

SUB AQUA JOURNAL

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The Forum for Atlantic Diving

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ANDRE GALERNE

FIFTY YEARS
UNDERWATER

An Exclusive Interview

*The Pinthis
R.C. Mohawk
The Rock Pile
Captain Bill Reddan
Boat Schedules
Local Heroes
and more!*

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SPRING

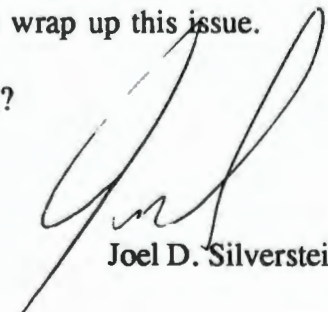
Spring is in the air. The sun is shining, the boats are running, and you are out diving. The North East season was quite active during April. Divers from all around were making their first splash downs. Reacclimation was the key. But now that the season has started and you are getting your gear and your body in shape we thought it might be appropriate to take you on a journey. The journey is not to a wreck or dive site or some exotic place in the tropics—but into the mind of a man that has been greatly influential to the development of diving, a man who has been diving for fifty years.

Our feature story this month is an interview with André Galerne. André has spent his life under the water. From teaching post-war boy scouts the meaning of life with scuba, to introducing nitrox commercially in America in the early 1960's, to pushing the limits of manned diving, André Galerne has been at the forefront of modern diving. He kept us spellbound with his lifetime of adventure. We celebrate his fiftieth year in diving.

This month's Journal also includes many of your favorites: Dan Berg takes us out to the ever—popular *R.C. Mohawk*. Resting in 100 feet of water right on the edge of New Jersey's mud hole, this old wreck has begun producing artifacts again. Many are exquisite. Dave Morton and Captain Eric Takakjian take us outside Boston to dive the wreck of the *Pinthis*. This rarely-dived big wreck has been giving out some prized artifacts and is also a great training ground for some of the more advanced dives. As always Kirby is out for fun, no matter where he dives. Kirby is "always" faster than old Mr. (or Ms.) Lobster. Barb Lander stops by to spend some time with Captain Bill Reddan. From boyhood diving for shiny coins in the bay to serving our country in the Marines to the NYC police scuba team, Captain Bill is one interesting man.

For those of you that have been following our series on fitness, Doc Lombardo shows us how building up muscle strength leads to a happier diver. Bob Raimo has been busy sorting through the mail from the Question Locker to pick the best of this month's questions. A product review, Local Heroes from the Metrowest Wrecks '93 Symposium, and the boat schedules wrap up this issue.

What will the next fifty years bring?



Joel D. Silverstein, Editor

The *PINTHIS*: VICTIM OF A FATAL FOG

by Dave Morton with history by Eric Takakjian

Some ideas pass quickly into obscurity, while others are timeless. The small coastal tanker, or self-propeller as it is known in maritime circles, is an example of a timeless ship design. The *Pinthis*, built in Newburg, New York in 1919, was one of these tankers. The *Pinthis* had an overall length of 206', a beam of 35' and displaced 1,111 gross tons. Her 500 horsepower engine drove her at ten knots when she held her 12,000 barrel capacity of fuel. During her short career, the *Pinthis* shuttled petroleum products between major northeast ports, and for a year in Cuba.

The *Pinthis* changed hands a few times, but always kept her original name. Less than two years after she was built, she was sold to a Cuban firm and was operated out of Havana until the summer of 1922. The Fall River Steamship Company in Massachusetts purchased the *Pinthis* on August 4, 1922 and brought her back to New England waters, but only kept her for seven months. New England Oil Refining of Boston became the longest owners of the *Pinthis* before they sold her in March of 1929 to Lake Tankers, also out of Fall River.

On the morning of June 10, 1930, the *Pinthis* departed Fall River under the command of Captain Albert Jones for her final voyage, sailing into calm seas but patchy fog. She was bound for Chelsea, Massachusetts and Portland, Maine with a cargo of 11,500 barrels of heating oil and gasoline. As the day wore on, the fog grew thicker, and by the time the *Pinthis* cleared the Cape Cod Canal around 5 P.M. the visibility was severely limited. After setting a course north for

the *Boston Lightship*, Captain Jones advised the mate and lookout on duty to be particularly watchful in the dense fog.



At about the same time the *Pinthis* cleared the canal, the passenger ship *Fairfax* departed her berth in South Boston bound for Norfolk, Virginia. As the *Fairfax* cleared the *Boston Lightship*, she set a southerly course for the Cape Cod Canal. At 6:58 P.M. the fog horn of the *Pinthis* was heard just forward of the starboard beam. Shortly afterwards the *Pinthis* loomed out of the fog, dead ahead. The *Fairfax* attempted to stop but she was unable to avoid the collision, and struck the tanker just aft of the port bow. The *Pinthis* burst into flames and rained burning oil and gasoline down upon both ships. The tanker sank almost immediately, taking all 19 crew members with her.

The crew of the *Fairfax*, aided by several sailors and marines who were passengers, managed to extinguish the blaze. In all, 47 persons were lost in the disaster, including 13 passengers and 15 crew members from the *Fairfax*. Oil and gasoline leaking from the *Pinthis* continued to burn on for days after the disaster, with the flames visible from the shore eight miles away.

The *Pinthis* was never a pretty boat

while afloat, but the years underwater transformed her into a beautiful marine sanctuary. She lies almost completely intact and inverted in 105', 8 miles east of Scituate, Massachusetts. The hard sand and gravel bottom and distance offshore combine to provide excellent visibility, which usually ranges from 25' to over 60'. The outside of the hull is covered with large sea anemones. Many different species of fish inhabit the wreck and nearby sand, including

flounder, cod, hake, goosfish, and an occasional torpedo ray. During the height of the summer, blue sharks have also been seen patrolling the wreck.

Due to its size and complexity, it takes more than one dive to visit the whole wreck. Most divers gravitate towards the hard bottom and cruise around the hull. The stem of the ship rises almost vertically off the bottom for more than 25'. Swimming aft from the bow along the starboard side, both anchors can still be seen in their hawse-pipes. Amidships, it is possible to look under the ship and see the main deck, covered with cargo piping and hoses, along with a cargo winch at the forward end. Further aft, the superstructure meets the sand, and part of the crushed deck-house lies alongside the hull. The propeller was blown off by salvors in the 1940's, leaving a big hole in the shaft alley. Before Hurricane Bob in August, 1991 this hole led into the engine room, but is now blocked by a collapsed bulkhead. The ship leans to the port, making it the darker side of the wreck. Swimming up the port side, the rudder can be seen lying in the sand about

30' away, just forward of the stern.

Although the outside of the *Pinthis* is a nice dive, the beauty and magnificence of this wreck can only be experienced while swimming inside. It is possible to penetrate almost the entire interior of the ship, and there are many entry and exit points along both sides of the hull. The ship had an aft bridge and living quarters. Access to the interior of the ship must be made by swimming under the wreck and then up into the various compartments. Due to several very severe storms in the past two years, many of the interior passageways and compartments have changed due to collapsing bulkheads. The engine room and machinery spaces are located aft of the cargo tanks and under the superstructure. The main engine tore loose from its mounts, and now lies on the engine room overhead, in an area known for producing some nice artifacts. In the very tip of the bow close to the sand is a store room that has yielded some unique artifacts, including a large ornate copper coffee urn a few years ago. Divers interested in recovering artifacts should concentrate their efforts in either of these forward or aft sections.

The cargo tanks located amidships are

large and cavernous, and divers working on penetration techniques, or just sight seeing, usually spend most of their dive cruising throughout this region. Most of the framing and bulkheads that once served to isolate individual oil and fuel spaces have collapsed or corroded, turning the once compartmentalized midships section into a huge "cave" zone. Divers can enter this zone at countless locations where the wreck meets the sand. It is possible to swim almost the entire length of the hull, and from one side of the wreck to the other. Because of the amount of space inside, and the variety of entries and exits, the midships section of the *Pinthis* can permit safer penetrations than many other wrecks. Many divers in this wreck opt to use the technique of progressive penetration, rather than running a line, in order to use different entry and exit locations.

The *Pinthis* is a highlight of New England wreck diving. It is easily accessible by boat, and is at a depth that is comfortable for many divers. Visibility is usually very good, there are plenty of things to see and do, and divers are still bringing up artifacts. What more could you ask for? ■

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R.C. Mohawk

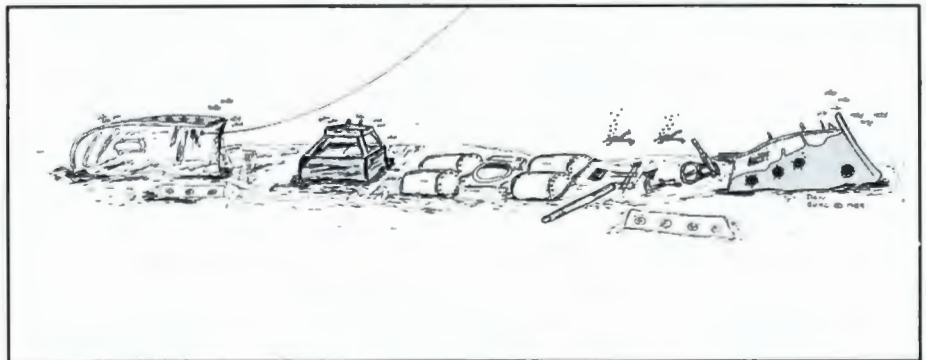
by Daniel Berg

The *R.C. Mohawk* was built in 1902 in Richmond, Virginia. She was commissioned on May 10, 1904, and was owned by the U. S. Treasury Department. The *Mohawk* was 205.5 feet long, had a 32 foot beam and displaced 980 tons.

On October 1, 1917, the single screw cutter was sunk due to a collision with the British tanker, *SS Vennachar*. According to the Navy's report of the incident, "The British vessel struck the *Mohawk* nearly at right angles, her stem cutting into the side amidships, abreast the engine room, between the launch davits. The collision smashed the *Mohawk's* surf boat and cut deep into the *Mohawk's* side. The damage was so great that the use of a collision mat to temporarily patch the hole was out of the question.... Pumps were started at once, the general alarm sounded and all hands called to take stations for abandoning ship." The ship filled rapidly and began settling by the stern. She took one hour to go down which left plenty of time for all 77 crew members to be rescued by the *USS Mohigan* and *USS Sabalo*.

The *USS Bridge* arrived on the scene and attached a cable to the *Mohawk's* bow bit. She then attempted to tow the *Mohawk* into shallow water. Before rescuers were able to generate any forward movement, it was noticed that the *Mohawk* had begun to sink rapidly and list heavily to port. The commanding officer of the *Bridge* was forced to cut the tow line and throw both engines into full speed ahead to get clear. "With her bow high in the air, the *Mohawk* settled slowly, emitting quantities of smoke".

Today, the *R.C. Mohawk* rests in 105 feet of water on a silty bottom, ten miles south of Debs Inlet, and 12.5 miles from Sandy Hook. The wreck is broken down but still lies in a straight line so navigation is relatively easy. Her bow sits upright, and amidships is broken down. Her four large boilers are recognizable, while her engine remains upright and provides the highest relief on the wreck site. The skeletal remains of the *Mohawk's* stern lies on its starboard side. ■



Sketch by Dan Berg and Captain George Quirk

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Movie fans- if you haven't had enough of liquid breathers and underwater "ET's," we've gotten the late-breaking news that a new version of *The Abyss* is being released in home video. Director James Cameron has added back almost half an hour of original footage which was cut from the theatrical release. The "director's cut" is now about three hours. High-budget FX, great underwater photography, ROV's armed with nuclear warheads, plus the famous rat in the baggie!



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R.C. Mohawk continued.

Divers will also find her masts broken down and lying over the wreck.

For many years, her location was not too desirable for divers or fishermen, since it was almost directly under one of New York's sewage dumping locations, but this has been changing with the new offshore dumping laws. In fact, the wreck has cleaned up, visibility is better each year, and the bottom is becoming less silty. Just as an example, I have made many visits to this wreck over the past years and have never until 1989 had more than two feet of visibility. On two trips last year, I had visibility upwards of 40 feet. As with other wrecks located near Ambrose Tower, even when visibility is good, a light is definitely a necessity, as little ambient light penetrates the depth and illuminates the wreck.

As a side note, I would still not recommend eating any lobsters from this site due to the previous years of dumping, but she is definitely one of the premiere artifact hunting wrecks in the area. Divers have located everything from portholes and fine china to the ship's bell and a beautiful brass calendar. Divers can still find several of her huge deck cannons on the wreck. One of these heavy guns was salvaged several years ago by the famed Aquarians Dive Club. The wreck's massive fluted anchor was raised two years ago by Captains John Lachenmayer and Frank Persico of the charter boat *Sea Hawk*. As my old friend Rick Schwarz once told me, "This is definitely a digging wreck. As long as you're willing to work the site you're sure to come up with artifacts." Rick was right and I highly recommend the R.C. Mohawk to any diver who enjoys not only sight-seeing but mucking around and digging to find artifacts in an area known as Wreck Valley. ■

THIS MONTH'S COVER

of André Galerne was taken on location at IUC on City Island, NY.

We used on a Hasselblad 500 C with a 150 mm Sonar lens on Tri-X Pan film at 1/125 sec. f16 and two Norman 200B portable strobes. Photo by Joel Silverstein.

Fit to Dive: Muscle Strength

by Stephen Lombardo, M.D.

Last month we discussed the importance of aerobic conditioning to healthy living and successful, fun, diving. Developing increased cardiovascular fitness is at least as important as tuning up your regulators.

Aerobic activity is only one component of a total fitness regimen. Once we are comfortable getting our heart rates to 85% of the maximum for 30 to 60 minutes several times a week, it is time to add RESISTANCE TRAINING to the workout.

The only way to increase the strength of a given muscle is to put a load on it until it can no longer contract. This is known as "exercising the muscle to failure." After lifting weight on a bench press a few times, the muscles refuse to lift more than a few millimeters. At this point failure has been reached. One would think that this would do damage to the muscle but, on the contrary, it causes the muscle to "adapt" to the task of lifting heavier loads. How much weight should you start with? Don't try to be Schwarzenegger, start out with just enough to create resistance. If it's too heavy, take some off. If it's too light add some on. How many repetitions or "reps" are necessary to cause adaptation? Experts agree that the desired number is between four and eight. If you can do more than eight you need to increase the weight. Fewer than four reps aren't enough to make the muscle "stand up and take notice."

The number of reps it takes a muscle to fail makes up a "set." A given muscle should be worked out in three to five sets depending on how strong you feel. The first set is done with half the maximum weight you have determined, to gradually get the blood flowing through the muscle. Rest between sets is from one to three minutes. That also should include adequate hydration. Keep in mind that improvement, not injury are the goals.

Whether you use machines or free weights, in a gym or at home, the principles are the same. Meeting a regular workout partner at a pre-arranged time will motivate you to a higher degree, but keep in mind that the workout must happen even if the partner doesn't.

Let's look at a typical workout

regimen that we use for each different day of the week. The ultimate goal is complete body conditioning. The initial

start-up is most crucial and will take a time commitment. On the next page—
The Workout. ■



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THE WORKOUT

DAY ONE — CHEST — SHOULDERS — TRI'S
20 TO 30 MINUTES OF AEROBICS this could be using a treadmill, a Lifecycle, Stairmaster, a step class or aerobic dance.

THREE CHEST EXERCISES (3 TO 5 SETS)
Level Bench Press (head/hips same height)
Incline Bench Press (head lower than hips)
Decline Bench Press (head higher than hips)

THREE SHOULDER EXERCISES (3 TO 5 SETS)
Front Laterals (dumbbells raised from hip to eye level with arms straight out in front)
Side Laterals (dumbbells raised from hip to shoulder level, arms straight out to sides)
Rear Laterals (dumbbells raised from floor to shoulder level standing with body flexed at hip and torso parallel to floor)

THREE TRICEP EXERCISES (3 TO 5 SETS)
Cable Extensions (elbows close to body, pulling down with hands close together)
Rope Extensions (elbows close to body, pulling down rotating wrist out)
Kickbacks (kneeling on a bench extending dumbbell behind, with elbow close to hip)

ABDOMINAL EXERCISES
Crunches (Use a machine with a moderate weight and do 3 to 5 sets or try modified situps. Lay on your back, knees to your chest

and lift your body using your tummy muscles about 30 degrees. Start with 20 to 30 and increase to 300.)

DAY TWO — LEGS — BACK — BI'S
20 TO 30 MINUTES OF AEROBICS

FOUR LEG EXERCISES (3 TO 5 SETS)
Leg Extensions (legs up like a bench press)
Hack Squats (barbell or tanks on back of shoulders squatting and rising slowly)
Donkey Lifts (balls of feet on a step, raise and lower body using calf muscles)
Hamstring Curls (using ankle weights slowly raise your heel to your gluteus maximus [buns] and return)

FOUR BACK EXERCISES (3 TO 5 SETS)
Front Cable Pulldowns (hands placed wider than shoulders, pulling down to chest)
Rear Cable Pulldowns (hands placed wider than shoulders, pulling down behind head)
Seated Cable Rows (sitting, knees slightly bent, pull cable from knees to waist)
Barbell Shrugs (hold at waist and lift using trapezius muscle from shoulders)

THREE BICEP EXERCISES (3 TO 4 SETS)
Dumbbell Curls (each hand standing up)
Barbell Curls (both hands together)
Concentration Curls (dumbbells sitting)

ABDOMINAL EXERCISES (same as Day One)

DAY THREE — AEROBICS
30 - 60 MINUTES OF AEROBICS, followed by abs. This allows muscles to rest and repair.

DAY FOUR — The cycle repeats; but you can always substitute a Day Three workout if time is short. The goal is 3 to 5 days a week.

After a few weeks you will be waking up saying, "Is today chest, shoulders and tri's or is it legs, back and bi's?" It's worth it. You will rapidly gain strength, and the stronger muscles will make you feel better and you will look better too. Pulling yourself along the "granny" line will become effortless. Climbing up the boat ladder will be a cake walk. Even getting suited up will become so easy that you will start your dive refreshed rather than exhausted. The results will be a more comfortable dive and a healthier life. Next month, nutrition. ■

Joel's Progress — On February 25th our publisher almost busted the scale weighing in at 274 pounds. Now eight weeks later he gets out to the gym or works out at home 3 - 5 times a week and is down to 254 pounds. His secret — Doc Lombardo's Fitness Program.



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SURFACE
INTERVAL
WITH:

Captain Bill Reddan

by Barb Lander

On the waterfront of Brooklyn's Sheepshead Bay, spectators tossed coins into the water and watched as the small boy, eager for spending money, dived fearlessly in the water. It was the 1940's, and no one had told seven-year-old Bill Reddan that humans are not marine mammals.

A few years later, his pocket money came from tips he earned working on a fishing boat. Young Bill Reddan would cut bait, rig lines and clean the boat just to go fishing. If it was a good day, he would have fish to sell. "Having a few dollars in your pocket gave you independence and prestige among the other kids," Bill explained. As years passed, the captain of the fishing boat gave his young mate more and more responsibility. Teenaged Bill spent more time driving the boat, learning the channels, the rules of the road, and the ins and outs of navigation.

Not content to stay on top of the water, Bill began spearfishing as a free diver. By 1964 he had developed into a champion and represented New York in the National Spearfishing Competition.

Bill joined the Marines and eventually served as a Naval Aviation Water Survival Instructor, teaching pilots how to survive in freezing water. Bill also served in the Marine reserves teaching survival training until 1989.

Once Bill's active duty with the Marines was over, he joined the New York City Police Department. He wound up as the diving and training officer, after a tour with the riot task force in the 60's.

Bill spent his leisure time on the water too. Boats and recreational scuba filled his free time. A PADI Master Instructor since 1973, Bill has introduced thousands of people to the ocean underwater. His students undergo a more rigorous training than in most scuba courses, then do their open water certification dives in the ocean, not in a quarry. He is proud to point out that his students stick with the sport.

Many of his students still dive with him on his charter boat, the *Jeanne II*.



Captain Bill doesn't care for diving below 100 feet or decompression diving, and his charters reflect that. The 1500-1700 people a year who dive with him are proof that there is life underwater without gorilla diving.

"I like the wrecks 60 feet and less, plenty of visibility, plenty of bottom time, and plenty of lobster. I don't have anything to prove."

His favorite wreck fits perfectly into this type of diving. It lies six miles offshore in 50 feet of water. There are portholes, old bottles, and plenty of lobster. Captain Bill discovered the unidentified wreck and has been diving it ever since. He describes it as a big pile of twisted steel and estimates that the old steamship was probably about 300 feet long. There is some wood that Bill figures is probably the remains of the pilot house. The artifacts recovered so far date the wreck to about the turn of the century.

He calls his mystery wreck "*Martin's Misery*," after his mate, Martin, who had overextended the first dive of the day and had no bottom time left for a second dive. An obscene amount of lobster recovered by the other divers added to Martin's misery.

Somewhere on "*Martin's Misery*" is the key to identifying her. For Captain Bill Reddan it has just become one more challenge in his aquatic world. ■

SHERWOOD

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ANDRÉ GALERNE: 50 YEARS UNDERWATER

an exclusive interview by Jeffrey Silverstein

"I have felt like a 25 year old all my life," said 67 year old diving legend André Galerne as we photographed him at his City Island, NY-based IUC (International Underwater Contractors). As he showed us around the yard and shop, our eyes widened to see historic dive equipment, diving bells, the North American Hyperbaric Center, and his pet Pisces submarine.

The building entrance literally opens onto André's desk...easier to get out to the yard. His walls are covered with a lifetime of awards and citations, from The French Legion of Honor to the Explorers Club. We were entranced by stories from the beginnings of scuba history all the way to the future. When André Galerne speaks he is commanding, enthusiastic, and encyclopedic in his knowledge. A large framed photo of Jacques Cousteau listening intently to André tells all.

How old were you when you first started in scuba? "My first dive was 1943... I was 16-17 years old. We had a club in Paris, the Subaquatic club. Dr. Casalis started a club interested in breath-holding technique...scuba didn't generally exist. Denairouse developed the first scuba equipment in 1876, but nothing came from that because at that time they didn't know (how) to compress air to more than 30 atmospheres, 30 kilos of pressure in the tank. You don't go too far away with that. The second guy was Leprieure who developed the face mask

with the bottle. My first dive was done with Leprieure in a swimming pool in Paris. And I was fascinated.

After the war I started to work with the Boy Scouts, the Eclaireur de France. As a specialty I chose cave exploration...and very very soon I found myself at the end of those beautiful caves stopped by a swimming pool. You say "My god, how can we go in there?" In France there was other scuba equipment called Comheines with a full face mask and three bottles on your back. A different design from the Cousteau. We started to use the Comheines, because I didn't know of the Cousteau. We used a lot of equipment, some of which I would not use in the bathtub today. And we survived. But then I was hooked by diving underground, in caves, and at sea."

When did you first get paid to dive? "This group of Boy Scouts had a terrible time during the war, and afterwards we decided to start a working organization...a cooperative. And we didn't know what to do exactly...until Electricite de France had a problem in a former volcano, filled with water...and they wanted to send someone to the bottom to make a survey of a cliff...they couldn't find anyone to do it...it was pretty deep for the time, 40 meters. So they approached me, I was 23. I said "I am ready to do the job, but you will have to buy me the equipment." So we got our

first Cousteau equipment, the Spirotechnique. The job was successful and they were very happy."

That's how you began Sogetram?

"In 1950 I started the first diving contracting group. Up till then there were individual freelance divers but no contracting organization. I started the first company, Sogetram (Societe Generale de Travaux Maritimes et Fluviaux) in France, which became very successful. I left ten years later to start in Canada and after that in USA. When I left we had 140 divers working all around the world in construction...highly specialized, bridge repair...no off-shore, it didn't exist then. In the first years in order to become a member of the cooperative you had to first pass through the Boy Scouts."

You started out as sport divers and took those techniques into contracting. "We learned by mistake...the beauty is that we are still alive. Very quickly we stopped using scuba and went to surface supply equipment. Because you cannot work, really, in scuba. Scuba was designed for mobility. Your safety in scuba is your freedom. Nothing is more dangerous than when scuba divers try to attach themselves to the surface. Then you have a rope, you attach yourself, and your equipment is not designed for you to stay long on the bottom. Accidents happen.



Pretty soon we went to the constant volume diving suit, which is a dry suit with a double hose regulator and a mouthpiece, and a laryngophone to talk."

Your wartime activities in the French Resistance have been honored for bravery. Has that experience affected your underwater work?

"When you are young it's easy to be brave because you are stupid, and you don't believe you can die. I think I am a very careful guy. I have always been careful. I was careful in the Resistance. I think war is a great school, if you are lucky enough to come back in one piece...."

I was also part of the frogmen, with the French Navy, and I was trained as a hardhat with the French Corps of Engineers. I spent some time with Cousteau on the *Calypso*. My education was an advantage to approaching problems, including medical problems of diving."

Are you an engineer by training?

"An aeronautical engineer...but I don't recommend you fly the plane if I design it. It's a very long, long time ago."

You were the first to bring nitrox to the United States in the 60's...

"You don't go deeper with nitrox...you stay longer at a certain shallow depth. If you want to go deeper you go to trimix. Then you can go deeper because you replace some of the nitrogen with helium. And not adding some oxygen you avoid the risk of oxygen poisoning. When you go 90 meters if you still have 20% of oxygen you will be in danger above a certain time on the bottom because you

"Your safety in scuba is your freedom."

reach 1.8 ATA or more. You will be at 10 atmospheres—you will be at 2 ATA of pure oxygen which at that time becomes dangerous. You have to be excessively careful when you reach a certain level.

In our tables we never go more than 1.8 partial pressure of oxygen if we stay no more than 30 to 45 minutes. If we go one hour or more we go back to 1.6 - 1.4 to stay below the possibility of oxygen poisoning. Because with my tables, when we started, we had oxygen poisoning underwater...because we were doing O₂ underwater. I have a tape where you can hear the divers inside the chamber. We had a monoplace decompression chamber at that time in 1964-5. We had two oxygen poisonings underwater at 50 feet.

"When you are young it's easy to be brave because you are stupid, and you don't believe you can die."

And we had one oxygen poisoning in the chamber. And you can hear the guy in the chamber saying 'twisting, twisting, brrrgaa' and the guy was in convulsion. On the tape it's very dramatic...the guy then doesn't move, you cannot hear the guy breathing, he is in apnea. At one point I decided, although the decompression was not finished, to open

the chamber. We started to open the chamber and prepare to ventilate, when the guy just woke up and talked to us.

We were lucky, because he could have vomited or swallowed his tongue and choked. That was the last surface decompression we did with a monoplace chamber. After that...we always use a multiplace chamber for surface decompression, because it scared the hell out of me."

What do you think of the sport divers who are using the mixed gasses that you use commercially?

"Commercially we use surface supply with a hose and telephonic communication and we know the depth. Our divers are on a leash. ...if you make a 50/50 mixture you will be okay at 60 feet no problem. But that same mixture at 100 feet, at 4 atmospheres, becomes very dangerous. I am a scuba diver by love. What scares me is that you will have a lot of scuba divers who will swim, see a beautiful coral reef, fish, and beauty, and look down there and on the bottom you have something shiny. Wow. So the guy goes there...he cannot resist. Then he's at 100 feet. This is very dangerous. You can go like that [snaps fingers]."

Tell us about your dive tables.

"Since 1960 I have been designing my own diving tables. But I approach all problems of the diving tables more like an engineer than anything else. And I am in controversy with a lot of diving tables. I don't believe that nitrogen is per se a narcotic. I think nitrogen produces narcotic effects because [when you] increase the density of the nitrogen, ☛





North American Hyperbaric Center, City Island, New York



One of IUC's submarines prepares for action.

you cannot ventilate the CO₂ well enough. I demonstrated that in 1964 by producing tremendous narcotic effect at 265 feet using a 90 helium/10 oxygen gas. ...I recorded at that time the pressure and the voice, and I recognized [the effect] in my divers. We were using 3/8 hose which was much too small for this type of depth...and they were sucking [makes strained noise] and you can hear it in the recording. I could not believe they were narcosed at 265 with 90/10. You cannot do that. So why were they narcosed? Because they could not ventilate. Because they were sucking the gas and blowing...and those guys were building up so much CO₂ that they were narcotic.

...my nitrox table and my trimix are all designed on the same principle. That if the density of the gas you are breathing is not more dense than air at 30 meters, you cannot have a narcotic effect. Period. This is because you can have a regular full ventilation in the diving helmet... And this is why you can go very deep with helium and after that now even nitrogen, (700 meters) because the density of the gas is no more at those depths than air at 30 meters. That is the basis of my theory.

Every doctor including Dr. Peter Bennett (DAN), says André, don't say that. You look stupid and you are crazy. I say that may be true but I have been able to provoke narcosis with a gas that cannot be narcotic at 265 fsw...and since then we have made thousands of dives with trimix or my nitrox without any problems.

We dove trimix in 700 feet. I made the first dive at 1100 feet deep before the US Navy in 1969 and before Comex."

Your business is keeping divers underwater and doing productive work... "Safety is paramount. At one time we had over 265 divers overseas. In the 40's and 50's you were obliged to choose the divers by the width of their shoulders because the equipment was so heavy. If you didn't have big muscles you could not make it. Now we choose a diver more by IQ than size. Thanks to the new dive equipment we have now, size is no longer the criterion it was 40 years ago." But, I have a motto: "Skill does not improve with depth." If a guy is not capable to work on the surface, he certainly cannot work underwater."

Wreck diving involves work with hand tools, although that's not underwater construction it's still work... "I started with scuba, I love scuba, and that's the only type of dive I'm doing now. Some scuba divers can do a lot of good stuff, and scuba is very good equipment, but it has its own niche, its own capabilities.

Diving is like a car. If you want to visit a mountain with your wife and your kid, you take a small car and that's it. Now if you want to move a 20 ton piece of gear, you don't take a car you take a truck. So diving with a big D goes from scuba diving to air supply diving to diving bell to saturation. All that is diving. But you select the equipment and function of what you want to do."

Tell us about some wrecks. "We did some salvage on the S.S. Republic. We did the first movie done by Peter Gimbel on the Andrea Doria, we

provided all the people to do the job, going inside the *Andrea Doria*. I did work with Cousteau looking for the amphora in the early 1950's in France. We have done a lot of salvage...wrecks, boats, some in deep, some in shallow water. When a barge or ship sinks it can be an obstacle for navigation, we have to remove it. We do very little salvage now for the value of the ship. But, sometimes the cargo is important. We have looked for airplanes and cargo in deep water.

Last time we were on the *Andrea Doria* it was still in good shape, relatively. It was sunk in 1956. It is a ghost wreck...a relatively dangerous wreck. In the movie we did for Peter Gimbel you can see some net...big net attached between the masts...and you can see the fish dying in it...it's a terrible spectacle. Caught by the gills. And they die. They try to free themselves, but they cut their meat. It's really a terrible scene."

When you were hired to salvage the S.S. Republic what were you looking for? "The S.S. Republic has collapsed completely. It's a mess of torqued steel. Very difficult to see anything. A very dangerous wreck to work with. When people engage people like us there are always questions about the story. It's difficult to know if the story is true or not. There's always the truth—plus. On the S.S. Republic the story was that the pay for the Navy in the Mediterranean was on board in gold. They say that when they took the gold from New York to put on the ship, for a few days there were no more gold pieces

in the New York City banks. We never found them. We did long bounce dives with diving bells. We don't know if the gold pieces exist and if they are still in the wreck. I don't know. There have been many groups after us and they have not found them yet."

Tell us about a difficult dive. "One of the most difficult dives was in Pakistan, in Tarbela dam, which is the biggest dam in the world. Astronauts who pass above can see it, it's so big. It's the biggest manmade structure after the Great Wall of China. They had a problem. They had a gate which was leaking badly. The gate was at 480 feet. The current was so strong that inside the diving bell, we could not communicate with the surface because the noise was so high. We minimized the flow nearly completely.

Then they had a problem inside a tunnel, and that was a very very hairy dive. You go 280 feet deep, then you enter a vertical well. There is a big valve on the top, so you enter in the valve and you go in the well, and you reach more than 400 feet deep in the tunnel. Then you go inside the tunnel for a few hundred feet. Then you go up in a well to reach a big valve that was leaking. Then you have to dismantle the valve, to remove it. The valve weighed a few hundred pounds, then move it with a floating bag down by the tunnel to go back. It is a cave dive, definitely. It was a very long dive. It was at altitude, combined with very deep water, high exercise and much danger."

Let's talk about submersibles. "When you are a professional, you cannot limit yourself to any one type of technology. Which is why we go from scuba to saturation, to all types of bounce dives.... Then you reach the point which is the limit of human capabilities. I am not happy to send my guys deeper than 750 feet. Below that, I'm not too sure what we are doing. We used bounce dives in 750 feet in Tunisia, but it is very difficult, it's better to use saturation. Somewhere is the limit. We have a lot in common with aviation. At one point in aviation history, we were obliged to have the passenger wearing a diving suit and breathing equipment while flying at 35,000 feet in a non-pressurized airplane. Or we had the choice of pressurizing the

airplane and have the people just traveling in the plane. Which is exactly the same in diving, in my opinion. If you need to go very deep you are better to send a submarine with the people inside. Sure, with the mechanical arm you will not do as much as divers will do, you will not have as much access as divers. But you can go 6000 feet or deeper, and make movies, and to explore...it is incomparable.

Now, the submarine is nearly obsolete because it has been replaced by the ROV (Remotely Operated Vehicle). The ROV now is taking more and more jobs. For the past 15 years, IUC has provided divers on each drilling rig, to be like the fire department. We were diving only when they had a problem. Now you don't have any more drilling platforms with divers. They all are equipped with ROV's. ROV's do it better, cheaper, lighter, and intrinsically safer. It's cheaper because you need fewer people."

Have commercial divers become obsolete? "Not completely. But they are becoming less and less necessary. You will have for long dives, mud divers, the ones who repair the bridges, pipelines in shallow water...you will still need those guys to do that job. But a lot of the work will be done more and more by remote control, yes. Absolutely. And I believe that one day we will see a lot of scuba divers who will use small, cheap, under \$20,000 ROV's, to explore the

wreck before they will go. Or they will use it when they will be inside, or to bring them some tools, or to bring them some light, or to help them to do their thing."

You have two large multiplace hyperbaric chambers here at City Island. Do you treat sport divers? "Yes. Our facility can handle any type of decompression accidents from air, nitrox, trimix or other exotic gas mixtures. We also treat commercial divers and are working on experimental applications."

As we wrapped up our interview, André was confident that the future of diving was great, that technology would continue to advance, and that many unimagined discoveries awaited us in the sea. The excitement of that teenager who first dove in a Paris swimming pool fifty years ago shone in his eyes as he talked of the beauty of the ocean and its creatures.

You have been diving 50 years. What type of diving do you do now? "Now I only do scuba, and only for recreation. I love the ocean and all the sea life. At my age I like to dive where the water is warm and clean."

Thank you André Galerne for a fascinating visit. Can we come back again? "Of course." ■

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Product Review: SHERWOOD BLIZZARD REGULATOR

by Joel Silverstein

Once again Sherwood Scuba improves on a good thing. The Sherwood Blizzard on the surface looks like any other regulator that has been around for a few years. However it is the internal workings of this tool that make it stand out. Its name—Blizzard, conjures up pictures of burly divers climbing snow mountains to get to a dive site. That's not the focus here. The Blizzard has been redesigned to provide maximum performance in extremely cold water at a reasonable price as well as to provide minimum servicing requirements, especially in the field.

We used the Blizzard in both the warm waters of Key West and the bone-chilling early season waters off Long Island. Here's what we found:

The first stage is a balanced piston design incorporating Sherwood's patented Dry Air Bleed environmental protection system. Where most other regulators pack silicone in the first stage to keep out water and other contaminants, the Sherwood first stage bleeds out a small amount of air (about 50 psi from a complete tank) through a specially designed port. This keeps the first stage dry. The result—freezeup prevention in high-use cold water dives. Cold air in the first stage never comes in contact with cold water to create ice, so the piston can't freeze up. With five lp hose ports and one hp port, the first stage will allow for the most demanding hose configurations.

The second stage has been redesigned into a sleeker, lighter, and more comfortable shape. The exhaust tee blows exhaled air behind the chin instead of in front of the face. But that's not the whole story. The insides really make the second stage shine. Gold is an excellent conductor of heat. As you exhale, your warm breath heats up two gold heat fins in the mouth tube and one large radiator grill in the exhaust tee. When you inhale your next breath the cold air that comes in from the first stage is warmed up in the second stage before it gets into you. The results are a warmer, more comfortable moist breath of air and minimal possibilities of freeze up.



The second stage, because of its heat fins and special internal design, is not user friendly from a service standpoint in the field. At first we thought that would be a problem. But after bench testing the regulator and adjusting it for our individual breathing levels, we found no need to have to adjust it again, unlike other regs we have used in cold water.

Overall performance was high. The Blizzard performed well in dives from 15 - 200 feet without a hitch. If you are looking for a new primary or high quality back-up, the Sherwood Blizzard is an excellent choice. ■

A note of caution. As with all new regulators, you should have them bench tested and tuned by a factory authorized service technician before use. When using any regulator with a dry suit or a bcd inflation system you should not be drawing on the regulator while you are using the inflator. This may cause a dramatic drop in the pressure going to both places and may cause a free flow problem when both come back up to full pressure.

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EVENTS CALENDAR

MAY

- 19 Staten Island Sport Divers will feature Herb "Cappy" Kaasman with a slide presentation on the Oregon. Contact: Dr. Steve Lombardo (718) 720-4994
- 23 Bay State Council of Divers 8th Annual BSC Treasure Hunt at Stage Fort Park, Gloucester, MA., Beginning at 9:00 A.M., the day's events will include a SCUBA Treasure Hunt and a snorkeling competition. Advance registration is \$7.50 or \$10.00 at the event. Contact: Bay State Council of Divers 55 Sea St., Quincy, MA 02169 (617) 391-1034

JUNE

- 16 Staten Island Sport Divers — Master Diver Andrew Nelson of the US Navy talks about Hyperbaric Chambers. Contact: Dr. Steve Lombardo (718) 720-4994
- 24 Andrea Doria Expedition Sets Sail See your friends off as they set sail for the season opening of Doria expeditions aboard the R/V Wahoo 7:00 P.M. Captree Boat Basin.

JULY

- 5 Aqua Woman Dive Contact: Karen Gurian (516) 798-1726 (7-9 P.M.)
- 10 Second Annual Undersea Hyperbaric Medical Society Recreational Diving Symposium. The focus this year: "Physiology of Diving Injuries." Featured speakers are: Surgeon Commander Francis of the British Royal Navy, Dr. Carl Edmonds, Australia, and others. The specially selected faculty will present the latest medical information about deco-sickness, neurophysiology, lung injuries, etc. Halifax, Nova Scotia, Canada. Contact: Dennis Graver (206) 387-8043 fax (206) 387-6683
- 26 SS Republic Expedition Sets Sail See your friends off as they set sail for the first ever sport diver expedition to the SS Republic aboard the R/V Wahoo 7:00 P.M. Captree Boat Basin.

List your events in the Sub Aqua Journal. Mail, Fax, or E-Mail on Campus by the first of the month prior to the event. You must include a contact person, address, and phone number.

SUIT EVACUATION VALVE HELPS "VACUUM PACK" DRY SUIT DIVERS

Diving Unlimited International (DUI) recently introduced its **Suit Evacuation Valve**. This new product sucks the air out through most dry suit exhaust valves. It pulls up to 24 inches of water vacuum. To use the valve, you simply connect it to your dry suit inflator hose, position it over your dry suit exhaust, and activate it *before you get in the water*. Within seconds, all the excess air in the dry suit will be removed.

The DUI Suit Evacuation Valve is designed for any dry suit diver who needs to get in the water and submerge fast. Applications include search and rescue operations, diving in strong currents, jumping from heights, and instruction. The valve is not designed to be used as a dry suit exhaust valve by itself.

For more information contact a DUI dealer or DUI at 1148 Delevan Dr., San Diego, CA 92102-2499. Telephone (800) 325-8439. FAX (619) 237-0378. ■

WHO'S WHO IN SCUBA DIVING

Best Publishing Company has recently published an in-depth directory for locating individuals, companies, organizations, and others involved with scuba diving.

Who's Who in Scuba Diving weighs in at 428 pages, and is divided into sections covering agencies, associations, foundations, institutions, manufacturers, publications, resorts, travel agents, commercial divers, diving contractors, and retail shops. The instructive guidebook also includes lists of the recipients of major diving awards and the names of noteworthy individuals. People chosen for inclusion are selected on the basis of personal accomplishments and/or contributions to scuba diving.

The book was compiled under the auspices of the Academy of Marine Scientists and Undersea Research (AMS-UR). For information, contact Best Publishing Company, (800) 468-1055. ■

EAGLE'S NEST FLIES SOUTH NEXT WINTER

Captain Howard Klein of the *M/V Eagle's Nest* has teamed up with Captain Bill Deans of Key West Diver Inc. to offer dive packages from Key West all the way to the Dry Tortugas. Reef, wreck, or technical diving packages will be available from November 15, 1993 thru April 15, 1994. The combination of these two seasoned experts and the widely-praised diveboat promises some great diving. Contact Chris at Key West Diver Inc. (800) 873-4837. ■

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KIRBY'S KORNER

The Rock Pile

by Kirby Kurkomelis

The sun was burning in the sky when I tossed the anchor into the water. Below the boat lay an artificial reef, the *Rock Pile*. In the distance, I could see the sandy beaches of the Rockaways. The Riis Park Tower guided us to the site. Looking northwest, I could see the *Black Warrior* buoy. The temperature was 86 degrees, too hot for me. Sweet-tasting sweat ran down my face. I reached for my hat. My buddy Don washed down his second bottle of water. On the site was an old diesel fishing boat with her passengers trying to catch some blackfish. The fumes from her exhaust were enough to get me and Don quickly into the water to cool off and avoid the smell.

After a few minutes the charter boat left. We climbed back into our boat and discussed our dive plan. Simple — I grab the lobsters and Don bags them.

Half way down the anchorline we stopped to notice a school of porgies swimming along with a lone bluefish looking for his lunch. At that point, I signaled to Don to watch out for the lionsmane jellyfish heading our way. The jellyfish was just creeping along, enjoying the clear blue water.

This *Rock Pile* consists of concrete and stone. It is the remains of

Manhattan's old Westside Highway. It was broken up and then carried by barge, dumped in this location a few miles off of Rockaway Park. Some divers call it the Dump Site. In 45 fsw, it's home to a variety of marine life, skates, rock eels, seabass, large blackfish and plenty of lobsters. It gives the diver a good amount of bottom time and fun.

Once on the bottom, I helped Don secure the anchor so we could retrieve it on our way up. Just next to where the anchor lay, a five pound lobster was munching on a piece of clam lost by one of the fishermen. With lightning speed, the lobster made it into my bug bag. Out of the corner of my eye I saw Don freeing a lost anchor from the broken metal spikes in the concrete. We planned to pick it up on our way back. There was monofilament with lost hooks and sinkers to keep our eyes sharp and knives ready. There goes another lobster. Got-cha.

Don was working on his third lobster when he signaled to me to look down. A blackfish was biting at my bug bag to get at the lobster who was still clinging to the clam. The water temperature was 55 degrees with 25 feet visibility. I kept moving my light back and forth in order to see the red antennae of lobster sticking out of their deep den.

To my right lay another large lobster. I reached for him; he took me deep into his lair. My body was up against the rocks, my face turned sideways. A spider crab reached for my face plate. I was determined to pull out my lobster and not get bitten by this crab. I finally pulled out the lobster. However, underneath her were plenty of eggs, so I put her back into her den. The spider must have felt sorry for me, so he let go of my regulator hose. Don was smiling.

With 30 minutes into our dive it was time to head back. On our way we went along the outskirts of the sand and rocks. In the sand I could see feather duster worms, their orange-red tentacles reaching for tiny drops of sunlight. Shrimps and crabs watched over a colony of sleeping hermit crabs.

A fishing rod lay broken in the sand. Perhaps that 12 pound blackfish I chased away had once broken the rod. At the anchorline we attached the anchor that Don found and we started our ascent.

I could feel the thermocline on my lips when we reached 22 fsw. As I looked down I couldn't wait for our second dive on the *Rock Pile*... ■

THE QUESTION LOCKER

Q&A

I just got my Open Water card. All my friends seem to be talking about NITROX...how soon can I use it?

DMV, Brooklyn, New York

Dear DMV,

The pre-requisite for enrolling into a nitrox course is basic Open Water. Once you have completed the nitrox program, you can begin taking advantage of the benefits that nitrox offers. There are two internationally recognized training agencies, *American Nitrox Divers Inc.* headquartered in Freeport, NY (516) 546-2026 and *The International Association Of Nitrox And Technical Divers* based in Miami, FL (305) 751-4873. You can call either of these agencies to find out what dive stores in your area offer instruction in nitrox.

I wear soft contact lenses, and I'm worried about losing them in the water. Are there any special procedures I should know about?

SM, Hewlett, LI

Dear SM,

There are no special procedures for using contacts other than keeping your eyes closed during a mask flood during a dive. When using contacts you are at much greater risk of losing your vision during a dive than with a mask with prescription lenses. If you lose your vision during a dive, aside from the obvious, you may no longer be able to read dive tables or computer information, read your pressure gauge or be able to control your buoyancy. This may lead to a dangerous situation. My recommendation is that you stay away from using contacts underwater, but if you do, carry a prescription mask as a backup system.

What's the best way to get started in underwater photography?

Dr. RA, Princeton, NJ

Go to your local dive store and enroll into a beginners photography course! According to Dan Berg of Aqua Explorers Inc., some of the most important skills in underwater photography are to first be a good diver with excellent buoyancy control skills, know your subjects and dive sites well, and practice, practice, practice!!

What should I look for in an underwater lighting system?

HV, Baltimore, MD

Dear HV,

The first thing to look for in an underwater lighting system is the purpose. If cave diving, long burn times are needed as the light is on almost the entire dive. During wreck penetrations, your light may only be on during the actual penetration phase of the dive, so shorter burn times may be needed. Night diving may require long burn times depending on either bottom time or total time of diving before either re-charging or changing batteries.

When purchasing a dive light consider how bright a light is needed and how long a burn time is needed. Batteries are also another consideration. Rechargeable batteries will save you money in the long run as well as provide you with a brighter light when compared to non-rechargeables. Some lights work better with penetration reels than others. These lights are typically a battery pack type that can mount on either your tank or weight belt, and have an attached power cord and small light head. These

can also be mounted on a diving helmet for hands free use.

If you are just leisure diving and no penetration reel is being used, consider a lantern type light with the equivalent of six to eight D-cells as a main light and another with four to six C-cells as a back up. And remember, the brighter the light, the more enjoyable the exploration.

I usually dive in 100 fsw or less, I want to get a pony bottle. What would be the best size?

DB, Flushing, NY

Dear DB,

If you are diving in the Northeast where you live, you should consider the 30 cubic foot pony over the 13 or 15 cubic foot pony. The 13 or 15 cubic foot pony may or may not be enough during an emergency (regardless of depth), and an emergency is not the time to find out. More is certainly better than less. My preference is to have more backup air, so I recommend the 30 cubic foot pony.

SEND US YOUR QUESTIONS!

Instructor and service technician Bob Raimo answers *The Question Locker* mail. All too often a diver is either afraid or embarrassed to ask a question. More often than not the person answering it is misinformed. However, once your question is in *The Question Locker* it will be properly treated. Bob will select two to four questions each month that have the widest appeal to our readers.

This column is for all divers, newly certified through highly advanced. You can submit your questions by mail, to the *Sub Aqua Journal* address, attn: *The Question Locker*, through our fax or CompuServe address 72650,220. ■

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Local Heroes — April 1993 Metrowest Dive Club Wrecks '93 Symposium



Wrecks '93 Speakers — Bill Carter, Captain Butch Amaral, Prof. Hank Keatts, Brian Skerry, Captain Erik Takakjian, Brad Sheard and Dave Morton.



Joe Hamm Jr. and Julin Conlon



Neil Tassel and Mitzi D'Alerio



Pat Williams and Captain Lori Takakjian



Mark and Mara Potter



Ed Doucette and José Miletti

What better way for a dive club to kick off their season than to have a wreck symposium? **Metrowest Dive Club**, based in Framingham, Mass., has grown from a handful of divers two years ago to over 300 active members. With programs from underwater hockey to night diving, experience-building sessions to advanced wreck diving, this club has got it together.

Wrecks 93, the brainchild of Dave Morton, was a day filled with some of the best wrecks and experts the Atlantic Coast has to offer.

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May 1 Con. Wm. Cowin
2 USS Yankee
8 G.K.B. & Pottstown
9 Con. Wm. Cowin
14 June K 160'
15 Mars & Endicott
16 Mars & Endicott
22 USS Yankee
23 Plane & Target Wreck
29 Con. Wm. Cowin
30 Plane & Target Wreck

June 4 June K 160'
5 G.K.B. & Pottstown
6 USS Yankee
12 Con. Wm. Cowin
13 Port Hunter
18 Coyote
19 Pinthis
20 Pinthis
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26 Con. Wm. Cowin
27 Plane & Target Wreck

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2 Lizzie D
8 USS San Diego
15 USS San Diego
16 Valery
22 Arundo
23 Virginia
29 Tarantula
30 Lizzie D

June 5 USS San Diego
6 Lizzie D
12 Yankee
13 Valerie E
13 Lizzie D / Iberia
19 USS San Diego
20 Pinta / Bald Eagle
23 USS San Diego
26 Linda
27 Coimbra
30 USS San Diego

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May 1 Lizzy D
2 Pinta
8 USN Algal
9 Masadonia

15 Local Lobster
16 Liberty Ship
22 Stolt Dagali
23 Asfalto
29 Turner
30 R.C. Mahawk
31 Pinta

June 5 Dunlap
6 Martin's Misery
9 Lobster Night
12 Gypsy
13 Cindy
14 USN Algal
16 Immaculata
19 Lizzie D
19 Moonlight Cruise
20 Local Wreck
23 British Corvette
26 Bald Eagle
27 Golden Greek
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Babylon Village Dock

May 2 Hylton Castle
9 USS San Diego
16 Oregon
23 Kenosha
29 USS San Diego
30 Reggie

June 5 F.J. Reef
6 Kenosha
12 USS San Diego
13 Hylton Castle
19 USS San Diego
20 Reggie
25 Oregon
26 USS San Diego
27 Kenosha

Wahoo*

Capt. Steve Bielenda
Capt. Janet Bieser
(516) 928-3849
Captree Boat Basin

May 1 Tarantula
2 USS San Diego
5 Coimbra 180'
9 USS San Diego
11 U-521 ??? 230'
overnight trip
15 Oregon
16 USS San Diego
19 USS San Diego
21 Lillian 140'
22 Texas Tower 80-180'
23 USS San Diego
26 USS San Diego
29 USS San Diego
30 USS San Diego

June 2 USS San Diego
5 USS San Diego
6 USS San Diego
9 USS San Diego
11 Coimbra 180'
12 Texas Tower 80-180'
13 USS San Diego
16 USS San Diego
19 USS San Diego
20 USS San Diego
24 Andrea Doria 170-
250' Expedition
30 USS San Diego

July 16 Andrea Doria 170-
250' Expedition
19-22 75th Anniversary
USS San Diego
24 Texas Tower 80-180'
26 Republic Expedition
220' (516) 889-1208

Aug 6 Coimbra 180'
14 Texas Tower 80-180'
19 Oregon Overnight

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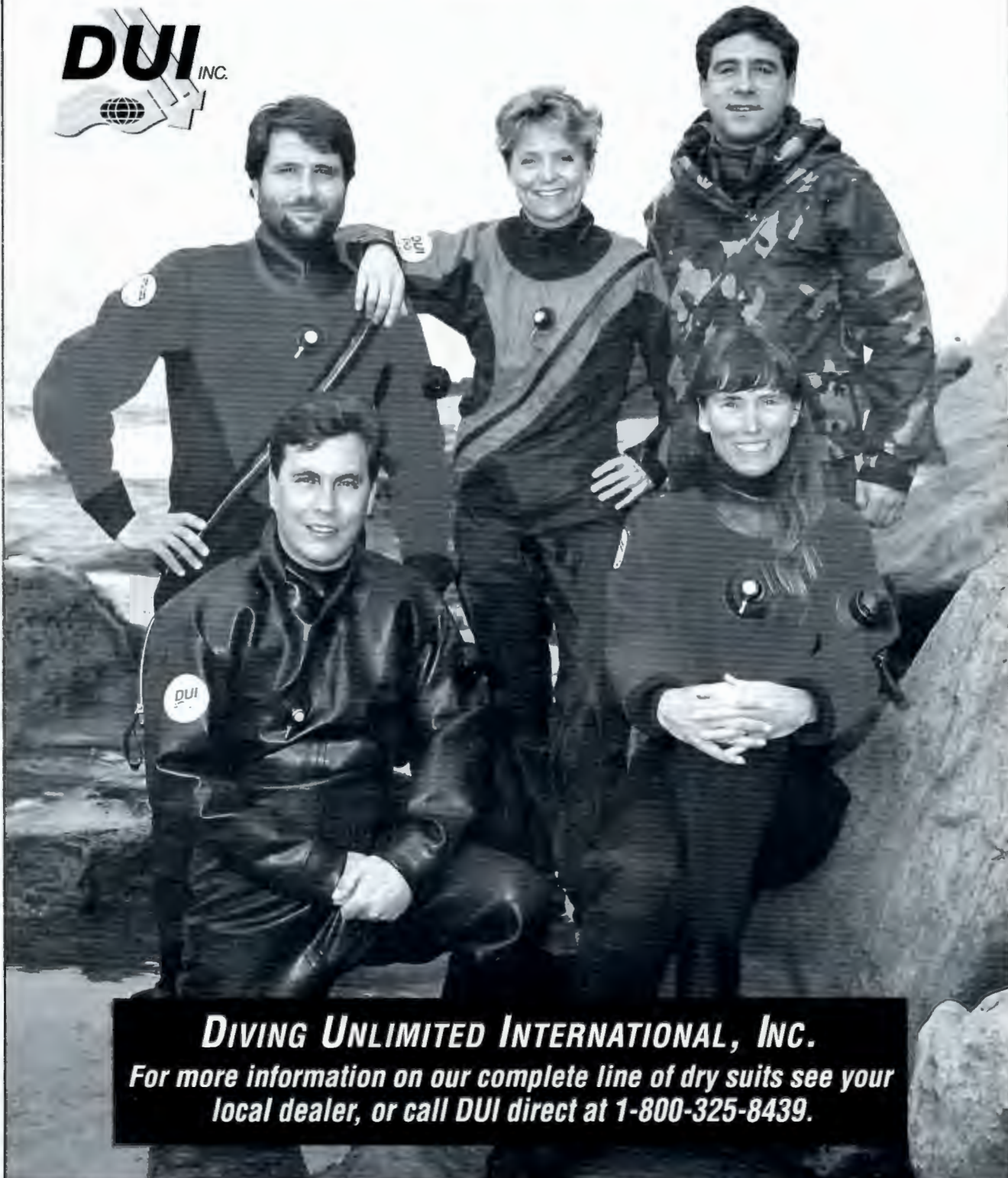
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