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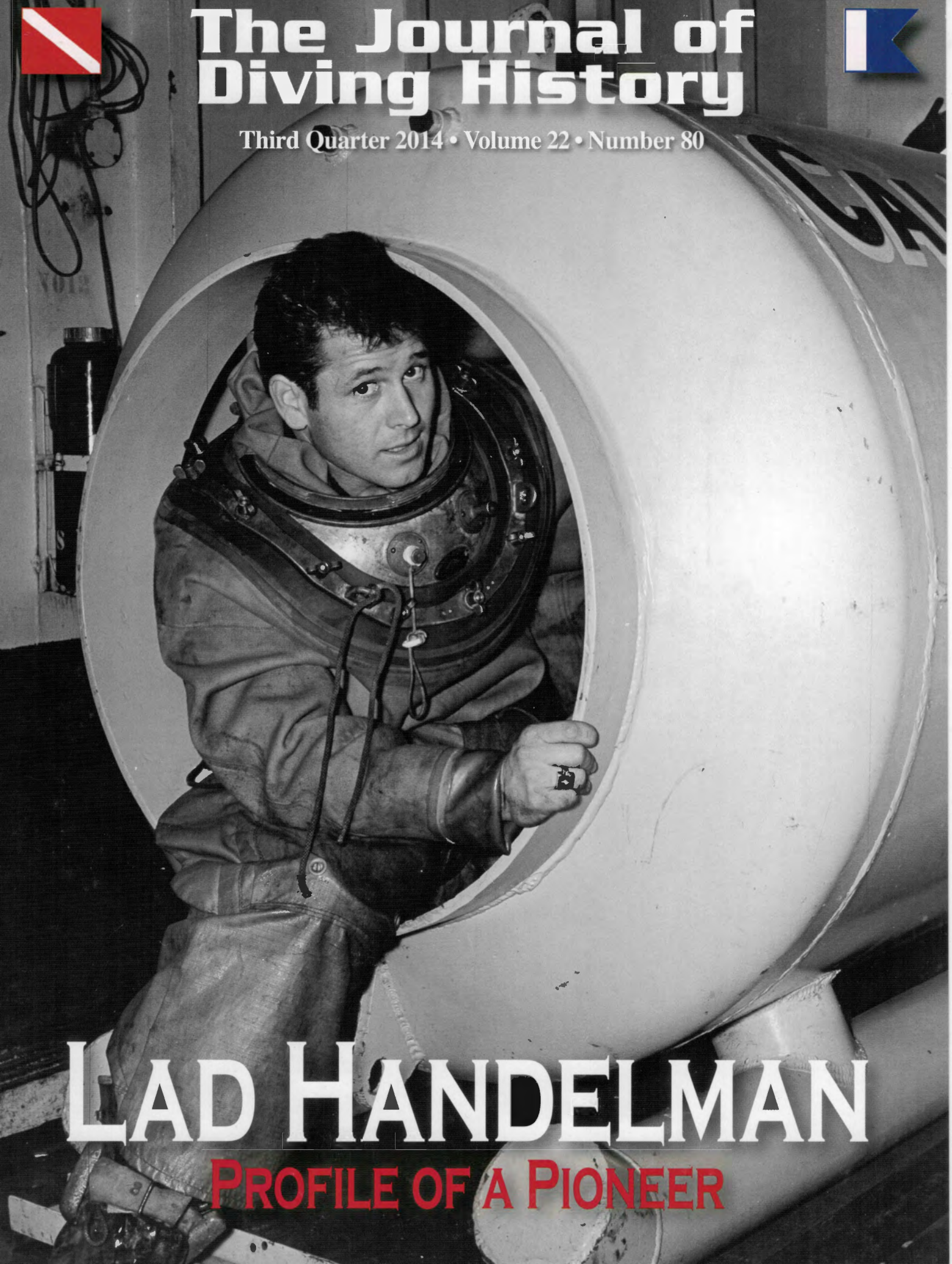

Lad Handelman

Profile of a Pioneer

LAD HANDELMAN

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PART 1

BY CHRISTOPHER SWANN

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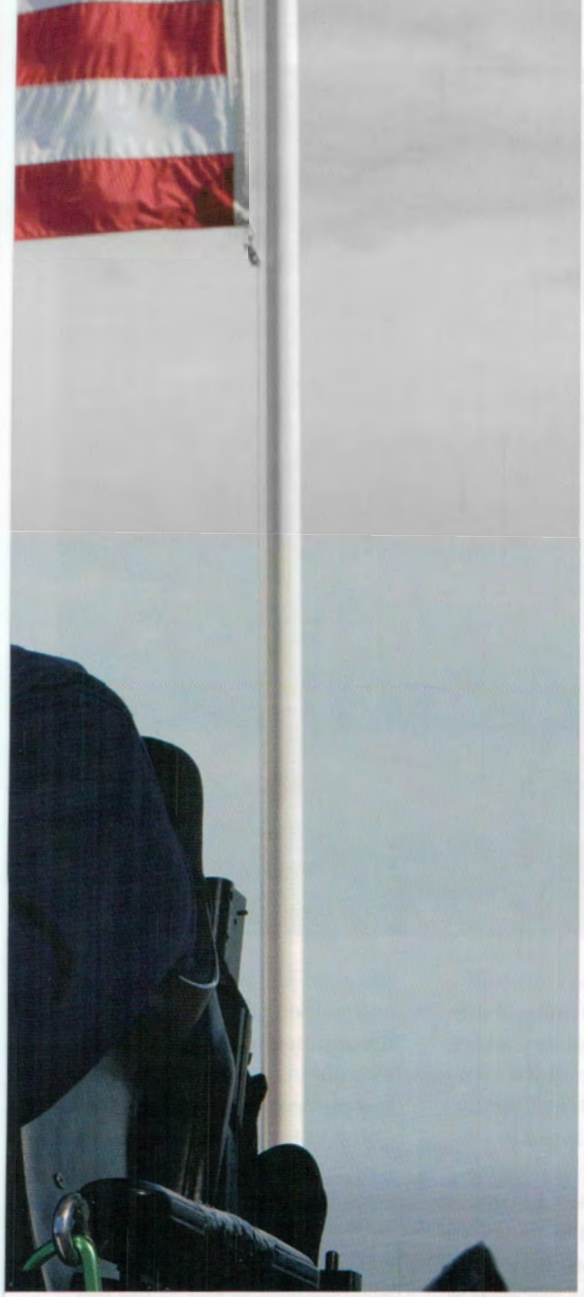


The name Lad Handelman is familiar to HDS members as one the Society's first Advisory Board members. He was among the early HDS members who attended the Inaugural Meeting on October 18, 1992, and has remained an influential voice inside the Society ever since. On November 20 in Las Vegas, Nevada, he will be inducted into the Academy of Underwater Arts and Sciences in the category for Distinguished Service, joining his industry rival and friend Henri Delauze of Comex. This recognition has been a long time coming and all of us at HDS look forward to supporting Lad in Las Vegas. It has been a long and unique journey for Lad and the following article touches on some of his contributions.

Born in the Bronx district of New York, and raised a mile away in Mount Vernon, Lad gained his street smarts as a member of the Red Devils street gang. Lad recently recalled, *"I was the only Polak (Polish) member of a New York Italian street gang and I saw other members gradually get caught and head off to the Big House. The Boys and Girls Club saved me from that fate and I headed west to California to work for my uncle Jimmy. He fired me after the first week because he said he had never known anybody as worthless."* This is perhaps not surprising given Lad's street background and limited real work experience. His next career achievement was more successful when he lasted a whole month in a Mexican orange-picking camp before being fired.

Lad's ensuing adventures are covered in the following article, *Profile of a Pioneer*, by Chris Swann. This brief introduction will touch on some of the contributions that Lad has made since 1985, which was the year a skiing accident left him a quadriplegic and changed the course of his life's journey.

The accident slowed Lad's body but not his mind, and the tenacity he had applied to developing deepwater diving companies was channeled into founding other organizations. Following a ten-month stay in the hospital and learning the ropes of life in a wheelchair, he formed a wheel chair support group called Outlook, which continues to this day. Next he joined a wheelchair rugby team, a sport commonly known as Murder-Ball. His team, the Breakers, was ranked #3 nationally. *"I used to think that gang members and divers were tough. Now I know what being tough really means. People in wheelchairs are amazingly upbeat. I am constantly inspired by these heroes,"* he said recently.

He became, and remains, very active in the support of the Boys and Girls Club, the organization that provided his means of escape from the gangs of New York.

Teaming up with fellow former abalone diver Peter Howorth, he co-founded the Marine Mammal Consulting Group, dedicated to protecting sea lions, whales and other marine wildlife from the effects of military and industrial projects in the ocean.

With Bruce Allen, he co-founded the SOS (Stop Oil Seeps) environmental group and uses his vast knowledge of the maritime oil field industry to educate the public about the pollutive effects of California's vast natural oil seepage. This pollution does not come from offshore oil platforms. SOS's goal is to form a bridge between energy and environment.

Around the time the HDS was formed, Lad co-founded Oxycare Inc., a hyperbaric oxygen service company, dedicated to healing necrotizing wounds which otherwise would not be healed. Other threatening conditions such as carbon monoxide poisoning, diabetic wounds, and rattlesnake bites are also treated.

He continues his involvement in the commercial oil field diving industry which he helped pioneer and has been a constant supporter of the HDS and its mission. His spectacular home overlooking the Santa Barbara Channel Islands has been the site of the majority of annual HDS Board meetings. First-time guests from the HDS membership have included Hans and Lotte Hass, E.R. Cross, Professor Ichiro Nashimoto, Andre Galerne, Krov Menuhin, Laurent Ballesta, the staff of the Musee du Espalion, Surgeon Vice Admiral Sir John Rawlins, Stan Waterman, Sylvia Earle, Valerie Taylor, Rodney Fox, Dr. Alexander Sledkov, Giancarlo and Letizia Bartolli, and many others in the field of international diving.

Like many of his fellow pioneer commercial divers, Lad only had a high school education and came from a challenging background. Through focused dedication to his mission, his lack of an extended education proved no handicap to success. In 1969, Cal Dive Inc., the small diving company he co-founded with three other abalone divers, teamed up with Phil Nuytten's Can Dive. Under the guidance of young investment banker, Matt Simmons, Oceaneering International was formed, and the group never looked back. By 1975 the company's revenues had gone from $600,000, to $55,000,000 and they were operating in 24 international locations. Today Oceaneering is a deepwater technology leader with a turnover in the billions.

Throughout his work with HDS, I have never known Lad to complain about his physical situation despite knocking on heaven's door on what seems to be a regular basis. He retains the wry smile that has been his hallmark throughout his journey and an undiminished sense of humor. Today he is happily settled with his life partner Linda, and continues to give back to his industry and community with a big and open heart.

Lad's story is one of the American Dream, whereby pure determination and a never-quit attitude can bring rewards far beyond the scope of what is learned in school. All at HDS will be looking for that smile in Las Vegas.

–Leslie Leaney

(Left) The mysterious diver on the sea floor. A social misfit, discharged from the Army or released from prison, who loved nothing more than to drink and fight. Worked harder than hell, spent all his money and did it all again. The rougher and riskier it was, the better he liked it. His home was the sea. These were the first breed of commercial divers.

(Right) Lad's first dive was almost his last. Just 17, fresh out of New York, he seized the chance to "pirate" his Uncle Jimmy's hard hat and plunged in head first, not knowing that the open exhaust valve would flood the helmet. Nearly drowned, he finally found the air intake valve, cranked it wide open and shot to the surface feet first where he was hauled in and this photo was taken. He had done it "his way."

In the summer of 1953 Jimmy Pirog invited his nephew Lad Handelman to come to California to tend for him on his abalone boat. Aged sixteen and just out of high-school, Lad, like his uncle, came from a tough neighborhood of the Bronx in New York City, where as he later put it, "They don't teach you much about diving." He had no idea what was an abalone, or even where to find California on the map, but his uncle's offer was a golden opportunity to get out of the Bronx—not that tending Uncle Jimmy turned out to be much of an improvement. He knew nothing about engines and nothing about seamanship, and try as he might his efforts were met with constant yelling that he was doing everything wrong. Not only did he run the boat, cook, and pull up a hundred dozen abalone a day, he also had to unload the boat at the end of each trip—all for no pay. It didn't take him long to come to the conclusion he was on the wrong end of the hose.

About a month and a half after he began tending, Lad got his chance. A fierce Santa Ana wind was blowing and the "Black Fleet," of which Uncle Jimmy was a part, had run for shelter at Potato Harbor at Santa Cruz Island. With time on their hands, a couple of tenders agreed to put him down in the gear. He tried to get his uncle to give a hand, but he was unable to pry him away from his poker game, and none of the other divers expressed any interest. So the tenders suited him up and slung the weights on him, and he climbed over the side onto the ladder. He had a general idea of what the diver did: he jumped off the ladder, went down, air came in and air went out, he picked abalones, came up and shouted at his tender and anyone else within earshot; at the end of which the tender dressed him out, and that was it. It seemed straightforward enough.

The helmet was lowered over his head; he jumped off the second rung of the ladder, just like his uncle, and down he went. Unfortunately, nobody had told him to close his inlet valve when he dropped beneath the surface. In no time at all he was upside down, ten feet above the bottom, with water coming into the helmet.

When the water reached his nose it dawned on him that he had shut the intake valve and that the exhaust valve was open. "Although I couldn't move at all by this time—I was stuck—I figured I'd better do something with the other valve. My only thought was opening that valve, and because I didn't know which way to turn it, I probably tightened it before I broke it loose. But finally the thing cracked and there was a big noise, and as the air blasted in, the water level went down. That was fantastic. Suddenly I was inflating like a big balloon and I shot to the surface, upside down. One of the guys jumped in the water and helped right me, and they brought me to the ladder and straightened me out. I was very happy, because I thought it was going to be the shortest diving career in history. It didn't last even five minutes."

Little by little Lad became a productive diver. He did not pick abalone as fast as the top divers, but what he lacked in speed he made up for with the punishing number of hours he put in on the bottom.

Barney Clancy, the owner of the Black Fleet, had been watching Lad for some time. He knew he would work when others stayed in harbor because of weather and he saw that he always brought in a load, even if not a big load. Clancy thought that with a better boat, and if he were around more productive divers, he might make a good Black Fleet diver. When a diver from Morro Bay died when his non-return valve failed, causing a massive hemorrhage that burst all the blood vessels in his head,

Abalone grew deep under ledges below giant canopies of thick kelp. Finding enough legal-sized eight-inch abalone among thousands of "shorts," enough to make a payload, was an everyday challenge. A skilled boat operator and strong line tender tracked the diver through the heavy kelp, pulling up full bags until a good spot was finally found. Eight hours of hard work against wind and currents might yield 25 dozen red abalone, about $250 worth in those days. Not much! If the diver's hose was swept under the boat and caught in the propeller, the chopped-off hose created a powerful vacuum sucking the diver's innards into the helmet. It was just such an incident, which allowed Laddie to take over the "Paula," one of Barney Clancy's elite Black Fleet boats.

Two long, hard days and 135 dozen; plugging his 28 foot boat "Paula." Starting from a 16-foot, 10 horsepower rowboat and garden hose, it took Lad three years to finally "figure it out." Once he did he never looked back, culminating with him being "high boat" of California abalone divers. To this day, he considers this his highest achievement.

Clancy took over the boat, painted it black and turned it over to Lad.

Eventually, Lad got to the point where he could hold his own with the rest of the Fleet. On three of the last five days of his final season he landed more abalone than any diver in the entire fishery. Those three days when his old Pollux was the "high boat" were to be more important to him than anything he did later in the oilfield diving business.

At the time, however, his oilfield diving prospects did not look good. As he said himself, he had no experience in the manual trades and he was not thought of as being mechanically inclined. But then Bob Kirby—of the future Kirby Morgan diving equipment company—put in a word with Woody Treen of Treen's Commercial Diving, and late one night when Treen was in desperate need of a diver to put on a cutting job on the drilling vessel Humble SM-1 he called Lad.

Treen was in a tight spot for a familiar reason: all his divers had used up their bottom time. He needed someone to bridge the gap during the early hours of the morning, when with luck Texaco's people would be asleep, until the next diver, Pete Blommers, could dive again. Provided the Texaco superintendent did not show his face, Lad would not have to dive, but he would have to be dressed-in and ready to go.

Of course, things did not quite work out that way. The Texaco superintendent was not sleeping; he was awake, and he told Treen to put Lad in the water.

Lad had never used a cutting torch on the surface, let alone under water, and when he reached bottom at 110 feet he was unable to find the part of the casing he was to cut. Told it must be under the mud, he started to dig, which turned the water to soup.

"They had the cutting rod already fixed up in the torch and the idea was to cut the casing right above the shoulder. I think it was where the 30-inch casing went into the 36-inch, so there was a pretty abrupt angle in the pipe: that's how it seemed to me. But in the black mud soup I didn't know how I was going to keep my eyeball on the thing once the torch started. I had my hand on it and I took my glove off to be sure I could feel it, and I kept my finger on it. I figured if I held my pinkie on the shoulder and kept my thumb and forefinger on the cutting rod, I'd know where the tip was and I wouldn't get in the wrong spot—because that would be very bad. So I got all set and I told them, "Okay fire it", and Jesus Christ! my feet jumped out like I don't know what. I mean, about 9,000 volts went through me, because you shouldn't be the connection between the juice and the casing. I was thinking to myself—because I didn't know any other way they could do it—my God, these divers must be made of iron! They must be the bravest, toughest guys in the whole wide world, these guys in this oilfield business, because every time I turn that thing on, Boy! it straightens me out and my teeth rattle. I reckon this is the way you do it, this is what divers are paid to do and that's the job. I could see why oilfield divers were so famous.

"So they cranked the juice on and it made a giant flash, and a bunch of bubbles came shooting out, because it was pretty high pressure oxygen to make this cut. It was a startling event if you'd never done it before. Instead of making any such thing as a cut, I just blew a hole in the thing. They kept it on, I blew this big hole, and then the torch went out because the cutting rod was used up. That created another problem because I didn't know what you do when there's no more rod. Then someone kind of whispered in the telephone to unscrew it, like you would

Divers fought to be "high boat," riding the dive ladder with helmet on to beat the others to find a hot spot. Competition was fierce and it was not unusual to cover two to three miles of reefs in a single day.

a drill chuck on a hand drill, and put in a new rod. That was all well and good but I wasn't that familiar with even electric drills; I wasn't an expert in any of these things. So I unscrewed the collar in this mud soup, and my glove was off luckily when all the parts came out in little pieces in my hand. That was no help at all. I didn't lose the parts but I couldn't see what was what. The chuck had three different pieces in it, which I didn't lose, and it also had an insulator, which I did lose—but I didn't know it. So I was quite a while down there hemming and hawing and finally I got the three pieces back in the collar and the drill chuck thing back together again and got a rod in there, and I started going again. Of course, without the insulator in there it began to eat up the torch. So with the combination of that, and getting straightened out each time I called for them to throw the switch on, it was one hell of a mess.

"I think I had an hour of bottom time, or close to it, and I used up that whole time and blew holes all around the thing and ate up the torch in the process. I was never so happy in my life as when that dive came to an end and I could get the hell out of there. They hauled me up and I was at my decompression stop at, I think, 20 feet and then they took a pull on the conductor and it didn't pull; nothing happened. Fortunately, Superman, in the form of Pete Blommers, showed up on the scene and he was all suited up and he went down. I've no idea what his thoughts were when he saw the mess I'd made; but I think he wasn't down more than 15 minutes and the whole conductor was cut clean off. I think he was on the surface before I even got up there. So that was my first oilfield dive."

In November 1962, former abalone diver and processor Hugh "Dan" Wilson recruited Lad and W.L. "Whitey" Stefens into his newly-formed company General Offshore Divers: Lad for his tenacity and drive, Stefens for his toughness and determination and his skills as a rigger and welder. Only a week or so before, at a time when all deep diving outside the navy was done on air, Wilson had made a demonstration dive to 400 feet in the Santa Barbara Channel breathing helium-oxygen from a scuba regulator mounted in a converted Japanese abalone helmet. This opened the door to Phillips Petroleum, who gave him a work order to put a set of helium equipment on the drilling vessel CUSS I.

For its debut in the oil patch, General Offshore Divers was minus one diving partner, Whitey Stefens. That left Wilson as the diver, Lad as the standby diver, a manifold operator and two tenders. The job was to disconnect the blowout preventer stack (BOP) by backing out a series of large-diameter setscrews.

Wilson's novel approach to counteracting the heat-robbing effect of helium was to wear two quarter-inch wet suits under his diving dress. Wilson thought that half an inch of neoprene, though severely compressed by the pressure, would still provide adequate insulation, and that the suit would fit so tightly that the helium would not transmit the heat.

This turned out to be a serious mistake. After about three minutes at 233 feet, his

teeth started to chatter. Soon he was shaking so hard that his groin hurt for a week. Nonetheless, working in the dark with a flashlight, he managed to back out the screws the requisite number of turns, by which time he was in an advanced state of hypothermia. When he started his ascent at 5:06 p.m., he had been down for 40 minutes.

The Phillips supervisor had watched Wilson on the television monitor and had counted the turns to be sure the stack would come loose, but when the rig took up the load, it refused to budge—because, as it turned out, the tips of the screws were in just far enough to hold it.

All eyes now turned to Lad. Phillips had to get the CUSS off the hole, and he was next. It was a do-or-die situation. Lad knew nothing about drilling rigs (on the way out Wilson told him to think of the CUSS as a giant corkscrew), but he knew that if he failed to finish the job General Offshore would not get another chance—with anyone.

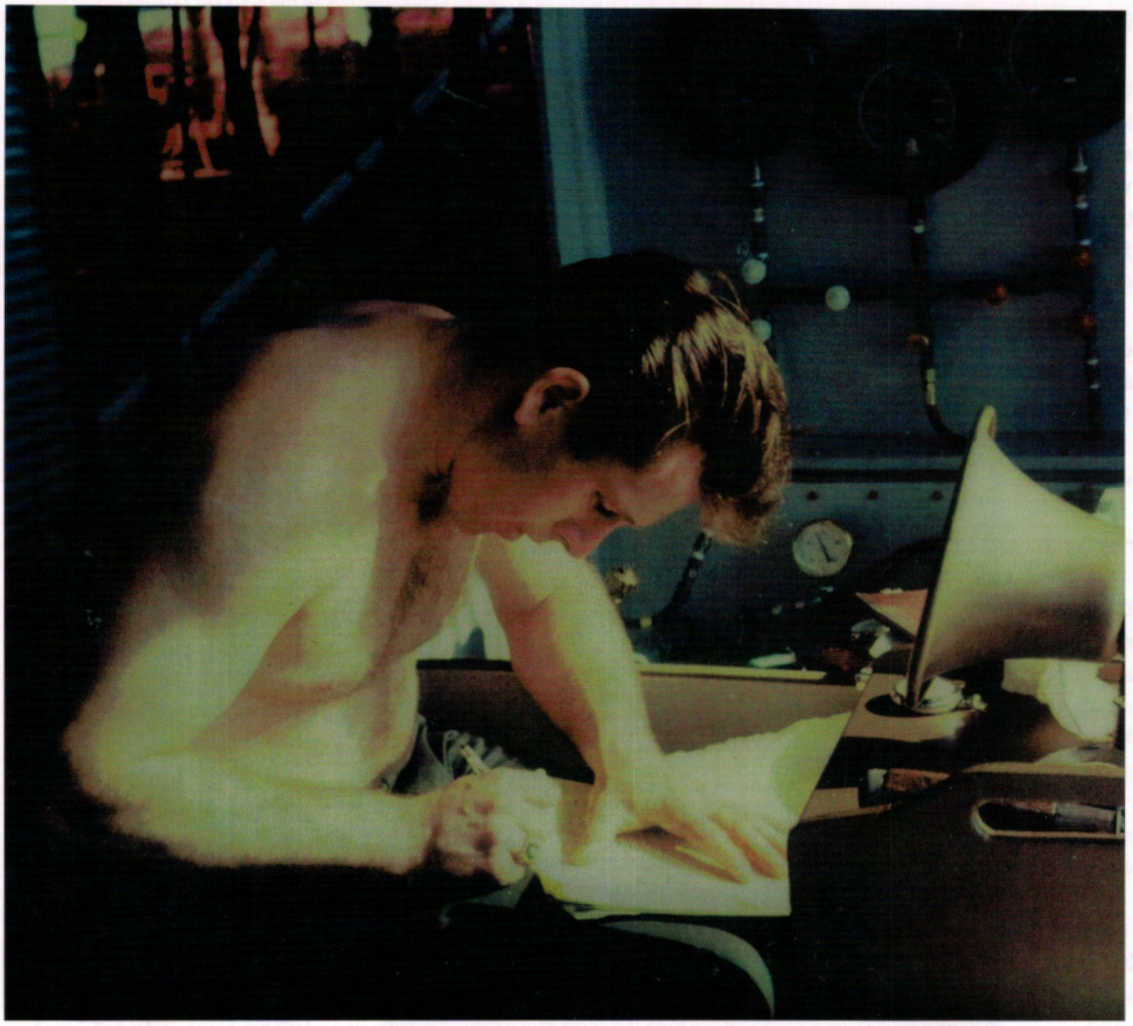
Lad left the surface at 7:22 p.m. With the Phillips people watching on the television monitor, he backed out the screws the rest of the way. The dive lasted 13 minutes. Everything Phillips wanted done had been accomplished.

Over the next ten days General Offshore Divers made a further six dives on the CUSS I. Within a year they had cornered over 60% of the diving work in the Santa Barbara Channel.

In September 1963, Wilson contacted Ed Link, whose "Man-in-Sea" program had recently received considerable publicity. As it turned out, Link had just teamed up his company General Precision with Union Carbide to form a deep diving entity, Ocean Systems. The new company had almost unlimited financial resources, as well as the experimental facilities of Linde Gas and an impressive list of high-ranking former naval officers. What it lacked was an operational arm.

In the late summer of 1964, Wilson and his partners, including Lad—who was at first opposed—Whitey Stefens, and Jon Lindbergh who had recently joined the group, sold General

Onboard the world's first floating rig "CUSS 1," off Santa Barbara, California. Even the world's best deep sea divers "hit a wall" beyond 200 feet. But new oil fields were found even deeper. Something was needed to reach the new depths and thus, the door opened for a tiny pioneering group of original oxy-helium divers, Dan Wilson, Whitey Stefens and Lad Handelman. The mixed gas equipment that their company General Offshore Divers used prevailed, Associated Divers were booted off the CUSS 1 job, and deep air diving was never to return.



(Left) When getting started, General Offshore Divers' three partners, Dan Wilson, Whitey Stefens and Lad Handelman, took turns being diver, standby diver and topside controller running communications and operating the gas regulator boxes. When Bob Ratcliffe joined, he perfected the Topside Controller position. As Lad often said, "A diver is only as good as his topside team – especially the dive controller."

(Opposite) Kevin Lengyel and Bob Ratcliffe removing Lad's helmet and weights following his one-hour bottom dive and 2½ hour water decompression. Pacific Ocean temperatures are notoriously cold, making lengthy in-water decompression unbearable.

Offshore to Union Carbide, and General Offshore was rolled into Ocean Systems.

From the start, Ocean Systems were handicapped by internal conflict. The "navy boys" who ran the company, more interested in government contracts than oilfield work, tied Wilson's hands.

In the early summer of 1965 Bill Bossert, a discontented diver working for Ocean Systems in Santa Barbara, jokingly suggested to Bob Ratcliffe that they should start their own diving company. Ratcliffe, who had started with General Offshore Divers as a manifold operator between college semesters and was none too happy himself, thought it was a good idea.

Soon the two of them were talking to Kevin Lengyel, Lad's brother Gene, and Bev Morgan, all equally disillusioned about the way the Union Carbide buy-out of General Offshore had turned out. They then got in touch with Lad, who was on a sewer outfall job in Seattle.

In his recollections, Lad said the break was prompted by Wilson's decision to man a deep-water contract off Oregon with divers from Seattle. He begged his friends to do nothing drastic until he could fly to New York and talk to the head office. Faced with a walkout, he felt sure the ex-navy brass would tell Wilson to reconsider. No such thing happened. After cooling his heels in the lobby for two days, and getting no satisfaction when he finally managed to see one of the executives, Lad went back to Santa Barbara and threw in his lot with the others.

The result was California Divers, or Cal Dive for short. Each partner was to put in $5,000 in exchange for 25,000 shares. Morgan pulled out the day the money was due, citing his wife's reluctance to see him traipsing round the world on diving jobs. Bossert produced his $5,000 but got it back when he decided he no longer wanted to be at the oil companies' beck and call day and night. That left Ratcliffe, Lengyel and the Handelman brothers.

The one thing Morgan's wife would not have had to worry about if he had remained in the group was his going off overseas, or anywhere else for that matter. In the first year, Cal Dive got not a single contract. No oil company dared hire a new contractor whose liability insurance was questionable at best when it could continue to use Ocean Systems, a well-proven entity backed by the virtually unlimited resources of one of the world's largest industrial concerns. The Cal Dive people might be good divers; but, as a company, they had little or no equipment, no business or sales experience and no resources. There was no justification to switch. For their part, the partners had no illusions about building a world-beating enterprise: all they wanted to do was work for themselves and earn a living doing what they enjoyed.

While Lad traveled to and fro, living in cheap motels and making sales proposals to anyone he could corner, the others assembled equipment in Ratcliffe's garage: one set of air heavy gear, one set of helium heavy gear, a manifold box, a decompression chamber, several compressors. What had once been a peaceful residential neighborhood was quickly transformed into a small scale

These helium divers' next plateau was heavy underwater construction. Ever faithful line tender Ratcliffe is caught on camera tickling Lad just before he jumps down 250 feet to flange up a 6-inch Shell Oil pipeline.

industrial zone. Gear spilled out of the garage, into the driveway and onto the street, compressors and escaping compressed air drowned out the sounds of nature, people ran in and out eating everything in sight. "The wife and the neighbors loved it," said Ratcliffe.

Lad's partners hoped they would soon be putting the equipment to use; but all Lad could line up were odd jobs. The first was for Bechtel, which to allay doubts about Cal Dive's ability Lad agreed to do at no charge, only to have Bechtel turn the work over to another contractor once they had learnt the technique. The second was putting rocks on a sewer outfall in San Diego County for a contractor notorious for not paying his bills. Lad took the job anyway, knowing Cal Dive would never receive a penny but that it would at least give him something to point to when talking to prospective clients, as well as provide an opportunity to make up a brochure.

Cal Dive's first opening came about through a chance meeting at the first Offshore Exploration Conference, held in Long Beach in February 1966, between Lad and Mike Hughes of World Wide Divers. Thanks to Hurricane Betsy, World Wide Divers had plenty of business, including a sizable contract to inspect a toppled platform. What it lacked was the helium equipment and the deep-water experience to carry out the job. Cal Dive could provide both; and not long after the meeting, Hughes called Cal Dive for assistance. Delighted to have some paying work at last, Lad and his partners loaded their gear onto their pickup trucks and drove to Morgan City.

During this period Cal Dive returned to the Gulf several times to dive under the World Wide Divers' umbrella. Overall, however, work was scarce. As Lad recollected, they came close to throwing in the towel almost every week. To pay their bills the divers took anything they could get, including in Lad's case a consulting job for the Aviation Company of America (Avco) in Tulsa, Oklahoma.

At the end of 1966, Lad landed a contract, with Humble Oil—later Exxon—on the CUSS I. From his days at General Offshore Divers Lad knew Jack Reed and Lindsey Lipscombe, two of the company's field staff. Both had a good opinion of Lad, not only as a diver but as a problem solver. When Lad heard that Humble was looking for drilling rigs to work the leases it had won in the Santa Barbara Channel, he dropped everything. He camped on the doorstep of the company's executive headquarters in Century City, he hung around the Oxnard airport waiting for George Dabney, the drilling supervisor, to fly in from Texas, he got everyone he could at Global Marine to put in a good word for him.

At every turn Lad reminded the Humble people of past services rendered and repeated over and over that Cal Dive had its diving gear ready to load at a moment's notice. Eventually, either because they got tired of having him around,

Lad supposed, or because they took pity on him, to the astonishment of Ocean Systems and everyone else they handed him a contract.

Anything a diver did on a floating rig Cal Dive did on the CUSS I. One night, off Point Conception, the job was to stab the 30-inch marine riser, with the blowout preventer on the end, into the 36-inch hole in the temporary guide base. The wind was howling, lashing the sea into ten-foot waves. When the vessel heaved, so did the riser; when she rolled, the riser cocked a little; when she moved fore or aft on the anchors, the riser moved too. At the bottom, close to 300 feet down, the result was several hundred thousand pounds of hardware swinging through a 15-to-20-foot up and down figure eight.

The first diver that night was Kevin Lengyel, known for exceptional performance and coolness under pressure. Over the telephone, he instructed the tool pusher to come down on the riser, then down some more ... then to drop it. Lengyel was of course on helium, in a mouthpiece helmet. Whether there was a delay in understanding his helium voice, or whether the roughnecks on the drill floor failed to drop the riser quickly enough, it is impossible to say; but instead of going in the hole the riser hit the guide base. At the surface, there was an immediate and very loud thud as the weld at the top of the riser broke loose, followed by showers of sparks and the scream of rapidly paying out wire rope.

The situation in the moon pool where the divers were set up was chaotic. Lad was the standby diver:

"No one knew what was happening, other than that the air tuggers were burning wire backwards and the marine riser had dropped and all hell was breaking loose. The roughnecks tore out of there—as anyone with any brains would have done—but our crew, instead of running away from it, had to stay put. My cousin Donald was on Kevin's hose, Bob Ratcliffe was on the manifold and I was on the telephones. All we cared about was Kevin, who had no inkling as to all this noise and mayhem on deck. He was very calm, and we remained calm. He reported that something was not right because the riser had a big bend in it and it was falling. I said, 'Kevin, we're coming up on your hose. Come on back and up.' As it went down, the riser caught six or

Lad Handelman preparing to dive for Cal Dive in the 1960s. The original Cal Dive's bloodline still lives. Today's premier underwater construction companies, Oceaneering International and Helix Energy Solutions, have survived industry collapses and the wars of mergers and acquisitions, while untouchable giants, J Ray McDermott, Brown & Root, Comex, Global Industries and a host of others have failed or been absorbed. Lad credits this phenomenon to their string of leadership, doctrines of safety above all else, and entrepreneurial vision and fight.

The roar and velocity of storm waves exploding through the ship's center well are reflected in Bob and Lad's expression. Kevin Lengyel dove on through this chaos minutes before the 30-inch conductor bit sheared off – trapping him on the sea floor. With typical coolness, Lengyel untangled himself and survived.

seven wires; by some miracle, the one wire it didn't catch was the wire Kevin's hose was shackled onto. So Donald hauled the slack out of his hose and Kevin came back to the wire and started climbing. We decompressed him and pulled him out, and he was fine."

Two dives followed. Gene Handelman went down to assess the situation, reporting that the riser, 300-odd feet of it, was in one piece, broken off from the BOP. Lad put on a sling and attached a lifting wire. The vessel then moved over the load and brought everything on deck, including the temporary guide base. Once the roughnecks had welded the riser back together the CUSS I returned to its original position and the whole process started all over again.

It was now Lengyel's turn to dive again. If he felt any trepidation about repeating a dive that had come close to costing him his life, he did not show it. His friends cheerfully assured him that with one dry run behind him he would have no trouble dropping the riser in the hole. The sea had moderated to 4–5 feet but there was still considerable movement on the bottom. This time, instead of just timing the swing, Lengyel gave a series of increasingly precise orders to the captain on the bridge: up six feet on the Number 2 port bow anchor, up two feet on the starboard side. Finally, said Lad, he narrowed it to six inches in one direction, three inches in another:

"The barge crew and the customer were going ape. How could a diver direct the positioning of a barge and call for big heavy anchor wires to be adjusted by as little as three inches? They thought it was impossible. But Kevin was in charge. Everyone was paying close attention because of what had happened the last time we tried it. At last, he got the barge just where he wanted it. 'Down, down, down ... nice and slow'—everybody held their breath—'Down, down, down ... You're in!' Then, 'Come up on the diver.' There was a big sigh of relief, and that was it."

With one successful contract behind them, Cal Dive's next step up the ladder was the landing of the wire-line service contract for Shell in the Molino field. This was a significant achievement. The Molino field was the exclusive preserve of Whitey Stefens, going back to Wilson and General Offshore Divers. Chuck Parrish, the Shell representative in charge of letting the work, was not interested in talking to any company other than Ocean Systems because he was entirely satisfied with Stefens and his crew. Servicing the subsea wells involved several steps. The contractor had to find the wellhead, hook up to it, pull the top off the Christmas tree, clean the inside, land the work-over rig on the wellhead, take cathodic protection readings, replace the anodes and open and shut the valves necessary to carry out the wire-lining. Ocean Systems accomplished the operation in four dives per wellhead at 240 feet, a performance that was considered unbeatable. The only way Cal Dive could take the contract from Ocean Systems was to do it in still fewer dives.

The answer lay in Cal Dive's seat-of-the-pants tinkering with gas switching. Normally, whether a diver worked his full time on the bottom or only a few minutes, he did not dive again for 12

hours. Cal Dive, however, had developed a technique that allowed for multiple excursions to 240 feet—provided the diver did not surface in between—thereby consolidating the usually short dives required to find and hook up to the wellheads. Instead of switching gases on the bottom as on the Phillips job, after working for five to eight minutes the diver ascended to 170 feet, where he switched to air. The barge then moved on its anchors and the diver returned to the bottom for another five to eight minutes, repeating the process until he found the wellhead or exhausted his one hour of bottom time.

Using this technique Cal Dive completed the Shell Molino contract in two dives per wellhead rather than four. As Lad pointed out, none of this would have been possible had the divers not been the partners in the company, willing to experiment on themselves in the chamber at their shop on Stearns Wharf—with the help of local whiz-kid John Boyce and the long-distance advice of Dr Maxwell Goodman, the former physiological research officer at the US Navy Experimental Diving Unit—before using the procedures in the field. "If worst came to worst, we knew what to do; we'd get a guy out, bent up a bit but alive. We were our own guinea pigs so there was nobody to file a lawsuit. It was our own skin."

In 1966 the owner of Pacific Submarine, a small company in Washington state, told Lad about Phil Nuytten, a Canadian who owned and managed a company in Vancouver called Industrial Marine Divers. Nuytten, he said, was keen to develop deep diving in Canada and was looking for outside expertise. Some time thereafter, Nuytten contacted Lad and asked him to fly to Vancouver. The reason Nuytten was interested in teaming up with a company experienced in helium diving was that he had heard Shell Canada had secured an exploration lease off the west coast of Vancouver Island, the first in Canadian waters. He realized the future of commercial diving lay in offshore oil and he wanted to get the contract. Initially he tried to interest Ocean Systems. Ocean Systems, however, wanted the contract for itself and did not need a partner, especially an unknown one. Nevertheless, according to Nuytten, Whitey Stefens suggested he contact Cal Dive.

When Nuytten met Lad, he had already made a few helium dives on his own. Like Dan Wilson, but without knowing what Wilson had done, he put a demand regulator into a heavy gear helmet, a lightweight Schrader. Unlike Wilson, however, he mounted the first stage on the outside of the breastplate, and rather than using a rigid piped connection to a regulator mouthpiece soldered in place, he ran the hose into the helmet to a demand oral-nasal mask.

Compared with Cal Dive, Nuytten's experience with helium was very limited, mainly because there was as yet no oil exploration off Canada. On the other hand, he had acquired considerable expertise in underwater construction from working on bridges, docks and dams, at pulp mills and logging camps, and in diamond drilling and blasting. To make himself more marketable he had even learnt structural engineering in his spare time. From Nuytten's perspective,

'It was staggering that the Cal Dive guys, who were so sharp on deep diving and all this exotic stuff I only knew about from reading and from my own experiments, didn't know one end of a burning rod from the other. They had thousands of hours in heavy gear diving abalone and everything else but they were lousy construction divers—only because they had never done any.'

The bidders for the five-year Shell Canada contract on the semi-submersible Sedco 135 F included not only Ocean Systems

A fish flits by as Lad Handelman, breathing an oxygen-helium mixture to avoid nitrogen narcosis, plies a wrench for General Offshore Divers, Inc., of Santa Barbara, California. His firm has brought in seven new wells at about 250 feet. Fellow diver Jon M. Lindbergh, son of famed flyer Charles A. Lindbergh who made the first solo flight across the Atlantic in 1927, took this extraordinary photograph.

Oil! Hard-hat diver 240 feet under the sea completes a wellhead. An extraordinary National Geographic photo. A fish flits by as Lad Handelman, breathing an oxy-helium mixture to avoid nitrogen narcosis, plies a wrench for General Offshore Divers, Inc. of Santa Barbara, California. His firm has brought in seven new wells at about 250 feet. Fellow diver, Jon M. Lindbergh, son of Charles A. Lindbergh who made the first solo flight across the Atlantic in 1927, took this extraordinary photograph.

Big brother Gene Handelman. For the first time, Lad tells his brother to shut up and listen. Growing up under much larger and meaner brother Gene's control, Lad dreamed of the day he'd grow big enough to beat the crap out of Gene – who had it coming. When Gene finally came West, Lad rejoiced. He was so happy to see his brother, he forgot all about evening the score. They became best friends as well as partners.

Oh how things have changed! With a hand signal, Bob Ratcliffe, vice president of California Divers, Inc. of Santa Barbara, signals to set off a liquid explosive to blast up one of the more than 60 dangerous, abandoned underwater oil wells which were removed from the beach at Summerland, California. These half-century old oil wells, on the beach, in the surf line and under 20 feet of water, were drilled at the turn of the 19/20th century, the first offshore oil developments in the world – but never removed properly.

but also Westinghouse. The Can Dive-Cal Dive combine was considered a long shot. However, the sister companies had two things in their favor. Can Dive was a local company with a good reputation—appealing in nationalistic terms—and Cal Dive, as a result of Lad's consulting work, had an ace up its sleeve in Glenn Young, the head of Reading & Bates's diving bell division.

With future business in mind, Young agreed to supply a bell on a consignment basis under which Shell would pay for the bell only when it was used. Otherwise, it would remain in a warehouse ashore. As a company with a reputation for being tight-fisted, Shell found this an attractive alternative to the usual arrangement of paying rental—although in retrospect, Lad thought it an unwise decision: in an emergency, what use was a bell on the beach? But for the free bell, Lad and Nuytten would not have prevailed over their competitors, even with the salesmanship of Nuytten's friend and partner Don Leo Jonathan, a former world-champion heavyweight wrestler whose mere presence was enough to intimidate even the most obdurate of prospective clients.

To qualify for the Shell contract and beef up the sales proposal, Nuytten joined Cal Dive on a helium diving job that they were supervising for Pemex, the Mexican national oil company, off Tuxpan. In theory, Cal Dive was to teach the Mexican divers to use helium down to 250 feet; but since neither spoke the other's language, and the Mexicans did not know how to use heavy gear, the result was chaos. In the end, to get the work done, the North Americans did most of the diving themselves, which was fortunate for the Shell Canada contract since the bell never went offshore and Nuytten and his crew did all the diving from the surface in helium heavy gear.

In 1968, Cal Dive secured a contract with Phillips Petroleum in Cook Inlet, notorious for its black water and ferocious tidal currents. Cal Dive had never worked in Alaska, but managed to outmaneuver the resident diving companies by submitting a bid based on the old union scale, rather than (as the others had done) on the new scale which was soon to come into effect. The agreement stipulated that when the new rates came into force, Cal Dive would increase its prices accordingly—which it duly did, by which time the company had proved itself and Phillips swallowed the increase without complaint.

On the strength of the Phillips job, Cal Dive subsequently landed two pipeline inspection contracts, with Brown & Root and McDermott, then cornered all Atlantic Richfield's business. Thus, a group of divers whom the old hands considered utter novices walked off with a major portion of the season's work.

'We were very unpopular because we didn't claim it was the hardest diving in the world,' Lad recalled. 'The most you can work in any six hour period between tides is maybe 45 minutes—an hour at the outside; typically about 30 minutes. How tired can you get working 30 minutes every six hours in shallow water? Us divers were knocking down about $10,000 a month doing the least work we'd ever done, and our tenders who had been starving up to then were making $1,000 a week or more.'

While the Handelman brothers and Lengyel were in Alaska, Ratcliffe was making a handsome profit removing the remains of the original Summerland oil wells for the California State Lands Commission, a contract Cal Dive won against Whitey Stefens by using a DUKW, a Second World War amphibious vehicle bought for about $600. Combined with the proceeds of the Alaska work,

it was enough to put Cal Dive on in its feet. That year the company did approximately $600,000 of business, over double what it had done the year before.

In February 1968, at the federal lease sale that opened the outer continental shelf of the Santa Barbara Channel to exploration, Humble Oil, the company that gave Cal Dive their first rig contract and a key customer thereafter, emerged as the top bidder for several tracts whose depths ranged from about 600 feet to 1,300 feet. Humble's intention to begin drilling in 600 feet later that year—deeper than anyone had drilled an exploration well before and regarded as being near the practical limit for diving—convinced Cal Dive there would be much to be gained if they—Cal Dive—could demonstrate to the oil companies that they were capable of working at that depth.

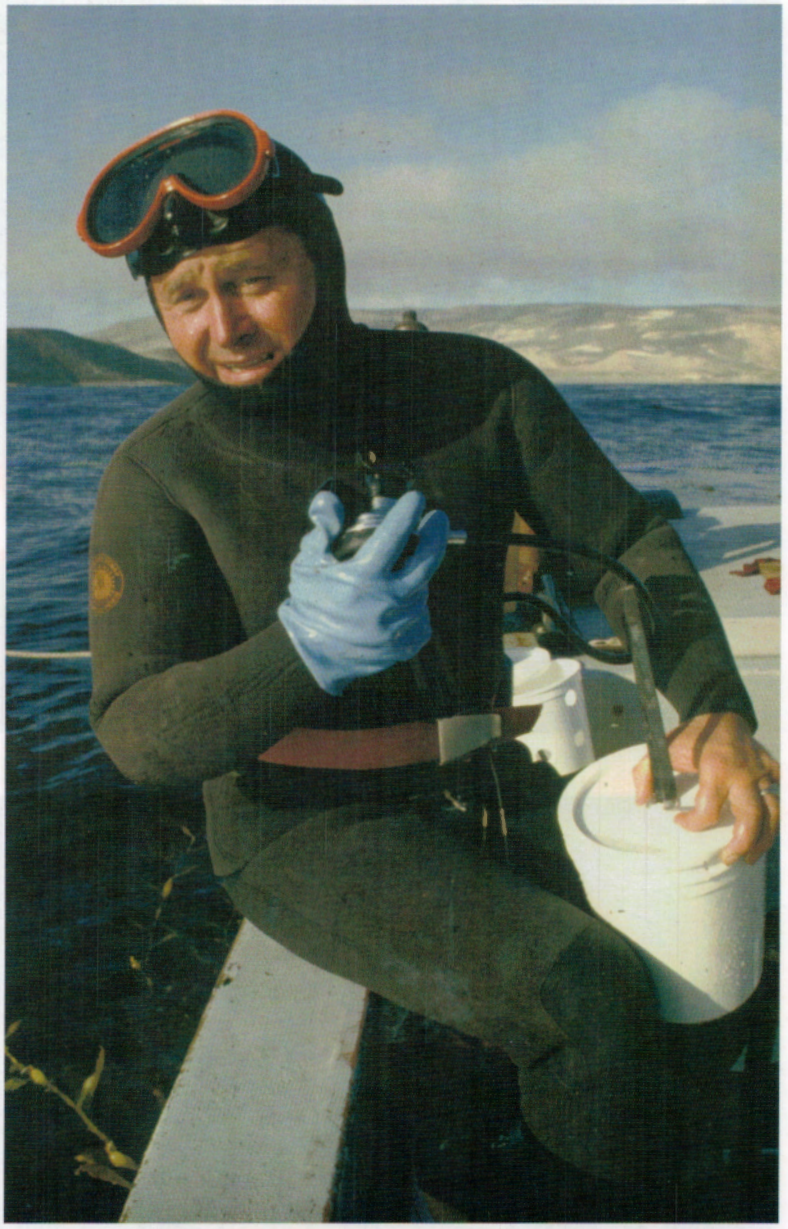
The demonstration for the oil companies, named Project Nesco after the converted minesweeper Cal Dive chartered from the Western Offshore Company at a generous discount, took place from April 18 to 29 1968. The dives, using the Reading & Bates Mark IVC "unitized bell and chamber," started at 180 feet and ended at 570 feet—30 feet short of their goal. On board as part of the Cal Dive team were two engineers from Reading & Bates and, battling seasickness, Dr Goodman to provide medical cover. The divers included Gene Handelman, Lad, Kevin Lengyel, Eric Geerts, Stan Valcheski and Phil Nuytten, with Lad standing by on deck in heavy gear in case of an emergency. Bob Ratcliffe, designer of the Rat Hat lightweight helmet, was in charge of equipment.

Each dive lasted up to 30 minutes. Under the gaze of a television camera, a diver in a Rat Hat and heavy gear dress assembled an eight-bolt oilfield flange, changed out several hammer-lock unions, or made up a 1 ½-inch Synflex hose, putting on the fittings and testing it to 3,000 p.s.i. with a hand pump. The 550-foot dive, the second to last in the series, with Lengyel and Geerts, was made at night. Lengyel worked for 18 minutes; decompression after locking onto the deck chamber ran for six hours. On the final dive, to 570 feet, a malfunctioning exhaust valve flooded the diver's suit. Despite the cold the man stuck out his bottom time, though he later remarked that without the bell, even at 200 feet he would have aborted the dive immediately.

At the time of the Nesco trials Cal Dive had a contract with Humble Oil in 318 feet of water. However, despite proving that they could intervene on short notice at almost twice that depth with a compact bell system and small crew, the only benefit the company derived from the demonstration was a report in the Santa Barbara News-Press and an article by Lad that Offshore included in a special report on diving in August 1969.

In September 1968, drilling from the semi-submersible Blue Water II, Humble set a water-depth record for a discovery well of 640 feet, without incident and without calling on Cal Dive. Then, on January 28 1969, oil and gas erupted from the seafloor 190 feet beneath Union Oil's Platform A, spilling 4.2 million gallons of crude into the Santa Barbara Channel.

Part II will appear in the next issue.



Twenty years after hanging up his abalone iron, Lad returned to Santa Barbara to do some payback. Here he is replenishing abalone stocks at San Nicolas Island, grown from seed to a size for planting. The US Fish & Wildlife Service decided to airdrop sea otters right on top of this underwater aquaculture farm. Today the farm is gone and the otters failed to colonize. Lad states, "I tried my best."