undercurrent®
THE PRIVATE, EXCLUSIVE GUIDE FOR SERIOUS DIVERS

P.O. Box 1658, Sausalito, California 94965
Cable Address: Gooddiving

Vol. VI, No. 8 August, 1981

Ponape and Palau, Micronesia

Worth The Investment, Worth The Hassle

Micronesia is no place to arrive unannounced. As we learned in 1975, if you're not expected, the dive boats may not be running or may not have room if they've been chartered by groups. Rather than calling my local travel agent for this trip, I decided to work with specialists in Micronesia diving for my May trip.

I contacted See and Sea Travel, with which I had taken successful trips before, then sent deposits to join a group departure to Palau. Two months later, See and Sea cancelled the tour, explaining that the date came during Palau's rainy season. (Shouldn't these experts have known that in advance of the scheduling?) I then tried Bay Travel in Corona del Mar, California, but I had absolutely no luck here. I sent them my proposed itinerary and for two months made repeated telephone calls for information, but received absolutely nothing but promises that information would "be in the mail."

Next came Sea Safaris in Manhattan Beach, California. Here I got what I needed--personal and professional attention. Co-owner Nancy Ackerman French had worked for See and Sea Travel and Skin Diver magazine before she and her husband, Bob, started this travel business. She did not have a scheduled group departure for the date I wanted, but she organized a package just for my buddy and me, providing the same dive operator and accommodations for eleven nights (ten days of diving) in Palau, plus four nights (three days of diving) in Ponape ($1,050/person) for less than See and Sea would charge for Palau alone ($1,450).

INSIDE UNDERCURRENT

Ponape: It's a long, long flight to scenic Ponape, but I quickly forgot the tedium with my first glimpse of the lush jungle foliage covering the mountain ridges of this verdant volcanic island. We were picked up by a covered flat bed truck at the Ponape "terminal" and taken for a bumpy and weavy ride to the Village Hotel, six miles and 40 minutes away. Bob and Patti Arthur, formerly Southern Californians, operate this charming resort of 21 thatched-roofed bungalows built on stilts along

a dense jungle-covered hillside. Each hut has large screened windows along three sides, permitting an excellent hilltop view of the ocean. The modern bungalows have waterbeds, adequate electricity for charging strobes, and bathrooms equipped with freshwater showers. Sea breezes and a ceiling fan keep daytime temperatures tolerable and night temperatures quite pleasant. Because mosquitos are rampant, coiled repellant punks are provided to light at night, but it's also necessary to apply insect repellant at bedtime. The rooms also feature natural insect repellants known as geckos (small lizards), which skitter across the ceiling rafters looking for dinner.

The main building is a dining room-bar-lobby with one side open to the ocean--a fine place to relax after diving. Dinners featured such scrumptious delights as squid parmesan, prime rib, Ponape pepper steak, teriyaki steak, Macadamia nut chicken, and fresh seafood such as mangrove crab or yellow-fin tuna. Breakfast included delightful Ponapean pancakes with banana-pineapple syrup, Portugeuse doughnuts hot from the deep fryer, and the usual American bacon-and-eggs fare.

The dive shack next to the hotel lobby houses a compressor and about fifty 71 cu. ft. steel tanks (and weights, belts, and backpacks). On our first day of diving,their 30-foot catamaran with twin 115 hp Johnson outboards carried four divers and two guides comfortably (it could have held twice as many) to excellent dive sites about 20 miles and one hour away. On the second day, however, the cat was down so we used a smaller 23-foot fishing skiff powered by twin 25 hp outboards for a slow, crowded, bumpy ride to closer and not-as-scenic spots.

The dive trips, scheduled at 9 a.m., actually left much later (we'd return by 4 p.m.). A truck transported our gear while we walked to the boat at the bottom of the hill. Our guides were two young Ponapeans, Joe and Olter, who would stay in the boat -- except to spear a few fish -- while permitting us to dive at the depth and pace we wanted. After the first dive we would eat our hotel-packed lunch, then move on for the second:

Lone Tree Drop-off: In 150-foot visibility I saw soft corals and large tridacna clams in colors more intense than I had expected. Table-top and mushroom corals were intact and healthy, a distinct advantage of diving at remote reefs. Small reef fish, such as butterflies and moorish idols, were plentiful but shy of divers, no doubt a response both to uncommon divers and spearfishermen.

Tauak Drop-off: My favorite Ponape dive. The photogenic subjects along the wall overwhelmed me--crinoids in yellows, deep reds, blacks, two-tones of those same colors with white outer fringes; anemonies occupied by multi-colored clownfish; enormous clams with mantles of iridescent blue or mottled violet; and two colorful nudibranchs (one black with orange and white leathery warts, and another bright yellow with black spots). After an intense photo session, I turned around from the wall to spy a 4-foot black-tip shark 20-feet away. What was I missing with my nose to the coral?

Parem Drop-off: Limited by the smaller boat that second day, we visited this closer site (about 10 miles from the hotel) for both tanks. Though not as scenic as Tauak, I saw pelagics such as tuna, bonito, and shark. On the second dive, I noticed a shadow moving in a cave-like opening. Expecting a grouper, I poked my head in. A startled white-tip reef shark fled from the opening in such a frenzy that it hit me and my camera. It happened so quickly that my diving buddy did not see the incident--only my dazed expression afterwards. My shortest

dive in Micronesia came to an end as the guides lifted me back into the boat, my legs and arms too wobbly for climbing in.

Nan Madol: Not a dive site, nonetheless a "must see." Within the jungle are large structures built from 20 ft. basalt stone logs, ruins of a civilization said to have ended 1000 years ago. Before arriving at the city, we saw from our boat remnants of a network of artifical islands and canals covering 11 square miles. Afterward we beat the heat by swimming in the cascading fresh water river below a spectacular waterfall.

Ponape diving is an excellent introduction to the Pacific's soft corals, colorful marine tropicals and pelagics cruising coral walls. But the best was yet to come--in both the quality of diving and the quality of the dive services.

Palau: After being met by Matthew, an employee from Fish-N-Fins, Ltd., we boarded the bus for a 45-minute ride to the Continental Hotel in Koror. The Palau Continental has 54 rooms which blend into the hillside landscape and overlook a beautiful lagoon. Although the hotel boasts of having all the comforts of home, conditions proved less than ideal; the rooms were pleasant, each with its own balcony facing the lagoon, but an acute water shortage provided us with brownish tap water only 15 minutes in the morning and 15 minutes in the evening. Even hotel drinking water had sediment in it. Air conditioning was turned off for half of our stay; the small fan provided was inadequate for Palau's muggy heat. Food was deplorable and expensive, much more bland than any hospital would dare serve. In-town restaurants were much better. Our favorites included the Carp, Diangle, and W.C.T.C. Snack Bar. For as little as $2.50 we could get a meal of salad, fresh fish and rice. Transportation to town is available via taxi or by renting a car for the evening (about $5).

A Fish-N-Fins employee picked us up at the hotel at 8:00 a.m., returning us by 5:30 p.m. Dive packages generally offer two tank trips, but I paid an extra $10 for the third tank, lunch included. The diver operation is run by Francis

Another Tale From The Deep

Our story of the lost dive glove that travelled 200 miles by current only to be found by a stranger and returned to the owner (see *Freeflow*, March 1981) prompted this letter from reader Bill Stern, a Miami attorney, describing his tall tale from a night dive at Diz Ahab (Red Sea) in 1976.

"Our entry was by the light of the two jeeps in a howling thirty-mile-an-hour on-shore breeze with a water temperature that felt like 65°, a rocky ankle-busting approach and a blackness that could only be found in a grave. Under my wetsuit jacket I carried a two-foot long plastic replica of a Maine lobster that I had brought from Florida. I was teamed for the night with a good buddy. The plan was a descent on the wall to 60 to 70 feet with me above him holding the underwater torch so he could snap away with the Nikonos. My own plan (his eyesight leaves something to be desired) was to find a convenient niche, park the lobster and then call his attention to it with the torch. He is very knowledgeable of all ocean fauna and the miracle of finding a Maine lobster in the Red Sea would have been good for nine miles of conversation and speculation in the years to come.

"Unfortunately, just as I parked the lobster, a malfunction in my first stage cut off my air completely. I tapped my friend on the shoulder, indicated my problem and headed for the surface in the longest free ascent I had ever attempted. Needless to say, the diving for both of us for the night was over. He bobbed to the surface 30 seconds after me and we abandoned the lobster to move on down the coast towards Sharm-el Sheik.

"In 1979 we were back at Diz-Ahab to dive the blue hole. After the dive I entered the dive shop to add to my T-shirt collection. I glanced up at some netting ten feet up on one wall and saw a plastic replica of a Maine lobster. It was identical to my lobster from 1976 except for a gaping hole in the top of the back. I asked the shop owner where the lobster came from and his reply roughly translated from the French he spoke was to the effect that he had dived the lighthouse in 1978 upon his arrival in Diz-Ahab, observed what he believed to be a lobster napping in a crevice and shot same with his arbalete."

Toribiong, a NAUI instructor, native Palauan and well-organized businessman. His operation included a compressor, 90 steel tanks and a few regulators and BC's in case of equipment failures. Francis keeps a fleet of power boats to accommodate divers and all their gear. We used--and preferred--a 28-footer powered by twin 235 hp Johnson outboards with storage area for the tanks, dive gear and photo equipment of twelve divers. None of the boats offered shade from the intense sun. The scenic trips to the sites, often bumpy in the open water, took an hour or more; along the way one island still had a Japanese gun peering out from a cave.

Because spectacular scenery was available at 50 as well as at 150 feet (the walls would start as shallow as 2 feet), I opted for long dives at moderate depths. When I did decompress, I was never bored because the shallows offered a macro-lover's paradise with colorful tridacna clams, anemonies occupied by clownfish, red and white candycane sea stars, neon blue starfish, and hundreds of varieties of reef fish. The shallows were also filled with live shells for photography, while clean snails, clams, and cowries could be found on the beaches. Once, though I found an unexploded Japanese artillery shell, not exactly what I had in mind. Palau indeed has an infinite number of dive sites, but we decided to return for second, third and even fourth dives to several spellbinding sites.

Ulong Channel: We hit the water at the entrance of this 50-yard-wide U-shaped trough (with a sandy bottom at 50 feet) and drifted in a 3-4 knot current. The channel walls are covered with colorful soft corals, giant seafans and gorgonia. One sloping wall is covered with a marvelous 50 square yard patch of rust-colored lettuce coral. The Channel is filled with pelagics such as grouper, barracuda, and sharks--some above me, others below and still others swimming alongside me as I flew through the channel. At the end of the one-mile channel, the boat driver following our bubbles above would pick us up.

Ngemelis: Ninety-minutes from Koror, the wall begins at two-feet and drops straight down to 1,000 feet! Every square inch was covered with life. Crinoids in contrasting colors were perched on yellow, pink and deep red fans--as if they were posing for my camera. One yellow seafan at 90 feet deep was actually measured as 16-feet across. Unique coral varieties--daisy, bubble, monet-tube, violet lace, shallow-scalloped, umbrella--covered the wall. Yellow tunicates, Christmas tree worms in every rainbow color and delicate gorgonia in intense reds, violets and pinks were abundant. Away from the wall thousands of fish, as if in rush hour traffic, swam against the mild current. At the top of the wall turkey-fish (a cousin to lionfish), bright red flame angelfish, squirrel fish and graceful moorish idols played. On one dive I sighted a black-and-white banded sea snake at 40 feet. Knowing that a sea snake's venom is more deadly than that of a cobra, I kept my distance.

Peleliu: At this southernmost island in the Palau group, we descended along the wall covered with giant seafans and brillant soft corals. At 140 feet 10 white-tip and black-tip reef sharks circled and the divers and their cameras immediately descended upon them. Schools of jacks, bonito, barracuda, a pair of rays, and several turtles swam the wall. The shallows here were particularly good for cowrie photography.

It would take months to visit all of Palau's sites; since I prefer wall diving I selected certain sites over others. For example, I bypassed the inland saltwater lakes that connect to the lagoon through underwater tunnels, although the lakes contain rare species of marine life. Francis was willing to honor just about any request, even those requiring extra gasoline.

Conclusion: My trip to Micronesia was to conclude at Truk lagoon, but while on Palaun other divers told me of a severe plankton bloom and visibility much less

than 50 feet. With such poor visibility, I decided I could not achieve the perspective I needed to appreciate the vastness of Truk's sunken ships, many up to 300 feet long. Sadly, my buddy and I decided to forego our visit to Truk and return home. Later I was to learn that the plankton bloom is an annual event, with June the most likely month. This bloom occurred in the last couple of weeks of May.

Is Micronesia worth the investment? Certainly, the underwater scenery is unparalleled in the Caribbean and Hawaii. The diving itself is far less tame. The marine life is not only different, it is exceptionally abundant and varied. Sharks were seen on 80% of the dives in Micronesia. My only disappointment is that the reef fish, not used to the presence of humans, kept their distance. For a fish photographer that can be disappointing. Surely a serious diver can make two trips to the Caribbean for the price of one to Micronesia. Nevertheless, a serious diver might be better off to forego one year's vacation to save up for a trip to the South Pacific. It's that special.

And a footnote: On Palau, lo-and-behold, there was a See and Sea group! Their trip had been rescheduled (what happened to the rainy season?) and apparently the staff had forgotten about my serious interest in the trip and the deposit I had sent and they had refunded. Later, I did receive a letter from Carl Roessler apologizing for not informing me about their rescheduled trip. See and Sea had served me well in the past. No one, I suppose, bats 1,000.

Diver's Compass: Sea Safaris' address is 3770 Highland #102, Manhattan Beach, CA, 90266 (213) 546-2464. . .Water temperature on this May trip hovered near 84°, but I found a wet suit top useful on my long dives....Typhoon season is officially October, but they have appeared in other months; Nancy Ackerman recommends avoiding June and October; at other times tropic rains may occasionally pummel your hut for short spells...Current airfare from Los Angeles is $1,340, round trip.

Free At Last, Free At Last, Free At Last

How I Learned To Dive Without A Camera

Have I ever enjoyed the freedom of diving? Never. When I earned my basic certification nearly a decade ago, I rushed right out to buy a Nikonos II, a strobe with a housing, an extension arm, viewers for the lenses, a changing bag, plastic lenses, extension tubes, half a dozen how-to books and a bunch of other bits and pieces. All-in-all I loaded up with 25 pounds of new gear, which I stuffed all into a beat-up suitcase so I wouldn't alert some airport sneak-thief as to what I was packing. More times than I can remember I have opened and closed that case for security inspections, opened and closed it for customs here and customs there, hauled it in and around airports, in cabs, on buses, on foot, always with a dozen other bags in tow. And only God knows how much of my income I have distributed to countless cabbies, porters and kids to help me with my struggle.

Getting my camera gear ready for a trip is no simple task. Actually I prepare and organize when I return from the previous trip. I clean each and every item, brush off the sand, use silicon grease where required, check every nook and cranny, check all the O-rings, put everything neatly in place. Before I leave the next time I find myself distrusting the work I performed the previous time, so I put in another hour rechecking my work. Later, at the resort, and prior to my first dive, I spend another half-hour assembling all my gear, loading the camera, making sure the strobe is charged and performing my personal ritual. Once aboard I'm in a state of high anxiety, keeping my eye on my camera to make sure no one sits on it, or that no one picks it up, plays with it, or drops it. And of course, I must search out someone to lower the camera to me when I'm in the water and take it from me at the dive's conclusion.

Once below the surface, my single purpose permits me to see only subjects for my lens. With the standard lens I'm looking in every nook and cranny for the fish photo that might somehow be the prize winner. I look for narrow vistas. I pose my buddy. I look for people who are unposed. I look for silhouettes against the sun. Everything I see I imagine as an 8x10 print, matted and

framed and tacked upon my office wall.

If I'm shooting close-ups with extension tubes I have my nose in the reef, my eye focused to discover the tiniest of reef creatures. There's a goby! Now I think I have a photo of a goby on giant brain coral. Or was it on smooth brain coral? But is this grooved brain coral? Was this the background? I can't remember. I'd better take the shot. And do I have a yellow tubeworm? Maybe orange. I'd better take it. It's as if I'm collecting baseball cards. My collection will be worthless unless its complete. I need every member of the 1974 Yankees. I need every member of the Blenny family. What an obsession.

And while my mind is cluttered with my collecting, I pay absolutely no attention to my buddy. She might have embolized three coral heads ago without my knowing it. I gave no quarter to stern glares from other divers who don't take pictures and want me to keep moving. I glare back and mumble at the dive guide, who shakes his stiff finger at me. And I shrug my shoulders when my buddy demonstrates she's freezing to death by staying in one place. Doesn't everyone know I've seen another red-lipped blenny?

Not long ago with my face flush against a sea fan while I positioned my 1-to-3 lens for the 425th shot of a flamingo tongue, three beautiful mantas turned cartwheels near the tip of my fins—so my buddy told me later. Everyone on the dive boat chattered excitedly about the creatures as I quietly exchanged film. On the next dive they were spotted again, but not by me. I was on the other side of a coral head once again in pursuit of a blenny—or was it a goby?

I began to get the inkling that I might be missing something. Dive after dive my line of vision was either four feet or four inches. Could I recall the experience of viewing the great coral vistas in crystal clear water? Did I ever just sit and be silent and let the reef come to me, experiencing it all without seeking a subject for my lens? Did I ever really experience a dive? No, I thought. I wait to get home to enjoy the dive. Sorting slides, tossing out 9 out of 10, and storing the rest in a cigar box for my annual presentation to friends and neighbors—some of whom would fall asleep right after the third wrasse shot—was my way of enjoying a good dive.

I was but an historian, someone trying to record and catalogue what I had seen, rather than experience it. Diving is an experience, an experience to be savored. But I was treating it like a trip to the archives—or as a subject about which to create my own archives so that I might at some later date prove my prowess to my friends. Indeed, I was missing out on what it was all about. My Nikonos controlled my time underwater. I was a slave to Kodak. I wanted freedom. Next time, I told myself, I would break this nasty habit. I would go diving—God help me—without a camera.

And I did. I felt a great sense of loss. Everywhere—the airport, the plane, the taxi—I felt as if I had left some key body part at home, as if I'd left my kidney or my gizzard stashed away in the bedroom closet. My God, how was I to survive?

Yet I did. Once on Cayman and nestled into my hotel I became shockingly aware of the spare time I had. On board the dive boat I spent time meeting and chatting with fellow divers, not burying my head in the camera case. I didn't have to worry about whether the strobe was fully charged, if I had put the damn O-ring back on the lens, if I had loaded the film properly. After the dive I could head right to the bar for cold beer and story swapping and in the morning I could sleep an extra half-hour since I didn't have to fiddle with my gear.

Underwater my air consumption was better. The camera and strobe added some drag in the water and I never had to play catch-up after waiting for a shot. And I didn't have to expend all that extra energy positioning myself for a shot or chasing a subject.

Perhaps most enlightening was the meditative side of diving. When photographing I was fully cognitive, computing distances and settings and so on. Without those requirements, I could let go of the clutter in my mind and just experience the ocean by floating aimlessly, drifting, sitting, or even somersaulting. I'd heard of the inner experience of diving and now I know what it means.

The vistas were magnificent. I stopped to appreciate sights I had not appreciated when I was charging about looking for subjects. What I look for in fish was behavior, not how it would look, captured by my lens, hanging on my wall. Instead, I watched fish swim, feed, chase and mate. I watched the ocean in action, not the ocean as a still life subject for my lens. And back in the boat I felt part of the group, for now, I, too, had seen two rays glide by since I had not been in hot pursuit of another flamingo tongue.

Give up photography forever? Never. But there's so much more to diving than a flashing strobe that there'll be some trips I leave that camera home. I won't be able to take it with me, then leave it in my room some days and not others. It's like a hard drug to me and I could never leave my room without it. It's gotta be cold turkey, so sometimes I'll leave it back home and other times I'll take it. I've now found freedom and I'll just have to get it back—sometimes.

The author of this article, Christopher Craver, lives in McLean, Virginia and can frequently be found snorkeling in his hot tub—without his camera.

DR. CHARLES BROWN

Dr. Charles Brown, the diving doctor who contributed regularly to *Skin Diver* and *NAUI News*, drowned while swimming at Irvine Cove, near Laguna Beach, California. His body was found Friday, July 24.

We will miss Charlie. He had an effusive love of diving and an encyclopedic knowledge of diving medicine, both of which he happily conveyed to all divers.

God rest you.

J-Valves Vs. K-Valves

Does The J Enhance Safety?

One of the more confusing decisions facing new divers buying a tank is whether to select a J-valve or a K-valve. The J offers a so-called air reserve but the K is mechanically more simple so less can go wrong. Once a diver decides which is best for him, he tends to insist on tanks with his pet valve, feeling quite queasy if he is forced to use a tank with a valve other than his favorite.

The confusion dosen't center on whether the K-valve is any good. Rather the controversy focuses on whether the J-valve, which is supposed to provide additional safety, will actually provide that safety or whether the valve itself leads to serious problems.

J Vs. K

Prior to the early '50s and long before submersible pressure gauges were developed, divers used K-valves and stayed down until they found it increasingly difficult to draw air through their regulator, a signal that air pressure was low. Then they knew to surface. Air consumption charts were available so divers with depth gauges and watches could make some effort to plan their length of a dive if they had certain tasks to perform. The J-valve became a useful addition to diving safety. Once it became difficult to draw air, all the diver had to do was to reach behind him and pull the rod that extended from the valve down the side of the tank. This released an air restrictor in the tank, providing him with an additional 300 psi or so to finish the dive.

The two valves apprently earned their names from their position in early U.S. Divers' catalogues. Tom Silva, current manager of Product Development for U.S. Divers, pulled out a 1954 catalogue and pointed out to us that "item J" in the catalogue was listed as a "Reserve Tank Valve." The following item, "K", was an "On-Off Valve." The next catalogue Silva could find was the 1957 edition in which the items were now simply referred to as the "J-valve" and the "K-valve."

The K-valve is mechanically simple. Turn the knob and air pours through. Reverse the direction of the knob and the air flow stops.

The J-valve is more complicated. A spring operated restrictor reduces the flow of the available air, so at about 300-600 psi the diver is alerted to the fact that his air supply is running low because he finds it increasingly difficult to inhale. He therefore releases this restrictor by turning the valve on the side of his tank, which he does by reaching behind him and pulling the rod attached to the tank. The tension on the spring is released and the so-called "reserve of air" is allowed to flow from the tank to the regulator.

This "reserve," of course, is *not* additional air waiting to be released. The J-valve simply cuts off the air flow to the diver earlier (i.e., at a higher psi) than a K-valve, which does not cut off the air flow but allows the tank to empty normally. By releasing the J-valve, the diver is only allowing himself to use the remaining air in his tank. If he does not turn the valve, he will not be able to pull more air through his regulator; 300-500 psi will remain locked inside.

Problems

The J-valve is more complicated than the K-valve and therefore must be kept in good working condition. It should be serviced regularly to ensure that the spring is not weak. A spring can be weakened if the tank is stored for a long time with the reserve activated. It can also be weakened if someone tries to fill the tank when the valve is activated or tries to adjust the valve when it's under pressure.

But according to a number of people who service dive gear, the likelihood of mechanical problems with J-valves is relatively small. Al Thompson, whose North Hollywood, California, Professional Scuba Repair business services seventy dive shops, several military bases, and a handful of state and county agencies, says he's seen only "four or five" J-valves with any problems in the twenty years he's been in business.

More serious problems with the J-valve can be attributed to diver training and awareness—and there's plenty that can go wrong. First, of course, is the most obvious problem. A diver can presume that his J-valve is on and when it becomes increasingly difficult to draw air he pulls the rod to free the remaining supply. If the J-valve had been set properly, more air will flow. But suppose the diver inadvertently left the J-valve in the wrong position. Or suppose the J-valve got bumped on the boat. The diver expecting a reserve of 300-500 psi would find he had very little left.

For this reason J-valves are unpopular on the West Coast. Because the rod can accidently get caught on a kelp frond, the valve can be opened without the diver knowing it, and later cause a real—and terrifying—surprise.

It's also possible to bump the valve in a tight spot—a cave or a lava tube, for example—and later find that there's no reserve left. Or a diver may be twisted into such a position—or in such a tight squeeze—that he cannot reach the rod to pull the reserve. And there's also the possiblility that the diver may don his gear in such a way to render the rod immobile, as was the case in one 1977 fatality—the air reserve pull rod was clamped beneath the backpack band strapped around the tank and could not be moved to release the reserve. Finally, there are reports of the valves slipping and releasing themselves (at least that's what some divers say) and reports of valves stuck when the wire rod is pulled. It may take a buddy to activate the valve—unless the diver unstraps the tank and does it himself.

The potential problems with the valve can be illustrated with this tale from the book *Sport Diving:*

The Instructional Guide to Skin and Scuba, by Mort Walker.

"Ascending from a New Jersey coast wreck dive, I discovered that my J-valve reserve was down when I thought it was up. I needed air ninety feet down and there was almost none left. I rose the full depth expelling from my lungs and managed to inhale the little air remaining in the tank. After that incident I gave up using J-valves."

On the other hand there's no way to tell how many negligent divers—those diving without a submersible gauge or those moving their gauge—would be alive today if they had been forewarned of their air depletion and then had a J-valve to activate. And surely there's more than one blissful fool who is alive because the reserve was essential to get him to the surface. But in either case, the diver had no more air with the J-valve than with the K-valve. His own inattention forced him to rely on the warning and the alleged reserve.

Conclusion

As you've surely gathered by now, we prefer the K-valve to the J-valve. The K's simplicity clearly outweighs the potential liabilities and problems of the J-valve. And it seems that most divers prefer the K-valve. Estimates are that 60-70% of the new valves sold are K-valves.

On the other hand, the U.S. Navy used the J-valve, but then Navy divers are highly trained and maintain their equipment well. They're much less likely to make fatal errors than the average sport diver.

But what really matters is personal preference—and how a diver has been trained. A diver trained with a J-valve may find it a bit disconcerting to dive with a K-valve and have no "reserve" to count on. A K-valve trained diver will be confused when his pressure gauge registers zero or bounces between zero and 200 and there's air left on reserve.

If you're a careful diver, one who always maintains and checks his equipment and who remains aware of the proper postition of the J-valve, then it can be a good tool. But if you are that careful diver, then you probably also regularly check your submersible pressure gauge so the addition of the J-valve offers little additional safety and may offer some liability.

On the other hand, if you're a careless diver and don't pay attention to your pressure gauge, then the J-valve might be a contribution to your personal safety. But if you are that careless diver, then it's likely that you won't pay much attention to the position of the J-valve and may find yourself in trouble anyhow.

Should you use a J-valve? The answer is up to you.

POTENTIALLY FAULTY DACOR J-VALVE

Just before we went to press we've learned that 1600 Dacor J-valves (manufactured for Dacor by Sherwood-Selpac) may be defective. While the tank is being filled, the bonnet nut on the J-valve may blow off. The valve is marked D-80. Any person who has purchased a valve (or a tank with a valve) in the last five months should check the identification. Under no circumstances should a tank with a D-80 valve be filled. The valve should be returned immediately to a Dacor distributor for servicing.

AN ALTERNATIVE TO THE J-VALVE

NASDS stores now offer a device which sounds an alarm when a diver's air pressure drops below a pre-established level. The Safe Alarm System (it's a "system" rather than just an "alarm" because NASDS continues to insist upon establishing its own sophomoric space age vocabulary) is not much thicker than a high pressure hose and fits between the hose and submersible pressure gauge (i.e., the air monitor). The device can be adjusted to sound off anywhere between 300 and 800 psi. The retail price is $69.95.

Why Divers Die: Part III

Equipment Problems As A Cause Of Death

For the first time in nine years, the NUADC has discovered a case in which an almost new and well-maintained regulator failed in service and was one of the causative factors in what turned out to be a double fatality. The victim was diving under ice for the first time and was wearing a buoyancy compensator without the CO_2 cartridge inserted. His vest became partially flooded, and the second victim, a much more experienced person, worked hard to help his buddy. At some point the regulator diaphragm blew out and the regulator free-flowed till the tank was empty. Ironically, this victim had an octopus regulator on his rig but apparently failed to use it. When his tank was recovered it was empty, and the buddy's tank had 2000 psi remaining.

This is the only case involving failure of well-maintained equipment detected in approximately 1,100 cases over nine years. However, the NUADC hastens

to emphasize that it has had only limited success in obtaining equipment examinations following a diving fatality. Anyone likely to become involved in the investigation of underwater diving fatalities should be aware that the inspection of the diver victim's equipment is a critical part of the overall examination.

Entanglements

One case of entanglement, described in Part I of this report, involved an entanglement with the stainless steel winch wire from the victim's boat. Another such case took place during dive instruction. The lake water

"When the victim was located his legs were securely entangled in old fishing lines which were entwined in the branches of a submerged tree. The victim had not carried a knife with him on this fatal dive."

was very murky, and the victim became separated from the instructor and the other student. When the victim was located his legs were securely entangled in old fishing lines which were entwined in the branches of a submerged tree. The victim had not carried a knife with him on this fatal dive.

In another entanglement incident, a student diver in training, upon completion of the class for the day, returned to the water alone. At 50 feet he apparently had some difficulties and dropped his weight belt, which became entangled with both his speargun and the catch bag he had attached to his arm. When found, the victim was anchored by the gear and belt and floating 15 feet above the bottom.

The weight belt may have played a part in another case. A buddy dropped his weight belt and it may have hit the victim below on his head. When the victim was found, the belt was snagged in the valve behind his neck.

Another incident involving the weight belt occurred when two divers tied a rope to their weight belt to prevent losing each other in the murky water. The victim, who had never dived before, apparently panicked and pulled his buddy's weight belt off. The buddy, now positively buoyant, drifted to the surface, while the victim was pulled to the bottom with the excess weight of the two belts.

Additional Equipment Aspects

The following story describes a 1977 accident.

"The victim was diving as a guest of a club member. He had not been diving in almost a year, although he was certified and had passed an advanced diver program. After a good first dive in moderate current we moved to another site with favorable conditions: no current, water temperature was not cold, the swells were small, and the visibility was good.

"Although the victim hadn't been diving for a while, he showed no signs of anxiety or of being tired after the first two dives. He and his buddy began a third dive in 35 feet of water and after being below for a moderate amount of time in a kelpy area, the buddy wanted to take a fix on the location of the boat. After finding a broad kelp-free area he signalled to the victim to head to the surface with him

They surfaced about 100 yards from the boat, and almost immediately the victim called for help. It wasn't clear to the buddy what kind of help the victim wanted and before he could render assistance, the victim was in full panic. The victim thrashed around for a few moments, then grabbed his buddy and literally ripped some of his buddy's gear off. The buddy, fortunately, was able to drop his own weight belt. In the midst of the struggle, the victim passed out and rapidly sank out of sight.

"At the first call for help, the dive master and a boat crew member entered the water without tanks but they could not reach or find the victim. When the victim was found on the bottom, his regulator was not in his mouth. Unable to lift him off the bottom, the dive master unbuckled his At-Pac (a unit combining the tank, backpack, buoyancy compensator and weights in one package) and brought him to the surface, leaving the At-Pac on the bottom. Approximately 5 to 10 minutes elapsed from the initial call for help to the time the victim was on the boat.

"Two doctors on board performed CPR. Lifeguards arrived with medical equipment a short time later but their resuscitation efforts were futile."

Subsequent investigation into the accident by the County of Los Angeles discovered that:

1. The oral inflator valve on the BC was clogged open with sand, enough to cause a slow leakage of air from the BC.

2. The large corrugated air hose had slipped from or was pulled from its fitting at the BC. This would cause an abrupt loss of *all* air from the BC.

3. The 71.2 cu.ft. tank was equipped with a K-valve; 400 psi remained.

4. The At-Pac weight system does not utilize a standard weight belt but consists of a chamber, an integral part of the backpack, filled with an appropriate amount of lead shot. The lead shot is to be released by pulling a pin that allows a trap door to open at the bottom of the chamber. A stainless steel retaining wire is attached to the release pin to prevent its loss after it has been pulled.

a. The pin release was pushed too far in so the finger loop of the pin became recessed below the trap door and was not easily accessible to the person wearing the gear, particularly if he wore gloves.

b. The excess portion of the pin retaining wire was taped to the backpack. Upon pulling the pin release, the retaining wire did pull free from the masking tape but became trapped under the pin guide. This prevented the release pin from being pulled far

enough for the trap door to open and release the weights.

c. A pulling force of 18 pounds was required to pull the release pin, a very difficult task considering that a diver would have to reach behind and pull the pin sideways with this force.

5. The entire At-Pac system, including the tank with 400 psi, weighed 26 pounds fully immersed in sea water. The victim, according to estimates, had a negative buoyancy of 8 to 10 pounds at the surface (assuming no air in the BC).

6. The victim suffered an embolism, but the cause of death was drowning.

What was the sequence of events in this tragedy? What triggered it? We could speculate several scenarios, but we will never know the whole story. The more fruitful question would be,"How do we avoid this type of accident in the future?"

If a diver uses an At-Pac, he should test the weight release pins between dives. If he is bothered by the dangling release pin retaining wire, he should not tape it out of the way but, instead, cut it off. He won't miss a dive because of a lost release pin and if the pin is lost, then the weights are also lost and he couldn't dive anyway.

And all divers should closely inspect their BCs. The large diameter hoses are usually secured to the BC with a clamp. Is the clamp tight? In a recent survey of 17 BCs, five were found to have loose clamps.

In another equipment-related fatality, the tank valve high-pressure disc blew out underwater. The device is designed to blow out if the tank is pressurized considerably above its rated pressure, but in this instance, the safety disc must have been defective because it blew underwater. After the air in the tank had escaped, the tank rapidly filled with water, causing the diver to become excessively weighted. The victim apparently panicked and failed to either drop his weight belt or to inflate his BC.

During 1978 we recorded one case of a fatality caused by carbon monoxide poisoning, involving a 300-foot underwater cave penetration at a depth of 180 feet. The three men in the team were apparently very experienced cave divers. The victim went into some sort of convulsion, then lost his regulator. A diver tried to reinsert the mouthpiece, but the victim's teeth were too tightly clenched. His two buddies were constantly fighting off the effects of narcosis as they tried to assist him. It took about 20 minutes to exit the cave and ascend to about 50 feet where decompression stops were required before surfacing. A test of the residual air in his tanks revealed 2100 ppm carbon monoxide. Air purity standards for

Notes From An Underwater Zoo

A Book Review

Notes from an Underwater Zoo, by Don C. Reed (Dial Press, $13.95) is an effort by the author to do for "underwater janitors" what James Herriot has done for veterinarians. The book is getting prominent display in some west coast book stores, no doubt because the publishers and book sellers are hoping to capitalize on the animal lover's market which has made Herriot's works such a commercial success. Unfortunately the author loves himself far more than the animals he claims to serve.

Reed extracts for us his experiences with ocean critters (sharks, dolphins, orcas, and so on) as he goes about his daily rounds of cleaning the algae from the pools of Marine World/Africa, U.S.A. (Yes, indeed, these are memoirs of an underwater janitor, nothing more, nothing less). Each chapter is an incident in Reed's diving and cleaning life with no effort to weave the chapters into a coherent story.

I had great problems with the writer's ego. Instead of leaving me with feeling for the creatures he writes about, I was left feeling that here is a fellow fighting for his masculinity. His references to women are often sexist. His meaningless play is often dangerous to others. He dives from scaffold, out of frustration or just for escape.

Frankly, Reed, who gives a damn?

And on top of this, the book is poorly written and poorly edited. To wit:

" 'I think my arm's broke,' said Ted very low. His face was white like a paper mask with holes punched in it for eyes. The one brief statement his only complaint, and the first doctor at the hospital wouldn't believe the arm was broken, because, first, Ted wouldn't let the interns cut the wet-suit jacket off his arm ('Wet suits cost money,' Ted said) and, second, there was a pretty nurse at the reception desk."

Even the most consuming readers of underwater tales will find that *Notes From an Underwater Zoo* is at its very best hardbound summer fluff reading matter. Some incidents are amusing, others provide some insight into the behavior of fish and marine animals. But perhaps the most obvious characteristic of the book is the author's willingness to write honestly about himself. Indeed, I can say that I came to know him.

And indeed I can also say that I didn't like him.

Ben Davison

scuba diving require a maximum of 10 ppm carbon monoxide.

Two additional equipment-related cases should be noted. The first was caused by the air reserve pull rod being clamped beneath the backpack band which encircles the tank, thereby causing the reserve rod to become immovable and resulting in no air reserve for the victim. The second was attributed to a faulty BC mouthpiece, which prevented proper oral inflation.

We cannot overemphasize the importance of maintaining one's diving equipment in topnotch condition. Too many fatalities are the result of lack of periodic overhaul, with resultant mechanical failure.

Inflatable Vests

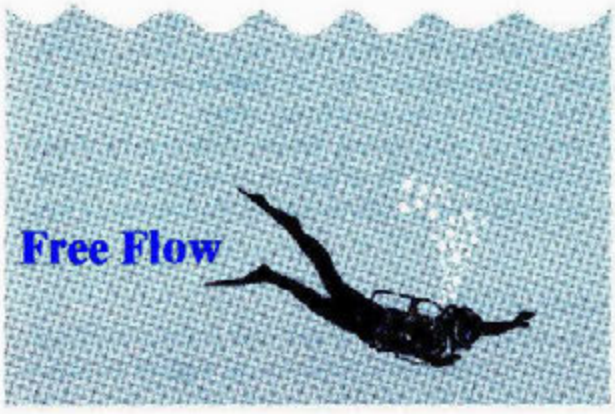
There has been considerable controversy over the years as to what constitutes sufficient surface buoyancy for a diver. The NUADC has strongly urged industry to establish a minimum standard of 25 pounds of positive buoyancy, while others have urged a considerably lesser amount. The NUADC position is based upon the medical fact that the human head weighs from 14 to 18 pounds. To float the head of an unconscious diver sufficiently above the surface to permit proper breathing, 25 lbs. of positive buoyancy is required. If a CO_2 cartridge is to be the source of this emergency supply, then the 8-gram, 12-gram, or 16-gram cartridges are insufficient. The 16-gram size only produces 19 pounds of positive buoyancy. NUADC has therefore recommended a 25-gram cartridge as the minimum size.

The diving industry has produced major changes in BC design in the past few years. Buoyancy adjustment at the back of the diver is the ideal location while submerged. Buoyancy adjustment on the chest is more helpful when the diver is resting on the surface.

Table 1 compares the use of inflation devices over the nine years of this study.

Table 1: Nonprofessional Underwater Diving Fatalities, Performance of Personal Flotation Devices (PFDs), Yearly, 1970-78.

	Number of Cases								
Situation	*1970*	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*
PFD not used, not checked	16	14	9	20	13	21	28	16	14
PFD inflated during accident	6	9	15	10	14	14	8	16	10
PFD not used, checked OK later	9	4	9	3	20	5	17	1	5
PFD not used, found faulty	0	0	0	0	3	0	0	1	1
PFD malfunction during accident	5	7	7	2	1	0	3	4	3
PFD, no cartridge	2	0	0	0	1	6	2	1	0
Total	38	34	40	35	52	46	58	39	33



Undercurrent readers Bill and Sue Wadsworth recently sent us a little book they published called, "The Wrasse Family of Fishes," in which they picture and describe such noticeables as the U-Betcha Wrasse, Yerassesgrass Wrasse and the Kissma Wrasse. And, yes, it does get worse. Much worse. For example, the description of the Blowitoucha Wrasse is "This wrasse is among the more easily identified as he has no caudal fin. Often seen blasting his way aroung the reef, he is a loner, and is avoided by most other species except for the sinus butterfly fish. Not edible." If underwater scatological humor is just what your dive buddy roars over, then this little 24-page book surely belongs in his (yes, "his") diving library. Send $5.50 to the Wadsworths at PO Box 132, Dixon, IL., 61021. And if your buddy likes the book, then why not buy him the t-shirt the Wadsworth's peddle with a picture of the Horses Wrasse on the front. That's $4.35. And, my God, they even have quantity discounts.

★ ★ ★ ★ ★

Undercurrent correspondents are located stategically in the major diving areas of the world as well as on all coasts and major inland waters of the continental United States.

The editors welcome comments, suggestions and manuscripts from the readers of Undercurrent.

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