges -- purple tube sponges and small purple basket sponges -- and hundreds of fully purple blackcap basslets hovering and darting. And among the purples were iridescent yellow and green wire coral and brilliant sponges. Though absorbed in the colors I occasionally looked up and out to the darkness, and eventually saw what I hoped for. A 6-foot shark looked us over, turned a slow circle, and returned as close as 15 feet. Though I saw no stripes on its side, it had the shape of a tiger shark, and Art later said that he had seen tigers in this area. At the top of the wall, among the normal tropicals, was a midnight blue parrot fish, an enormous puffer and several French Angels. As I headed back to the dive boat an enormous turtle lifted itself from the sand and paddled off into the blue yonder. Throughout the area more than a score of Nassau groupers hovered, a couple 25 or more pounds. Later Art said that he had seen hundreds of groupers school twice a year at full moon --and the full moon was less than a week away.

**PROVIDENCIALES,
TURKS & CAICOS, B.W.I.**

Diving for Beginners	★ ★ ★ ★
Diving for Old Pros	★ ★ ★ ★
Hotel	★ ★ ★ ★
Hotel Meals	★ ★ ★ ★
Moneysworth	★ ★ ★ ★

★ poor, ★★ fair, ★★★ average, ★★★★ good, ★★★★★ excellent

We returned to the Third Turtle for lunch, then took a second dive on the edge of the wall, in less than 60 feet of water, much closer to home. Visibility ran about 50 feet and the surge carried me back and forth in a 6-foot arc. Under other conditions the area would be a decent second dive, since there were a number of beautiful queen triggers and plenty of other tropicals among the coral and shallow cuts in the reef. Once Pickering is assured his charges know how to take care of themselves, he tends to do his own thing during a dive, including collecting food for his evening supper. In this case he pulled the claws from a number of good size crabs and, at the end of the dive, added a few conch.

The next day we again charged through the 10-foot rollers, but this time traveled a shorter distance to Shark Cave. We planned a decompression dive, beginning at 50 feet or so, where a crevice begins which slides down into a large open arch at 130 feet, in which a couple of dozen large Jacks hovered in tight formation. It was an impressive and unique dive, with plenty of tropicals above 100 feet. Because of the surge and lower visibility, I passed on the afternoon dive. Tomorrow I would try Steve Small.

My buddy and I were the only divers at the Third Turtle, but Steve and Gale seemed delighted that we were to dive. The dive shop, no more than 60 feet from the dining area, has plenty of spankin' new rental gear and 3000 psi aluminum tanks. Small has built himself a darkroom where he now develops Ektachrome film overnight. He hopes, eventually, to teach photography and leave tour guiding to someone else. Steve and Gale were very helpful getting us organized and onto the boat, moored dockside. As we headed to the West End, it was evident that the boat's pilot was new to the waters, as he picked his way between coral heads with more caution -- and less speed -- than Art. Occasionally Gale would stand on the bow to direct. After an unsuccessful attempt at a short cut to the West End (the water was too rough and the coral too dangerous), we had to edge our way carefully over coral heads, at times even scraping bottom, to get outside. At the dive site -- after nearly an hour's journey -- we were given very careful instructions, including the rule that we would leave the bottom 5 minutes early to hang five at 10 aboard the boat. Steve would go down with us, while Gale stayed topside. (With Art, the boat was always empty when we dove, a practice that gives me the shivers.) Once in the water we dropped to an interesting site, but it was not the wall. . .and not the quality of sites visited by Art. The reef dropped to a sand bottom at 100 feet plus, then rose, then dropped again at the wall. We stayed inside the wall. It was a decent dive, with nice coral and sponges and plenty of groupers, triggers, hogfish, snappers and grunts, but it was not the spectacular wall. Steve watched us carefully, staying near. He didn't lead the dive, but would point out anything unusual, while watching our depth and bottom time. That afternoon we made a second dive called "the Mystery Dive," and it was indeed a mystery as to why we were taken there. Visibility was low, the bottom flat, the surge great, and, no doubt, quite an average spot. Afterwards, Steve told me he had tried to get my attention: he had seen a sailfish about 60 feet in the distance, in 40 feet of water. He was quite excited about it, as I too would have been, but, as is often the case, I had my nose in a coral head.

After this first day of diving with Steve, I ran into Art, who told me, "Well, Steve's going to have to learn the dive spots just like I did, by trial and error. It took me twelve years. He's only been here two months." My first day's dives were indicative of his unfamiliarity with the full range of sites. Yet the next day, at the wall again, Steve selected a superb site. We dropped to forty feet, where the wall began, then sailed down over the wall. Cuts and crannies and holes in the wall created a special topography. Here we discovered at least three kinds of black coral (as Gale explained). There were plenty of fish above (midnight parrots, groupers [one about 30+ pounds], a couple of large French Angels, butterflies, and jacks), and along the wall I spotted large lobster in crevices, crabs in holes, and plenty of sponges and flora and fauna. Indeed, a very nice dive, clearly indicative of the best of Provo's West End wall.

Provo diving, then, is excellent, with exciting topography, fine undamaged hard and soft corals, plenty of tropicals -- virtually every critter in the fish book (but I didn't see a single moray!) -- and the big fish experienced divers love to see. That two operations are now extant means that divers of any interest or skill can be well served -- and two operations provide insurance. If one operation can't (or won't) dive, then the other most likely will.

The contrast in the two operations is clear. Steve Small runs a conservative

operation -- quite safety-oriented and very carefully tuned into the individual diver's needs. He has yet to learn all the sites, but there are so many good ones that he's bound to hit plenty during one's stay. For an inexperienced diver, Steve Small is the right choice, and for photographers, his lab -- and his background -- can be helpful. On the other hand, a diver who is experienced and who feels comfortable in the water may find Art Pickering the man of the hour. Art knows the water, and gives one the freedom to do whatever one pleases (which could be the freedom to get bent if you don't manage yourself carefully).

So with exciting diving and divemasters of two different talents, are the accommodations and cuisine sufficient to merit a visit? Absolutely. The Third Turtle is a lovely hotel. Much of it is carved into the so-called ironshore, and finished in natural wood. The spacious rooms all have views of the harbor, and though I found them nicely decorated, they are soon to be refurbished. Breakfast and lunch are normally served in the outside dining area, alongside a boat channel, where one may feed mangrove snappers and sergeant majors with leftovers. A short walk past the diveshop leads to two tennis courts and an extended stroll leads to the beach, where one may find sunfish available at the beach shack, or snorkel off to decent little reefs a distance from shore. Managers Gale and Ann Anspach keep a professional eye on the entire operation, always responding to any problem or request. My only criticism is directed toward the ambience created by workers, owners, managers and clubby island residents, who hang around in their tennis whites a good part of most days, socializing with one another and offering guests little more than a perfunctory "Good afternoon. Are you enjoying yourself?" At times, I felt as if I were a paying guest at a private country club, accepted but not welcome. When high season arrives, no doubt there'll be less time to sit around.

The kitchen crew could use a slight nudge, but generally they get good marks. Evening meals were excellent -- grouper marinated in beer was my favorite, and the barbecue also got high marks -- with plenty of vegetables, a tasty and thick chowder, and decent desserts, all served in a romantic, candlelit dining room. Breakfast was standard fare (fresh fruit was never available, a disappointment), and lunches, either sandwiches or omelets, were standard, though well-prepared. Although there were few guests in the hotel during my pre-Christmas stay, I would nevertheless request a bit more creativity at these lesser meals, since after several days a certain sameness set in.

The Third Turtle is not the only hotel -- just a five-minute walk away is the less expensive Erebus Latitude 22, which has four nice little "chalets" sitting on stilts overlooking the harbor. It's a bit funky, but the rooms are decent and morning coffee on one's private deck, overlooking the harbor below, would indeed be a treat. In the evening the Erebus bar collects a number of locals, and one may find there such celebrities as Jack Nasty, who seems to bug everyone, but offends no one. The one dinner I had there was not on a par with Third Turtle; the fish was fine, the lobster suffered from freezer burn, and the accompanying foods were quite plain.

Though Provo has few possibilities for entertainment, a 10-minute walk from Third Turtle will lead one to a relatively new addition to Provo, the Bar BH, a dyed-in-the-wool cowboy bar -- with English darts. One of the sports here is bar-diving, where inebriated crazies climb onto the bar and dive into the arms of other patrons, who will hopefully catch them before they land on the cement floor. The creativity of people with island fever is amazing, isn't it?

In summary, Provo is a good destination for the experienced diver who is willing to settle for two tanks a day (night dives can be arranged, with a little pushing), and who seeks fine accommodations. And one need not worry about the competition between shops for business. It's all friendly. In fact, on one trip back from the reef with Gale and Steve we encountered no one other than Art Pickering, dead in the water, with a boatload of divers. Steve and Gale 'proudly' towed him in. No doubt, on another day, it will be Art's turn to throw a line to the Third Turtle Boat.

Rates: To begin with, government tax of 5% and a 15% gratuity charge is added to hotel bills, so the rates here are without those charges. The Third Turtle runs \$105/double occupancy (\$165 with two meals, which is no bargain since breakfast and lunch run about \$5 each, and dinner about \$15). The dive package, with Steve Small, is \$925/person, and includes three meals and 12 dives, which by my way of figuring saves virtually no money, but locks one into eating and diving at the Third Turtle. Single dives are \$30. For reservations, contact any travel agent or call 800/323-7600. The Erebus is much less expensive; \$75 for the chalets and \$65 for rooms farther back; call 800/327-8221. Art Pickering charges \$30 for a single tank, \$50 for two; write him at Third Turtle Marina or call 4394. Air Florida will soon be flying directly to Provo, but for now one must transfer to Turks and Caicos National Airways on Grand Turk; for five people, it may be more economical to charter a flight with Flamingo (call 2109). By doing so you might get a dive in at Grand Turk, then fly (at 1500 feet) to Provo in the afternoon. Or, you can take Provo Flying's Beech 18s or C99 Turbo Props from Fort Lauderdale for \$300 round trip (call 305/772-5806).

Divers Compass: The hotels are not air-conditioned; when the winds die, mosquitos fly. . . Since the Caicos Islands are south of the Bahamas but north of the Dominican Republic, winter season can get a little chilly (68° one day in mid-December), and the water will drop to the low 70s. The best times are spring and summer. . . There are a couple of local restaurants worth trying. . . There are too many different sides to the story about why Pickering is no longer with the Third Turtle, so we've avoided the issue; his old side-kick and grand diver, Fuller, is now driving a cab. . . Try the conch fritters at the airport. . . U.S. dollars are the accepted currency. . . The Island Princess, at the East end of the Island, also offers diving; for information call 800/327-8221.

Why Divers Die: Part III

Kelp, Narcosis, Extra Weights, and Booze

This is the third part in our series on 1979 sport diver fatalities, researched and reported on by the National Underwater Accident Data Center at the University of Rhode Island. We hope that by our publishing these cases, our readers will more clearly understand the diverse causes of diver deaths--and how nearly all are caused by judgmental errors by the divers themselves--and therefore dive more safely. Any information about fatalities, whether firsthand reports or clippings from newspapers, may be sent to the Director of NUADC, John J. McAniff, P.O. Box 68, Kingston, RI 02881.

Regulators

During the ten years of this study, the NUADC has recorded 1,236 nonoccupational underwater diving fatalities. Of these, only one case could be traced directly to the failure or malfunction of a well-maintained -- and, in fact, new -- regulator. On the other hand, there have been numerous reports of failure of a regulator due to improper or poor maintenance, because of the negligence of the individual diver. The NUADC cannot overemphasize the

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absolute need for proper and periodic overhaul and maintenance of the life-giving device known as the diver's regulator.

One such incident involved a 9-year-old single-hose regulator which had been overhauled three years before the dive, at some overseas location where there was difficulty in locating proper parts. This case was complicated even further because the victim had not dived in more than a year. The dive was undertaken at night, and in an area with very high surf. The investigator also reported that the victim was overweighted by more than six pounds.

Another such regulator failure was recorded in the death of a young man who was taking his first ocean instructional dive. This student was permitted to dive despite the fact that the regulator had failed in the pool the day before. An open-water test of the regulator after the accident determined that it would not function at a depth of 50 feet, the depth at which the victim was located.

Many different designs of single-hose regulators freeze up in water colder than 40°F. All divers who expect to dive in cold water should be aware of this potential catastrophe. The freeze-up is not restricted to under-ice diving; it may occur when water temperature is cold but air temperature is considerably colder. In these conditions, regulators have been known to free-flow at the surface when the diver takes the mouthpiece out of his mouth.

Entanglements

In previous years, underwater entanglement has played a major part in many fatalities.

"Kelp forests are beautiful to swim through at depth, but near the surface they can create a thick, massive carpet which can easily entangle a panicky diver."

During 1979, the NUADC recorded three cases of entanglement in kelp off the southern California coast. Kelp, the largest brown algae, attaches itself to rock or the stone bottom, then grows blades as much as four feet wide and 100 feet long. Kelp forests are beautiful to swim through at depth, but near the surface they can create a thick, massive carpet which can easily entangle a panicky diver.

One of these cases is typical. A father and daughter were swimming beneath the kelp beds. The daughter lost her weight belt and surfaced. The father attempted to retrieve the belt, and while swimming vigorously toward the surface, weighted with his own belt plus that of his daughter, his legs became severely entangled in the kelp and he was unable to reach the surface before running out of air.

All divers should be well aware of other forms of

possible entanglement. One example is that of an instructor who, while diving with several others in a Midwestern man-made lake, found himself entangled in fishing lines and the limbs of a tree. His friends were unable to reach him until after he had run out of air. Still another incident was that of a scuba trainee during his first open-water dive. Becoming entangled in freshwater grass, which apparently pulled the regulator from his mouth, he panicked and drowned. Another case involved a 58-year old man undergoing instruction in his first open-water dive from a boat. This victim jumped over the side only to become entangled in safety lines beneath the boat. He was noticed by the instructor moments later, who leaped into the water and pulled him out, but the diver had already died.

Additional Equipment Aspects

One very unusual fatality occurred in an abandoned and flooded missile silo in the Midwest, during a dive described as a combination of night and wreck diving. Water temperature was 48°F. The silo depth was approximately 175 feet, with the interior flooded for a depth of 140 feet. The two divers were at about 70 feet when the victim experienced some sort of difficulty. His partner attempted to bring them both to the surface. Both were diving with dry suits and, to compensate, were carrying approximately 40 pounds of weight each. The weights were distributed on two separate weight belts for each man. At a depth of about 60 feet, the victim's suit became snagged and ripped. At the same time, the buddy dropped one of his weight belts accidentally and therefore became very buoyant. The victim, with his suit ripped, became negatively buoyant and dropped to the 70-foot level, where he was later found.

The NUADC continues to see numerous instances of equipment problems that may not be the direct cause of a fatality but are certainly contributory. Examples include submersible pressure gauges with air leaks and inaccurate readings, and buoyancy devices with badly corroded CO₂ cartridges. Foremost among these equipment problems appears to be the overweighting of divers. In some instances, the diver victim has been noted to be carrying more than twice the amount of weight necessary.

The diving equipment manufacturers are constantly striving to improve the design and safety factor of their equipment; most notable is the rapid improvement of buoyancy compensating devices. A commendable trend has been a design allowing for back-mounted buoyancy, ideal for the diver while submerged, and also providing for separate buoyancy compensation on the chest, important to the diver on the surface. Despite these advances, the NUADC continues to question the availability of such B.C.'s with CO₂ cartridges of 16-gram capacity and smaller, which do not provide sufficient buoyancy to keep the victim's head above water.

Nitrogen Narcosis

Two cases involving nitrogen narcosis occurred at depths well beyond what is considered safe for non-occupational underwater diving. One of these was at a depth in excess of 250 feet. The NUADC has, each year, warned against diving in excess of the 130-foot depth.

Ice Diving

Diving beneath ice is probably undertaken by a very small number of divers. Nevertheless, it continues to account for several fatalities annually. A number of precautions should be taken to assure safer under-ice diving. First, the diver should be aware of the potential of regulator freeze-up, to which most single-hose regulators are prone. A diver should take his regulator to the local dive shop to prepare for cold water diving, or he should use a regulator specifically designed for cold water. In addition, under-ice diving should be conducted with buddy pairs linked together with a hand-held buddy line, and each diver should have a separate safety line to a surface tender. There should also be stand-by safety divers at the surface ready to help, should help be needed.

Free Diving

The NUADC recorded 12 free-diving fatalities during 1979. One occurred at Buck Island, in the Virgin

"He and the others attempted to swim back to shore through rough surf. The victim went under, lost consciousness, and stopped breathing."

Islands, three in California, five in Florida, and three in Hawaii. One of the California cases resulted from extensive overweighting. It was indicated that the diver was carrying about 36 pounds of weight, approximate-

ly double the amount that he probably needed for proper diving. In the second California fatality, the victim was on his first ocean free-dive, and became uncomfortable and apprehensive. Deciding to terminate the dive, he and the others attempted to swim back to shore through rough surf. The victim went under, lost consciousness, and stopped breathing. Efforts at resuscitation failed. The third California skin-diving fatality was complicated by the presence of alcohol and the drug methaqualone.

One of the five Florida deaths involved a victim who was said to have been heavily intoxicated and suffering from a PCP drug overdose. The second Florida case involved an attempt to snorkel offshore in hurricane-whipped waters. The victim became exhausted and drowned. A third victim died while snorkeling at Weeki Wachee Springs in Florida. He was found in three feet of water. This is an unusual case in that the autopsy revealed that he had died of anaphylactic shock as a result of numerous insect stings on the chest.

Still another Florida skin-diving fatality occurred when a young man attempted his second breath-holding dive in about 12 feet of water, while trying to free an anchor line. He did not surface from the second dive and was found some hours later.

For the first time in the more than ten years of operation of this office, the NUADC will break with tradition in reporting the fifth of the Florida skin-diving fatalities. We will identify the victim, primarily because of his many contributions to sport diving. At the age of 76, Serge Bern was said to have been in excellent physical shape and, on this particular day, had been spearfishing for a number of hours. Upon returning to the boat, Bern carefully lifted himself to the platform only to lose a fin in the water. He quickly jumped back into the water, without properly adjusting his face mask, in order to get the fin. He was found four or five minutes later submerged on the bottom. The family of Mr. Bern has been very generous in setting up a commemorative award for competitive underwater activity. This award will be administered through the Underwater Society of America.

U.S. Navy Depth Gauge Tests: Part II

Two Winners and Two Right Behind

In our November/December issue, we published the 1982 U.S. Navy Tests of twenty-eight commercially available depth gauges. This is the second part, and analysis, of that study.

If there is a single conclusion the sport diver should draw from the study, it is that no depth gauge is accurate, even if it is taken directly from the manufacturer, as were the ones in this study. Most gauges indicate that a diver is deeper than he actually is, which

creates little problem if the error, say only four or five feet, occurs at 60 feet. But if the error occurs at a ten-foot decompression and the diver moves up the line several feet, then there can indeed be problems.

In those cases where depth gauges register a shallower depth than the true depth, the likelihood of a diver violating the tables is increased. For example, the Seaquest 8010, at a true depth of 90 feet, read only 80 feet in the 70° water test. A diver, observing the tables

for eighty feet, would stay down ten minutes too long. Need we say how serious that could be?

Furthermore, the Navy tests found some interesting variances. First, many of the gauges marketed by different manufacturers were precisely the same but provided markedly different depth readings. One can expect little consistency between gauges.

Second, accuracy varied on the same gauge from ascent to descent. A gauge that gives the right reading at ten feet on the way down may give an inaccurate reading at ten feet on the way up. Gauges, therefore, need to be tested in both directions.

Curious about the inaccuracies and variances, we called U.S. Navy Test and Evaluation Engineer, Jim Middleton. He explained that for the money a sport diver pays for his depth gauge—say between \$60 and \$120—he “just can’t expect extreme accuracy. For example, we have a gauge which is never moved and never enters the water, that is accurate to $\pm .04$ feet up to 200 feet. That gauge costs us \$3400.”

Given the lack of accuracy of gauges, then, it seems as if the sport diver should assume that when he walks out of the dive shop with a new gauge, it may already be off by ± 5 feet. He should make that assumption, and his dive profiles ought to reflect that.

Furthermore, once a diver kicks his gauge around awhile, the accuracy is bound to suffer further. Whether it improves or worsens seems subject to chance, if one looks at the durability tests with the standard tests. After the gauges had been dropped three feet onto their back, we noted in the retest in 70° water at 100 feet that only five of the twenty-eight gauges retained their original readings. The others had changed by one or more feet (in either direction). Some changed a foot or two, others four, five or six feet, while the Sportsways 1406, which gave an initially accurate reading at 100 feet, now registered only 89 feet.

Because of the sensitivity of depth gauges, Middleton explained that they “must be treated as precision instruments, protected from hard knocks which can occur when dumped into a dive bag. In fact, I do treat mine like a precision instrument,” he said, “but I read it like a gas gauge, using it as an approximation of my depth.”

The Navy, in its report, made no selection of gauges, nor did it rank them according to performance. To provide some means for sport divers to determine the most accurate gauges, we have listed those which, in the respective water temperature categories up to a depth of 130 feet, did not deviate from the true depth greater than three feet or less than one foot.

These gauges, tested in 32° water, showed no deviation from the true depth greater than three feet or less than one foot.

Dacor SFG 300 Seaquest 8012
Parkways 801-900 U.S. Divers 7044
Scubapro 28-850

These gauges, tested in 70° water, showed no deviation from the true depth greater than three feet or less than one foot during either ascent or descent.

Scubapro 28-849 U.S. Divers 7044
Seaquest 8012 White Stag 51246

These gauges, tested in 90° water, showed no deviation from the true depth greater than three feet or less than one foot, upon either descent or ascent.

Dacor SFG 300 U.S. Divers 7044
Farallon 04-1610 White Stag 51246
U.S. Divers 7042

These gauges, after being dropped three feet, were tested in 70° water and showed no deviation from the true depth greater than three feet or less than one foot, either upon descent or ascent.

Dacor SFG 300 U.S. Divers 7043
Farallon 04-1610 U.S. Divers 7044
Farallon 04-1630 U.S. Divers 7045
Parkways 801-900 White Stag 51246
Sportsways 1406

The above tests were of the same gauge. The U.S. Navy took an additional model of each of the 28 gauges and tested them at 70°. These gauges showed no deviation from the true depth greater than three feet or less than one foot, either upon descent or ascent.

Scubapro 28-849 White Stag 51246
Scubapro 28-850

The Best Gauges:

Of all twenty-eight gauges, two seem to rate slightly better than the others: The Dacor SFG 300 and the U.S. Divers 7043. They are consistent gauges, giving highly accurate readings at any temperature up to 130 feet. For the versatile sport diver who may dive in cold northern waters, then head southward to 80° waters, one or the other would be the best gauge to have.

Right behind these two, according to our criteria, are the Parkways 801-900 and the Scubapro 28-850.

These are the all-around best four of the twenty-eight. But if a diver doesn't expect to be diving in waters with a wide temperature range, then four other gauges are worth noting. For water 70° or less, the Seaquest 8012 and the U.S. Divers 7045 seem to outperform the remaining gauges. For water 70° or warmer, then the Farallon 04-1610 and the White Stag 51146 rate as the best of the rest.

Is Your Depth Gauge A Dog?

In our next issue, find out the problems of specific gauges, those that give dangerously wrong readings at 10 feet, at 80 feet, at 120 feet. Is one of the dogs your gauge?



When we stated that "NASDS is the only agency which systematically trains its divers in the use of the auxiliary regulator and, as best as it can, requires their trainees to use a safe second stage during training," we erred. Al Hornsby, PADI Veep, corrected us. *Auxiliary (sic) regulator use training has been a required portion of PADI diver training for some time. . . Not only are alternate air sources required during PADI training, but an extra second stage is considered a standard piece of equipment for all divers trained to the "basic" level . . . We would invite and recommend that all agencies add alternate air source use training to their entry level diver education programs and clearly identify those divers who need an alternate air source as their primary out of air option.* It was only a few years ago that many industry people criticized NASDS on the grounds that the safe second was just one more way to sell expensive equipment to novice divers. But as the auxiliary breathing systems become more acceptable, those criticisms are heard less and less. Even PADI -- which prides itself on being independent from dive shops -- acknowledges in its standards revision letter from Dennis Graver that not only will students being trained be more comfortable, but also "increased equipment sales will result by having the divers learn to dive with the equipment they should use once they are certified." Of course, *Undercurrent* has always supported the use of auxiliary equipment. It's just that we get a kick out of the nuances of inter-agency politics.

And then there is the story of the American banker snorkeling in the waters of Cayman, when a twelve foot tiger shark came speeding out of nowhere, its jaws open wide. The banker, petrified by the sight, froze in the water, but the shark diverted its course just before the fatal moment. Afterwards the banker, still in shock, asked the skipper what happened. "All I could figure out," answered the grizzled old mossback, "was that it must have been professional courtesy."

Thumb your nose at the airport security person who tries to tell you that his security x-ray machine won't cause your film any problems! Last fall, a UPI photographer took film to D.C.'s National Airport and screened three rolls each of Kodak Tri-X and

Kodak Ektachrome Professional Daylight film. One roll of each was sent through the x-ray device to simulate conditions of an amateur photographer taking film on a trip. Two more rolls were scanned six times to simulate someone making several changes of planes, and two other rolls went through the scanner 12 times, as might the film of a traveling professional photographer. The developed black and white film that had been x-rayed twice showed a consistent fog; the fog level became uneven after the film ran through the scanner six times. The color film x-rayed twice showed slight overexposure, particularly in the highlights. The film x-rayed six times had a washed-out image and was one full f-stop overexposed. The film x-rayed 12 times was about 1¼ stops overexposed... The traveling photographer should either check his film in baggage which will not be x-rayed, or use lead film bags which are readily available at photographic supply shops.

How many divers from outside California have arrived in Los Angeles, expecting to plunge into tropical waters laden with tropical fish, only to freeze their snorkels off in turbid water? Well, the timid ones can forget the Pacific Ocean and substitute a trip to Marineland in Rancho Palos Verdes Estates. There, you may snorkel 80 yards in 12-foot-deep, 72° water, teeming with yellowtails, snappers, leopard sharks, golden garibaldi, nurses sharks, bat rays (with the stingers conveniently removed), guitarfish, and a host of other unique critters who frolic among the reproductions of corals and kelp. It's a safe and fun way to introduce a reluctant spouse or young child to the thrills beneath the sea. Mask, fins, swimsuits, wet suits, hot water showers and instruction are all part of the moderate tab.

When someone calls our office and asks "what is the single best book about scuba diving for my library," we normally recommend *Exploring Underwater: The Sierra Club Guide to Scuba and Snorkeling*, by John Culliney (author of *Forests of the Sea*) and Edward S. Crockett. The book has enough basics in it to satisfy the information needs of the beginning diver, but carries plenty of more sophisticated information to be a good sourcebook for experienced divers. Indeed, there's plenty of technical material about the how to's of night diving, wreck diving, and underwater "rogues" that bite and sting, but the beauty is that much of the description is written in what might be described as "Sierra Club prose" which integrates information with sensitive descriptions and scenarios about life underwater. It's a beautifully written book, obtainable in paperback by sending \$10.95 (\$8.95 plus \$2 postage and handling) to Sierra Club Books, PO Box 3886, Rincon Annex, San Francisco, CA 94119.