

undercurrent®

THE PRIVATE, EXCLUSIVE GUIDE FOR SERIOUS DIVERS

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Grand Turk, B.W.I.,

Hurry up Leni; the word is out

In 1978, when it seems like every decent dive spot in the Caribbean has been swummed and swarmed, picked and plucked, and kicked and cudgeled by touring divers, I am immediately suspicious of the quality of the diving when the main dive operation on an island is run out of somebody's back yard. That's what I found on Grand Turk. After all, if the diving were any good, some entrepreneur would have put indive barges at the Holiday Inn and brought in the clowns from all over the country to cruise the reefs.

But, on Grand Turk, there is no Holiday Inn -- there are only 39 rooms in three hotels -- and a couple of friends who had been there said it's marvelous. "Don't tell anyone about it," I was cautioned. I didn't think I ever would until I read Sally Adolph's words in the October, 1977 issue of The Underwater Photographer. She said Grand Turk is "gourmet diving, which means that each dive is a delectable treat, garnished with variety and topped with a well-run dive organization." In someone's back yard, I must ask?

Yup, that's what it is. A well-run dive operation in someone's back yard. And, believe it or not, gourmet diving too!

I did my diving with Phil Pruss, owner and manager of Pepecor, Ltd., an impressive sounding name for a back yard operation, but it's an impressive back yard operation. Pruss, a franchised Scubapro dealer, has a complete selection of scuba equipment for sale and 32 rental tanks. He has a 23 foot fiberglass boat with 135 hp motor to carry up to twelve divers, and a 17 footer for a maximum of eight divers. He charges \$25 for two, single tank, guided boat dives (10 a.m. and 2 p.m.) and supplies the tank, pack and weights. He also pumps a full 2475 psi. Pruss, originally from Southern California, is a PADI and LA County Instructor. His wife Kay also assists with the dives. They have been on Grand Turk for nearly nine years.

After seeing the operation, and meeting Phil and Kay, I felt pretty good about the people who would run my life for the next two weeks. But I was still uncertain about just how good the diving would be. After all, Grand Turk is not on the other side of the world. It's at the southeastern end of the Bahamas chain in the

INSIDE UNDERCURRENT

- Suffering from a Crimped Hose?
Next time slip it in a sleeve..... p.4
- New Decompression Meter
Hopes for the Future..... p.6
- Freeflow p.8

British colony of Turks and Caicos. As the Tourist Bureau puts it, Grand Turk is "hidden between Miami and Puerto Rico." But, even though it is close to hundreds of thousands of U.S. Divers, it might as well be on the other side of the world, for there are only three flights a week out of Miami -- on Tuesday, Friday and Sunday, via Southeast Airlines. So because it is not served well by airlines, because it is not widely advertised, and because there's nothing to do on the island, then perhaps, I thought, it just might have some virgin diving. Would I find abundant tropicals? A fine wall? Prolific sponges, coral and gorgonia? Big fish? Surprises like manta, turtles or even sharks? Clear, warm, still water? No. Of course not. Not with just a back yard operation calling all the shots.

Now, I've been diving for seventeen years. I've been from Fiji to Florida, from Bonaire to the Barrier Reef in Australia. What I saw here is indeed among the best.

The wall is breathtaking. It is covered with coral, gorgonia and sponges and packed with tunnels and canyons. It begins just a few hundred feet from the shore, in 35 feet of water. I made a score of dives along this wall and I ask you to consider what I saw and photographed. Eagle rays, sting rays and manta rays. Yes, manta rays. Green turtles, batfish and sea horses. Filefish, spade fish and sea hares. Several nurse sharks. One lemon shark. Scores of jack in schools, octopus in holes and barracuda in teams. Feather stars, basket stars and basket sponges. And you can add the rest -- any creature you've seen on other Caribbean reefs will parade by here on Grand Turk.

Because Pruss will stop any place along the wall, we visited a new site just about every time. Each was equal to the previous. Although Phil claimed the best visibility and weather runs from May to October, I had but one day with visibility less than 100 feet only after thunderstorms stirred up the beaches and bottom. Otherwise, it was well over 100 feet. The water temperature was a constant 81° from the surface down to 130 feet, making it comfortable to burn up the last few pounds of air after a long dive watching, say, yellowfin groupers being primped at a cleaning station. I admit, however, to wearing a wet suit to kill the chill and to reduce, subsequently, my air consumption.

A night dive at South Pier was great. With an hour's exploring time in 30 feet of water, we found three sea horses, many peacock flounders, jackknife fish in pairs, octopus, an ugly but fascinating batfish, a large sea hare, three varieties and three sizes of moray eel, and a large green turtle. I saw the most spectacular anemone I have ever seen -- an orange ball anemone, in fact two orange ball anemones, side-by-side. To any macro photographer, the life at the pier would be worth dozens of rolls of film.

My enthusiasm for the diving is no greater than my enthusiasm for the personalized service offered by Phil Pruss. On calm days divers are picked up on the beach in front of the Salt Raker Hotel, which is convenient to the two other hotels -- the Kittina and The Turks Head -- located on either side of the Salt Raker. If the surf is up, Phil picks up divers in his van and transports them to the South Pier for boat launching. Prior to each dive, Phil briefs his charges on the site and the features of the wall, suggests what creatures might be encountered, explains the current, and answers questions. Once a diver and buddy have passed the check-out and first dive (Pruss offers a short refresher for those who haven't

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been wet for awhile) they're free to cruise the wall as they wish. The dives are organized, but unregimented and relaxed. Pruss spends his time keeping a watchful eye out for individual problems or leading non-certified divers who have taken his safety-oriented short resort course.

Phil and Kay, both active conservationists, have led an effort to have the entire eight mile reef on Grand Turk's west side designated a national park. Scenes from the reef already decorate Turk and Caicos postage stamps -- the pictures on the stamps were taken by Pruss, himself. The Prusses permit no spearfishing, no live shell or coral collecting. The abundance and friendliness of the big and small fish reflect their policy.

Best of all, Phil and Kay make themselves available in the evening for discussions about diving, photography or whatever. One night a week he offers a slide show for whoever is interested and the other nights he holds court for an hour or more in one of the three hotel watering holes. I was even invited to his home for a drink and enjoyed his fine shell and artifact collection. Indeed, Phil and Kay Pruss are the perfect hosts for traveling divers.



PHIL PRUSS AT THE HELM

Hotels and Comestibles: For my stay, I selected the Salt Raker Inn, the center of the three beach hotels. The Salt Raker is a 140 year-old former ship builder's home. Three upstairs guest rooms -- clean and comfortable, but not fancy -- share one bathroom. Five efficiency apartments, each with their own bathroom, shower and refrigerator, are adjacent to the house and face the beach. The winter rate is \$35/double, European Plan. Owners Doug and Doreen Gardner proved to be friendly and helpful innkeepers.

second storey with an ocean view. which the local band plays twice a week and the other nights the juke box holds forth. A few guests complain they can't sleep because some evenings the locals boogie into the wee hours.

Similar in design is the Turks Head Hotel, also a converted home. Those who prefer a more traditional hotel chose the slightly more expensive Kittins, with 23 attractive rooms, six on the

The main road runs just in front of the three hotels and because mufflers last only a few months in the island's salt air, you may be serenaded to sleep with a chorus of cars, barking dogs and braying donkeys. The hotels have several other things in common. Their grounds could be better kept and the beaches raked occasionally to rid them of the debris which washes up. They also share relatively low drink prices -- \$1 for beer or mixed drinks -- and they all add \$1/person/night hotel tax and a 10% service charge. They also lack facilities to rinse dive gear and because water is so precious, a rain barrel for washing dive gear would be preferable to running showers.

Although Grand Turk is not the land of high cuisine, satisfying meals were always served up. We learned there's a secret to getting the best hotel meals. Breakfasts are good and it made no difference where we ate. For lunch, the Kittina is the choice; they offer conch salads, conch fritters and other dimensions which the sandwich menus at the other two hotels did not have. For dinner, I determined the Salt Raker excelled. For \$7.50, fine native style cooking brought me conch parmesan, tasty steaks, or fresh fish. For another dollar, beautiful lobster tail graced my plate. There are a few local eateries downtown, but I

did not venture in. I stayed with the three hotels.

The island: Grand Turk is a small and dry island, seven miles long and at the widest point, two miles across. Water is trapped rainwater and everyone is asked to conserve. At the Kittina Hotel, DWTGDW is posted everywhere -- don't waste the goddamn water.

The 2960 residents are pleasant and friendly and there is no need to worry about walking about. The town of Cockburn, a short stroll from the hotels, has several shops and food stores, none well stocked. The town serves residents, not tourists. Bring anything you need. Aside from a visit to town, the only other activity (save the couple of public tennis courts) is a tour of the island by Jack's Taxi Service. Jack can also take you back and forth from the airport to your hotel (\$2) and those are the only three times you'll ever need wheels on Grand Turk.

So there you have it. Grand Turk Island. Phil Pruss' motto is "We'll spoil you rotten." He did, and I'll go back, which is a first for me since I have never gone back to a diving resort. Leni Reifenstahl goes back also. She's a famed German actress and film director who is making an underwater movie of the remarkable Grand Turk Wall. She's 74 years old. She hopes to get the film done before all the readers of Undercurrent show up and scare the fish away. Hurry up Leni. The word is out. Grand Turk has got it all.

NOTE: Do not check your baggage from your point of departure through to Grand Turk. Pick it up in Miami then recheck it with Southeast. Otherwise it will probably arrive a day after you do. Southeast is firm on charging 35¢/pound for baggage over 44 pounds. If you're more than 20 pounds overweight and it's all in a dive bag, they charge a flat rate of \$7.

Suffering from a Crimped Hose?

Next time slip it in a sleeve

On a recent trip to Grand Cayman, we were among a group of divers preparing to descend down the wall past the 100 foot mark. One of the group members



THE WEIGHT OF THE PRESSURE GAUGE CAN WEAKEN THE HOSE

was ready to swing his tank onto his back when another diver exclaimed. "Hey, what's that?"

On the diver's high pressure hose for his submersible gauge, where the hose attaches to the first stage of his regulator, a bulge the size of a small olive had appeared. The diver immediately turned off his air and the olive disappeared, but he did not make the dive. Had his hose ruptured at 100 feet, he might have found himself in a bit of trouble. He was able to dive again in the afternoon because plenty of high pressure hoses are available in a popular spot like Cayman. But suppose he was in an isolated area with no dive shops or rental gear around? His dive trip might have come to an early conclusion.

How Serious A Rupture

Just how serious is a ruptured high pressure hose? It depends. Except for the bubbles of escaping air, a small leak might go unnoticed. A large leak can drain a fair amount of air, but perhaps not as much as one might imagine. For the last several years, manufacturers have inserted restrictors into their hoses to pre-

vent leaks from causing serious problems. Dennis Hart of Scubapro recently told Undercurrent that they use three restrictors, one on the first stage of the regulator, and one at each end of the high pressure hose. Hart said that a 72 cubic foot tank pumped to 2500 psi would empty itself in about 20 minutes if the high pressure hose blew. Vern Pederson of Dacor corroborated Hart's view, and indicated that the high pressure hoses they use can withstand 4-7 times the working pressure of a full steel scuba tank.

With such a slow bleed, then, a diver whose high pressure hose ruptured on a dive would have a reasonable amount of time to exit the water and, in fact, could even make other dives, if compelled, with a leaky high pressure hose. But what about the low pressure hose to the regulator or power inflator? There's less pressure, so is there less flow? Absolutely not. In fact, the real danger of loss can be a ruptured *low pressure hose* because these hoses do not have flow restrictors. According to Tom Cetta, U.S. Divers engineer, a ruptured low pressure hose can empty a full tank in about six minutes. Some divers claim the tank will empty even faster. What happens if your low pressure hose ruptures with only half or a third of a tank of air? Well that won't leave you with much time to get out of the water, will it?

Not only is a ruptured hose a potential problem, but a faulty connection to the second stage regulator or to the power inflator can also cause a serious problem. Mike Ford, manager of the Pinnacles Dive Shop in Novato, told Undercurrent about a female diver on one of his trips who, just before entering the water, had her power inflator blow off. Ford said, "The hose whipped around like a wild snake and it nearly beat the woman to death. It was hard to turn her air off because of the hose, and by the time we did get the valve turned off she had lost a lot of air."

A punctured hose — or a broken connection — at 100 feet would not drain the air so fast as to prevent a diver from getting to the surface, although a diver who needed to decompress could face a frightening problem. Perhaps just as serious is the potential panic of a diver who suddenly finds air streaming from one hose or another. The sight of escaping air could induce panic and the diver could kill himself, even though he had the air to surface safely. It's important to note that should a small leak develop in the hose to the regulator, the diver would still be able to breathe. However, the work of breathing would become more difficult. If the diver were in trouble and had to work hard to get out of trouble, he may not be able to get an adequate air supply.

Why do hoses rupture? It's possible that a bad hose can slip through a manufacturer's quality control, but the predominant reason is that a diver has put unnecessary and continual stress on the hose at the juncture of the fitting which connects to the first stage of the regulator. By rolling up or coiling your regulator and hoses to stuff into a dive bag, you can

easily bend the hose against the metal fitting on the end and continual crimping will weaken it. If you have your regulator from the first stage, the weight of the pressure gauge, the second stage or the power inflator, can bend the hose unnaturally and thereby weaken it. You may never notice the beginning of a rupture until that ominous black olive appears one day and then, unless you have a spare hose, you'll spend the day topside hearing stories about what you missed below.

A Simple Solution:

Such a potentially dangerous problem has a nice and easy preventative. Several companies market a simple sleeve to slip over the hose which, when in place, prevents the diver from inadvertently crimping the hose at the first stage connection. Nearly all dive shops carry one or more brands and all brands seem suitable. Dacor's sleeve, because it is ribbed, allows the water to run away from the metal connection, thereby reducing the possibility of corrosion.

The sleeve is such a simple device, it surprises us that more divers don't use them. On that trip to the Caymans we mentioned previously, only three of the fourteen divers aboard had sleeves on their hoses, and that seems to be consistent with other observations we've made. At \$2 or so to protect \$10-\$20 hoses, the investment seems sound.



THE HOSE SLEEVE PREVENTS EXCESSIVE BENDING

One dive shop owner raised an interesting question. He wondered why hoses don't come from the manufacturer with permanently affixed sleeves. That's a good question, we responded. We too wonder. Then he answered his own question. "Well, maybe they sell more hoses that way." Hopefully, that's not the right answer.

Undercurrent notes: You can save the price of the sleeve by wrapping several layers of waterproof tape around the juncture of the hose and the metal fitting connecting to the first stage. The tape should be removed occasionally to check for hose crimping hidden from view by the tape. The advantage of the rubber sleeve over tape is that the sleeve can be slipped

down the hose to inspect the juncture. Wrapping and rewinding with waterproof tape will eventually cost

you as much as a sleeve.

New Decompression Meter

— *Hopes for the future*

Carry a small canary around with you in a bird cage? That was what ol' John Scott Haldane had told coal miners to do. The bird was a miner's carbon monoxide-meter, warning him that if the canary keeled over it was time to get back home, else he might himself turn to coal dust.

You remember J.S. Haldane. He invented the diving table back in 1908. No more would divers just come up slow-like and scared, but they'd do it in "stages" which the famous Dr. Haldane had figured out mathematically for selected single, one-depth, dives. Today's "new improved" tables are just modifications to Haldane's, and still require some forward-, backward-, and now even sideways-thinking for a diver to figure out a repetitive dive problem. Too bad Haldane didn't foresee our need today for a decompression meter — for something simple and reliable, but smaller than a bird cage.

Today's thinking divers (no, that's not a contradiction in terms, there really are divers who think) are a bit distrustful of the old SOS DCP meter, marketed in the U.S. by Scuba pro. You're not supposed to use it deeper than 130 feet. Its indications below 100 feet may not be correct because then you're supposed to take 5' at 10' whether the meter indicates that you need it or not. A day of repetitive diving is supposed to be restricted to less than 2 hours of actual dive time. And yet with all these requirements met, tests on the DCP imply that diving on the meter can still be much more risky than with the standard tables.

Last year we purchased another SOS meter — the DCK — which didn't have all the depth and time limitations ascribed to it that the DCP now has. To our dismay, tests showed hardly any difference in decompression indications between the new DCK and our old DCP. Issued under the same patent as the DCP, the new DCK appears different only by using a sliding piston rather than a sealed bourdon tube to indicate pressure buildup in its chamber. And we wouldn't give you any betting odds that the oil film lining the DCK's piston tube will last longer than the old DCP's bourdon mechanism. So we see little hope for future improvements from SOS. A good note was that New England Divers promptly refunded our money after we returned our DCK with a letter saying we thought their catalog's advertised claims for it were a bit misleading.

Remember Farallon's decomputer? Now there was a worthwhile design concept that just wasn't follow-

ed through properly. Primarily a no-decompression indicator, the decomputer was the first design that deliberately attempted to simulate the USN repetitive dive tables. You see, Navy tables presume that although the body has many tissues, during a surface interval you eliminate gas from *all* tissues as if they were *one*. Whether or not this really happens in your body, the tables also presume that during a surface interval your body eliminates gas at a much slower rate than if you were to remain underwater. Farallon attempted to simulate this by redirecting through a smaller membrane area any gas which was flowing back out of its pressures chambers. We think that was a good idea, but the design also had many problems. Oceanic Products, now the owners of Farallon, continue to work on meter design.

The instructional schematic of Farallon's decomputer looked to us very much like an earlier patent diagram prepared by Marc Borom of General Electric, except that Dr. Borom's concept involved true membranes in which gas actually dissolves as it passes through. Farallon used a thin porous sheet rather than a true membrane. This may have contributed to the design's problems. For example, with its pressure-indicator volumes expanding as they filled with gas, these pointers moved slower and slower, so that it was very difficult for the diver to detect exactly when they entered the red zone. Even the DCP's needle moves more slowly as its chamber fills with gas, but the Farallon indicators slowed much more than this. (Not only was the pressure difference, which is the driving force for the gas flow, decreasing, but the gas indicator-volumes were increasing and so required ever more and more gas to move them.) Besides the horrible test results we saw reported, it was this slowing due to volume expansion that caused us to have little hope for the meter.

The Borometer

With so similar a design, you may wonder what became of Marc Borom's membrane concept. This was the "GE meter" we heard rumors about but never saw. Dr. Borom has completed the development of a prototype using true membranes. He thinks it should sell for about \$100 retail, if it weren't for the product liability problems he's encountered. The "Borometer" contains 5 different time constant elements and provides for 3 different supersaturation

ratios. Apparently, the meter can then directly and properly simulate 5 USN-model "tissues" and 3 USN "M-values" which is more than enough to handle those staged decompression schedules which sport divers might encounter.

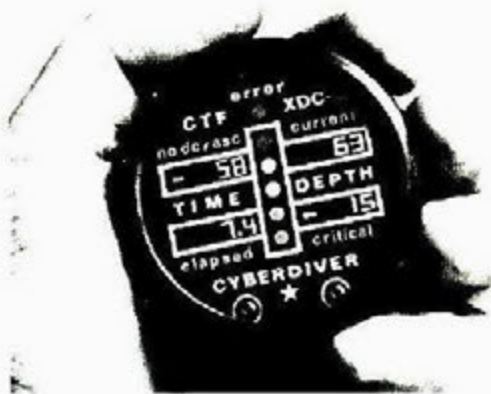
This is a significant achievement since the DCP does not simulate USN staged decompression schedules very well. On many, if not most, staged decompressions, the DCP gives excessively long decompression times, much more time at a stop than is required by the USN tables. It is because of this inefficiency that some divers (we're thinking of some commercial abalone divers we've seen) choose not to follow the DCP's needle up but will decompress by just hanging on at about 20'-30' until they feel good enough to climb back into the boat, then surface with the needle still well into the red. The DCP obviously indicates more decompression time than they or the tables need, so they "economically" shorten their decompression by some arbitrary amount. In fact, we met a couple of these divers over at a decompression chamber the other day. A new decompression meter that provides staged schedules closer to those of the USN would be much more "economical," however Dr. Borom still prefers not to change the time constants for a surface interval. He believes that the physiological parameters which influence decompression do not abruptly change when a diver reaches the surface. So don't expect the Borometer to follow the USN repetitive dive tables — it won't.

Unfortunately, and perhaps unfairly, not following the repetitive dive tables may become a common objection to future decompression meters. Some physiologists maintain, and can provide experimental evidence to support their idea, that the longer surface intervals by the USN tables is necessary. The longer surface interval might take account of any bubbles which had formed and which need a long time to dissipate so as not to cause problems on later dives. Other physiologists suggest, and also provide experimental evidence to support their idea, that the bubble problem can be resolved by taking a deeper safety stop. Professor B.A. Hills, a well-mannered, soft-spoken scholarly gentleman, is probably the secret leader of this radical horde of anti-USN physiologists. He has even developed a diver-carried, hydraulic decompression meter which purposefully doesn't follow either the USN staged or repetitive schedules. We can only wish the good Professor luck in trying to sell it to divers who have been taught to follow the USN tables as if Moses himself had been given the original set on stone tablets.

The Cyberdiver

The first commercially available "state-of-the-art electronics" decompression meter has the problem of not being programmed for the USN tables. CTF Systems (15-1750 McLean Ave., Port Coquitlam,

B.C., Canada) introduced this year its CYBER-DIVER, a diver-portable digital decompression meter. The price is \$1,500. This meter is the new product of CTF's previous development of electronic laboratory and field decompression monitors and calculators. It consists of a microprocessor housed in a 9" submersible shell which is mountable onto your tank. A crystal controlled clock and temperature compensated pressure transducer provide inputs to the computer. The unit continuously calculates your no decompression time, ascent time (so you can plan ahead for your air consumption during decompression), elapsed time, current depth, and the critical depth above which you shouldn't ascend. So the CYBERDIVER provides a bit more than the old decompression meters — as a bonus it also serves as a dive watch and depth gauge. The gauge-sized LED display is connected to the computer by a flexible hose, and the entire unit runs for about 4 hours on four 9V batteries.



CYBERDIVER, A \$1,500 DECOM METER

Besides the price, there is the problem that this computer is now programmed for the "Kidd-Stubbs" decompression model rather than the U.S. Navy model. This may not be a bad idea, but it does need some explaining to those of us who were taught that there were only two choices — the USN tables or the bends. Kidd-Stubbs decompression schedules are used by the Canadian Armed Forces, have undergone substantial testing during their history, and the resulting repetitive dive schedules we have seen aren't too different from those we figured from the USN tables. That the Kidd-Stubbs model is mathematically similar to that advocated by Professor Hills is interesting, if only we could figure out how Hills' model works. Most researchers we talked to admitted to not really understanding Hills' theory and so weren't able to guess whether or not it might work better than the USN tables.

The Decometer

The USN is today testing its own digital decompression meter, the Decometer, which is programmed

for the USN model. The unit is wrist-worn and is about the size of the DCP. Its LED display shows the diver's current depth as well as his safe ascent depth which is zero until decompression is required. Additional green, yellow and red status lights indicate whether a diver is at a safe depth, at a decompression stop, or dangerously shallow. Developed for USN rather than sport applications, the decometer is now only programmed for mixed gases with constant oxygen pressure, and is powered by 2 lithium batteries which last about 8 hours, but cost about \$4 each. The decometer is not programmed to change time constants during a surface interval, so it won't follow the USN repetitive dive tables. The USN tests now being run should help determine whether it should more closely parallel the Navy tables.

In the next few years we don't believe the price of an electronic decompression meter is going to drop below \$500 or so, not even with a boom in the number of thinking divers who want and are willing to pay for a good gauge. So don't hold up any diving trips, or any you've planned for your children, waiting for an affordable electronic decompression computer. Such a design requires a digital clock and a good digital depth gauge as well as its microprocessor.

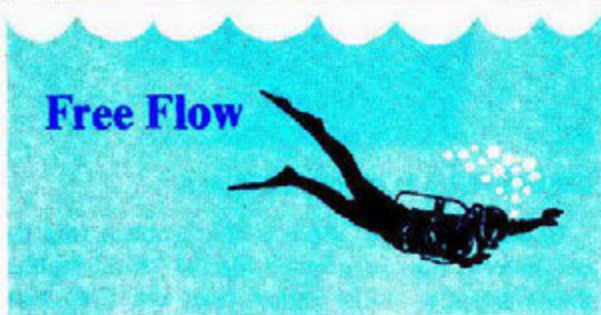
What's the best hope for the future? With the inability of electronics to do it, we are looking forward

to seeing the Borometer competitively selling next to the DCP in dive shops. It might just become the thinking diver's choice.

Decompression sickness is still today a phenomenon not at all well understood. Did you know, for example, that fish are much more susceptible to the bends than humans are? Yep, like a canary's susceptibility to carbon monoxide poisoning. Maybe you could carry around a fish in a small fishbowl when you dive. Haldane might have liked that.

Author's Statement Decompressor Meter

Red Howard, the author, has been an active researcher and writer on decompression, decompression sickness and decompression meter design. His work has been published in many journals, including the *Marine Technology Society Journal* and *Medical and Biological Engineering*. Howard, a PADI instructor, is completing his Ph.D. in applied ocean science at Scripps Institution of Oceanography and now consults for Ketrion, an ocean science consulting firm. Howard is also one of the authors of *Abalone: From Sea to Saucepan* which, after a successful first run of 5000, is being revised and will be reissued in June by Tofua Press. Howard prides himself on being one of San Diego's Diving Dirtballs. You figure it out.



A few issues ago, we said Jacki Kilbride was back in the British Virgins with husband Bert, but we were only half right. *Jaki* corrected us: "There are two of us. There's Jacki 1. That's me fellas, who was here on and off since the beginning. There's Jacki 2 (as in too or two). She's the lady who did the swim-in for Jackie (3) Bisset in *The Deep*. I am currently on duty here; since Jacki and I have been known to alternate a time or three, I guess an occasional misunderstanding is inevitable" ... Jacki corrected us: "I would like to announce that the real Jacki Kilbride is not, I repeat *NOT*, back on Virgin Gorda. You have to realize that Bert Kilbride's paramour is also named Jaki, and to my best knowledge cannot be Kilbride as Bert and I are still in the process of getting our divorce. I am still involved in the world of diving and with my partner, Gordon Damon, have a fledging underwater photography business called DEEP

DIMENSIONS (4403 Kahala Ave., Honolulu, Hawaii 96816) ... *Undercurrent* will add as a footnote that on the stationery for Kilbride's Underwater Tours, "Jaki" and "Bert" are printed on the bottom. That's *Jacki*, not *Jaki*.

The University of California at Berkeley is looking for volunteer researchers for a three-week study program of "the metabolic effect of variations in locomotor activity in tropical marine fish." The \$750 charge for accommodations and diving (plus air fare) is tax-deductible because you are contributing to a university research project. It is under the guidance of Professor Malcolm Gordon. For details, write Jean Colvin, University Research Expeditions, University of California, Berkeley, CA 94720. They are also sponsoring an archeological dig on an eighth-century Islamic site in Italy, and some scuba diving may be possible to investigate whether any boat or underwater evidence of Saracen invasion remains along the coast. The three-week minimum "contribution" is \$925.

Gamal Sadat, son of Anwar, strolled into San Diego's Diving Locker, browsed a bit, then plunked down \$1422 in greenbacks for wet suits, regulators, spearguns, etc. Seems he wanted to do a little kelp diving for comparison with the Red Sea, but he didn't care to lug his gear with him.