

The Pipe

By Bev Morgan

I leaned against a bulkhead as our small boat set out of the harbor and went North along the coastline. A light wind from the West drifted in and ripples formed here and there on the smooth water. The morning sun was low on the cloudless horizon promising a warm day for our diving operation. Frank Donohue and Ramsey Parks were dressing into their wetsuits as Ramsey explained the job.

“The pipe is about 2,000 feet long by 10 feet in diameter. The engineers think that part of the pipe has sand in it and our job is to find out how much sand is in there.”

I glanced at the breathing equipment they were going to use. Twin seventies with a single hose regulator and pressure gauge, and piggyback, a single seventy with a one hose regulator mounted on it.

Ramsey continues, “There won’t be any current in the pipe so we’ll have to swim the full distance. Usually, they have a little current to help push the diver through the pipe but not on this job. When we start we’ll be heavy so that at the end of the dive we’ll be neutral when the air is used up from our bottles.”

Each of the seventies weighed about six pounds more when full. They were starting the dive with about 17 or 18 pounds more weight from the air in their bottles than at the end of their air supply. In a single seventy, this is not so noticeable but it becomes an important factor when the diver is wearing 200 plus cubic feet.

“The pipe joints are 20 feet apart so every five joints I will stop and fill one of my sample bottles with the sand there, and continue on. This will give the engineers a look at the type of sand that is in the pipe,” said Ramsey.

The boat slowed as the operator eased back on the throttle and we came alongside the buoy that marked the off-shore end of the pipeline. The sight of the buoy brought back memories of other dives I had made in pipelines. I have never been completely comfortable in free swimming gear in a pipeline. The specter of equipment malfunction, though remote, always seemed to hang over my head just prior to an inside pipeline swim, especially if it was a long one like the one Ramsey and Frank were going to do. I knew what was on the other end of that buoy chain. The pipeline terminates its offshore run and abruptly turns up to an elevation of about 15 or 20 feet off the sandy bottom. It ends with a roof-like structure having horizontal intakes around the pipe under the roof. I had always entered one of these structures cautiously and had always given a thought or two as to who was standing over the pump controls to make sure they were not turned on at the wrong time or in the wrong direction.

I helped Ramsey and Frank into their triple bottle set-ups and handed Ramsey his bag of sample bottles. They sat on the tunnel a few moments, nodded to each other and rolled

over backwards into the water with their heavy bottles. They kicked a few feet to the buoy and started down the chain. I watched as they rapidly disappeared from sight into the murky water. Visibility was six to eight feet, and with his excessive weight Ramsey effortlessly drifted down the anchor chain. The pressure of the water compressed his suit causing an acceleration in his speed along the chain. He kicked his fins slightly causing his body to go horizontal and resist the downward acceleration slightly. He glanced over his shoulder to see Frank swimming down behind him. "Frank looks light," he thought to himself, noticing Frank had to swim to stay with him on the descent. "Well, it's not important," he thought. We're here and we'll get the job done. Ramsey noticed the change in angle on the chain and soon the tower appeared in front of him. He waited for a moment for Frank to catch up, then eased into one of the big intake holes. He flipped on his light and dropped to the bottom of the tower. Frank was there next to him and Ramsey noticed that his buoyancy seemed to be O.K. now. They glanced at each others equipment running their flashlights over the spare regulators, weight belts and harnesses. Everything was in order so they started their long swim down the pipe toward the beach. Ramsey counted five joints in the pipeline indicating they had traveled about 100 feet. He stopped to inspect the bottom of the pipe that had about two feet of sand in it. He filled his sample bottle as Frank inspected the area. Then, they moved on. It was absolutely black now except for their hand lights. Ramsey looked behind him and could not see even the faintest trace of light coming from the tower. This is the moment when the cave diver and the pipeline swimmer realized they are truly on their own and this is the moment when the planning and the equipment must do the job. But there is no time to dwell on equipment and planning. It was important not to hesitate. They only had a certain amount about of air, and they must do their job and make the end of the pipe with plenty of air in reserve.

The bag that Ramsey carried the sample bottles in actually had two compartments. The empties were all in one and as he filled them he would place the full bottle into the other compartment. He had twenty bottles and the sampling was every five joints of pipe or every 100 feet. He could reach down into his ample bag and count the bottles as he swam from one sampling station to the next. When all 20 were filled he would be at the end of the pipe. Actually, the job was boring with a seemingly endless length of pipe that was gray and drab, with a fine silty sand on the bottom. The only life to be seen was an occasional crab who would scurry along the sand. Ramsey counted ten full bottles in his sampling bag and realized they were about half-way through the pipe. He pulled his pressure gauge into view and read 1400 pounds. Good, he thought to himself. He started with 2500, was halfway through and had 1400 left. He was home free, or so he thought. On his way to the next sampling station, he noticed that Frank was getting extremely light and was swimming more than he should have been to stay near the bottom for his inspections. Ramsey, being weighted heavy, was having an easy swim along the bottom, using his hands to walk with from station to station. He actually could pull himself along with his arms and travel very economically with this system.

After the next sampling station, or perhaps the one after it, he felt Frank hanging onto his piggy-back tank in an effort to stay near the bottom of the pipe. He swung around and looked at Frank and asked with his hands, if everything was O.K. "Yes," Frank nodded.

"Go ahead," he indicated with his hands. As Ramsey swam on to the next inspection site, he kept being lifted off the bottom by Frank's excessive buoyancy. That, being combined with an increased swimming effort, made Ramsey a little more than slightly apprehensive. After a couple of more inspection sites, Frank's hanging onto Ramsey with his buoyant condition became intolerable. He decided to tell Frank to swim on along the top of the pipe and that he would finish the inspection along the bottom. About this time, Frank let go of Ramsey, and floated toward the top of the pipe. Ramsey turned around and saw that Frank had dropped his light and it was dangling by the wrist cord from his arm while he was busily fumbling about his neck and shoulders. Ramsey shined the light toward Frank and realized that he was very low on air from his main two bottles. He attempted to find the single hose regulator from his piggy-back bottle that had somehow come off the neck cord and was behind him. Ramsey quickly swam up and handed him his spare regulator which Frank promptly shoved into his mouth and took a couple of relief breaths. With all the excessive swimming with Frank holding on and now this last commotion, Ramsey decided he had better check his own air pressure. His gauge was down to 500 p.s.i. but that at least put him 500 p.s.i., in two seventies, ahead of Frank at this point. He quickly looked at Frank, who had become organized, and indicated to Ramsey that he was through inspecting. He was going to swim the remaining way along the pipeline since he was on his reserve air. Ramsey nodded his head in agreement and set about to follow him.

Frank, being light, and turned upside down and was swimming and crawling with his hands along the top of the pipe. Frank is a big man with long legs and he was making the most of it toward the end of the pipe. Ramsey was heaving and was following Frank along the bottom of the pipe. The water inside the pipe, since there was no motion from waves, was slightly improved in visibility and Ramsey could see Frank's light, perhaps twelve to fifteen feet away. Ramsey reached down and counted his full sampling bottles. He had 16. This meant they were closer than 400 feet to the end of the pipe and could make it quite easily on the air they had. Once out they could get more air and come back in for the remaining four samples that were needed. Ramsey felt relieved and glad that their problems were no more serious than a scuffle to find Frank's reserve air regulator. Ramsey settled into keeping up with Frank and started counting the pipe joints that came up every 20 feet. He noticed he was breathing very heavily to keep pace with Frank. He had counted 10 joints of pipe when his regulator started drawing hard. He didn't know if it was due to his increased breathing efforts or if he was out of air on his doubles. He tried to swim up and grab Frank's fins to have Frank help him with the change-over to his emergency regulator in the event that he could not find it. But there was no catching Frank. The extra effort to try to grab his fins only caused Ramsey to draw harder on the regulator and made it seem harder to get any air out of it. He decided to stop and make the change-over while he still had some air left in his doubles.

He dropped to the bottom of the pipe and felt for the emergency regulator. It was on the strap around his neck and handy for switch-over. He was still breathing very hard from the swim and didn't seem to be able to get enough air out of his doubles to satisfy the need. "Well," he thought, as he started to switch regulators, "I counted 10 more joints of

pipe so we could not be any farther than a couple hundred feet from the end of the pipe. I've got plenty of air left in my piggy-back bottle to make it out."

He made the switch-over and pushed the button on his emergency regulator to expel the water. When he let up on the purge button, the regulator stayed on steady-flow blasting large volumes of air out and around his head, escaping forever along the top of the pipe. Silent curses raged across his brain as he jerked the emergency regulator out of his mouth and banged it into his hand in an effort to stop the free-flow. It stopped. Ramsey's heart started. He shoved the regulator back into his mouth and carefully ejected the water with the air he had left in his lungs. The next breath came easily and shut off properly at the end of the breath. The regulator was working correctly. "This was a bad dive," he thought to himself as he set out after Frank. I don't know if I'll take another one of these pipeline jobs again. They are bad enough when everything goes right but this was ridiculous. Ramsey settled down for the short swim out of the pipe and started counting joints again.

Six joints, seven joints, eight joints, ten joints, then 200 more feet, another 200 feet and he would be out. He relaxed, he settled down, and his breathing rate went way down. "This is more like it," he thought, "relax. So I'm down to my emergency bottle, it's O.K. Just a few more feet and I should see the light at the end of the pipe." Sixteen joints, seventeen joints, eighteen joints, where's the light? There should be only two more joints. Nineteen joints, twenty joints, twenty-one joints. Wait something's not right here. The engineers told me this was a two thousand foot pipe and the pipe joints were twenty feet apart, and I took samples every five joints or every one hundred feet. Twenty-two joints, twenty-seven, thirty. Good God, this pipe is much longer than the engineers told me. What the hell! Thirty joints, thirty-five joints.

"This is bad," Ramsey thought to himself. "This is really bad. I have to save every ounce of air in my bottle. I have to stretch it. I have to make it last." Then he thought about Frank. Frank had far less air and the realization hit him. Somewhere floating at the top of the pipe was Frank. He had probably already gone by him. He had to be out of air by now. What a shame, all because some engineer gave me the wrong dope. On he went, on into the black. Even his light was growing noticeably dimmer. It would soon go out.

The absolute finality of this endless pipe descended upon him. That pipe had no beginning and it had no ending. That pipe was his forever. A strange relaxation melted through his body. His breathing became even slower and longer. The confusion in his mind stopped swirling and settled as the grains of sand fall into place on the ocean floor. I am a fool, he thought. Now I know what happened. When I switched to my emergency regulatory I got turned around and now I'm swimming back the wrong way in the pipeline. It's all very simple. I swam as far as I could on a set of doubles. Then I switched to a single and swam back down the pipeline. There is no way on God's Earth I can cover the same distance on a single. I don't even have a gauge to tell me when the end is going to come.

Ramsey Parks was probably never more relaxed than during this moment of facing death. It was like falling from the tallest building except that he had a lot more time to think

about it, and think he did. The first thing he thought about, was Conrad Limbaugh. He had faced exactly the same situation in a cave in France and had undoubtedly gone into the same trance-like tranquillity during his last few minutes, when he realized there was no way out. "I should have learned from that," Ramsey thought, "but no, I wanted the money." The money was good at the start but now he laughed to himself...the money was nothing. And then he thought of his wife. He had only been married a week. "My poor wife," he thought, "I've made widow out of her." She will never understand why this happened.

He had stopped counting pipe joints by now. There was no reason to. He must swim on down that endless pipe until... and then he thought about how it would be when it came. The regulator would start to breathe hard. He would start drawing on it, and drawing on it, and soon there would be nothing to draw on. And he would relax and die. "It's taking so long," he thought, "I'm so relaxed, swimming is so smooth and easy."

And then it came. He first noticed an almost imperceptible change in his regulator. A very, very slight increase in breathing resistance as he slowly drew the air out of the tank, through the hose, and into his mouth. He had taken the regulators apart many times. He could follow the air as it came up from the tank and through the first stage regulator, lifting the seat and into the hose and into the second stage regulator. As he drew in on the diaphragm it tripped the lever that allowed the precious air to flow into his mouth. This was the start of there not being enough air to open those little valves, not being enough air to supply his lungs. But he was relaxed and it was easy and it was going to happen very smoothly. After several increasingly more difficult breaths he was even deeper into his trance. He was as completely relaxed as a human can become. His light was nearly out, just showing a feeble glow in the darkness, barely reflecting on the sand.

And then he saw something, something faint and small a long way off. Was it possible? He eased out of his tranquillity slightly. He squinted his eyes within his mask and strained to look, and the beat of his legs kicking his fins picked up slightly.

And then the tranquillity was completely broken. His eyes opened wide. His heart accelerated. Adrenaline coursed through his body. Light! There's light, right there, right there is the end of the pipe. I can make it, I can make it! The regulator drew hard. He strained to draw the life giving air from the regulator. This was no time to relax and stretch his air. This was it. This was everything. He had to make it out of the end of the pipe. He had to get out of the tower. He thrust his legs as never before. He pulled with his arms. He strained with everything available and rounded the end of the pipe and entered the tower.

God, look at it... the open ocean. It's right up there. He dropped one of his weight belts as he came up the tower. The extra buoyancy made him accelerate toward the roof of the tower. He reached out his arms and trimmed his body. He hit the opening on an angle and deflected through the opening with his hands pushing hard on the roof of the tower. There was no air left now but he left the regulator in his mouth hoping to get perhaps a slight breath from the gain in pressure differential as he raced toward the surface. He jettisoned

his other weight belt and his speed toward the surface increased. "Blow out," he thought, "blow out, don't embolize, don't make it all this way only to embolize." He managed to get a little air going out of his lungs. The light became stronger and stronger until it blinded him, or maybe it was the lack of oxygen that caused his already tunnel vision to close in and collapse. And suddenly, suddenly there was no water on his face, he opened his mouth, and the regulator dropped from it. Air rushed in and down to his lungs. He squinted his eyes and lay back on the buoyancy of his doubles and the piggy-back. His vision returned. That first breath he needed to give him life, but this breath, the second breath, he savored. He tasted it. He enjoyed it. It was as if he were filling his lung sacks one at a time. There's so much of it up here. There's so much of this good stuff up here. He drank in the blue sky and let the sun wash across his face. With the next breath he noticed he was trembling and he made an effort to relax. He looked about him on the water and nearby his boat was approaching rapidly.

On the boat, we had given up hope, of course. We held off for several minutes after we had calculated he couldn't possibly have any air left. Frank Donohue had come up on the inshore end and we had all assumed that Ramsey would be close behind. After quite a time lapse we assumed that something had gone wrong and waited until we knew his air supply would be exhausted. We started to prepare a recovery team to get his body. While we were making preparations the boat operator kept near to the end of the pipe and then, long after giving up all hope, he appeared.

Although there was a noticeable loss of color from his face, Ramsey kept a calm exterior as he climbed aboard, sat down, and had a smoke. We radioed the beach that the other diver was aboard and that the job was secured. As we headed into port and Ramsey explained what had happened.

Although he had no comments to indicate how he felt about swimming pipelines that was the last pipeline that I can remember him entering. Occasionally, after an evening of good food and drink, the conversation slows and he confides in me that he still awakes in the middle of the night to find that he has been swimming that same pipeline. The years will wear on with you and me and we will have good days and bad days. But somewhere late at night when the city is asleep, and the only sound is the murmur of the ocean against the beach, Ramsey will be once again swimming down that endless, dark pipeline.



One Diver's Experience with the "Bends"

By Peter C. Howorth

Author's note: The bends, or decompression sickness, is a relatively rare malady, particularly among sport divers who never spend as much time underwater as does the commercial diver. Abalone divers, however, seem to be particularly prone to this problem, perhaps more so than any other commercial divers. There are a variety of reasons that account for this comparatively high incidence of bends. First, the name of the game is the abalone business is production, that means spending a lot of time on bottom in order to get as many abalone as possible. Active divers spend at least two weeks out of each month on the bottom diving for usually six to eight hours a day. This alone certainly increases the odds against the abalone diver. Second, the work often is forced into periods of time during which the good weather prevails. This means that the diver must work very long hours underwater day after day which if there is a factor of individual tolerance involved must mean that the tolerance is considerably reduced. Next, the diver's equipment is made to run almost continually day after day enhancing greatly the odds of an equipment failure. My first experience with the bends was the result of an equipment failure which although quite unforeseen and unpredictable, nonetheless caused me to ascend more rapidly than I should have.

The abalone diver too, unlike other commercial divers, must put forth a maximum physical effort in his quest for abalone. While picking, he must pick as quickly as possible to ensure a good day's catch. Even while searching, he must search quickly and cover ground rapidly if he is to be successful in finding any abalone. These factors contribute to a much greater air consumption rate that greatly increases the volume of nitrogen dissolved in the bloodstream. The air supply comes from a surface air compressor rather than a Scuba tank that gives the abalone diver no incentive for conserving air at any depth. Heavy swells often will force the diver to deeper waters to avoid the surge, multiplying the odds. Abalone are found on rocky bottoms that may vary considerably in depth, making accurate decompression calculations difficult at best. All this was before the age of the meter that could have eliminated 99% of my problems.

Decompression tables generally include a percentage in which bends may occur even if the tables are followed. The abalone diver, because of the reasons outlined above, probably falls into the unfortunate percentages more than any other diver particularly if a diver disobeys the tables.

Most seasoned commercial divers who have had the bends before find -- medical research to contrary -- that it is easier to get the bends again. I found my own tolerance so limited after eight serious cases of the bends that the tables were no longer to be relied upon. Obviously this is a very rare phenomenon and could occur only to one who has spent a great deal of time on the bottom. Sport divers rarely, if ever, suffer from cases of the bends and then only if the tables have been flagrantly ignored either through ignorance or accident.

Many times I have been asked what it is like to have the bends. Unfortunately, I have had the experience several times and can speak with an authority quite undesired on my part. The symptoms can vary from a mild skin rash or very slight discomfort to death -- a symptom that always struck me as being too final for my likes.

Here is what it is like to get a severe case of the bends. This incident actually took place. To the people who were instrumental in saving my life that day, I am eternally grateful. My debt to them is something that I can only hope to someday repay.

I ascended slowly in the clear water. Around me a myriad of tiny creatures watched my alien passage through the depths, a stranger who did not belong. Overhead I could see my diving hose lazily spiraling upwards to the boat. A staccato throbbing confirmed continuance of my air supply, which was pulsing out of a small compressor and being forced through more than a hundred yards of stout rubber diving hose. Topside on the boat, Harold Shrout was waiting his turn to dive while underwater, Jerry Bastian searched the bottom a hundred yards to my right. Paul Chrestenson completed the crew as our line tender.

A large boulder beckoned to my senses, sharpened as they were from years of diving. I grasped the edges of the rock and muscled it over hoping to find several abalone clinging to the underside. Disappointment. Nothing is there. Any good shells? An immature cowry, some spectacularly colored Amphissas, a tiny Pink Abalone. I gently lowered the rock back into place, not wishing to leave the miniature habitat exposed to the greedy predators that even now hovered about me watching every move I made. The brazen Sheepsheads were so close to me in the clear water that I could see the parasites slithering across their scaled hides. I moved on carefully scanning the ocean floor. A glimpse at my depth gauge informed me that I was in thirty-four feet of water. A moderate depth-I could spend some time here if I wished.

Then, it happened. My vision reeled momentarily, then steadied, followed by an expectant tingling on the surface of my skin. Being confused and bewildered, I settled to the bottom, unmoving and feeling slightly nauseated. "I've been working too hard," I thought. I'll just rest here a moment until I feel better. A muscle twitched then fluttered in my left shoulder, followed by a blinding stab of pain. What the hell is happening to me? I can't be bent... It must be the air. That's it-the air... But... it can't be the air... the symptoms are all wrong. I can't be bent, too shallow. Another stab of pain. What else could it be? Should I go deeper, work it out? What if I black out? I'll go up really slow... Yeah, that's it. I'll go up really slow and tell 'em what's happening. From the beginning I had been only mildly frightened; years of diving had taught me not to panic under any circumstances. Now the specter of fear rose in my throat as I began a slow ascent-dark unreasoning fear. What if I'm bent? I knew it was very rare, almost unheard of to feel any symptoms of decompression sickness underwater. What would happen to me if I surfaced? My vision spun again before me. This would never do. I had to have help. Better to take my chances on the surface than to stay on the bottom with worsening symptoms.

I could feel my heart beating strongly high up in my chest as I slowly ascended. Calm... stay calm... take your time... take it slow. The tingling sensation increased in my thick rubber suit. I strove to remain calm, to take it slowly, although my heart beat ever more strongly-too strongly. For sure it will throb its way out of my chest. I broke surface, swimming slowly to the boat. The bright sun, the beautiful blue water cradling the great leafy fronds of kelp, the harsh craggy brown of the island cliff-all lent a sense of unreality to the scene. Maybe I had been mistaken... It couldn't be. I was all right after all? Inside I knew I was only kidding myself. This was no product of the mind of a frightened neophyte; this was happening to me. I knew only too well that it was real. I had been there before. I'd been in and out of decompression chambers enough times to pay a couple of week's rent. I clambered aboard the boat.

"No good here," queried my surprised line tender upon seeing me on deck so suddenly. Wordless, I brushed him aside to look at the compressor. The exhaust from tiny motor I could feel skittering by me with the breeze. Air intake fitting secure. The intake fittings secure. The intake was ten feet away from the exhaust of the motor, facing the wind. So it wasn't the air.

"Pull him in," I commanded, nodding towards the bubbles from the other diver. The bewildered tender began to pull in the diving hose, hand over hand.

"Fast," I said, without bothering to explain. I turned to my friend who was standing nearby, his expression voicing a question.

"I think I've got it again," I explained. "I think I've got the bends, Harold. We'd better put this thing in the big cog and get the hell into shore."

"You sure? It's really shallow. You haven't been down long."

I nodded in reply as I slipped out of my gear. The other diver slipped aboard.

"What's up," he asked.

"I think I've got the bends. I don't know how. I know it shouldn't be, but I'm not imagining it. Something's wrong. I know it's too shallow. You have been down as long as I have. You know I shouldn't be bent. But I think I am."

The four of us stood on deck, just another four people on just another boat at Santa Cruz Island.

"Get the anchor up. I'm gonna call ahead. Look, I'm sorry -- we just got here I know -- but I'm gonna have to get to a chamber."

I turned and folded my frame into the cabin as Harold started the engine.

"Coast Guard Radio Santa Barbara, Coast Guard Radio Santa Barbara; this is the El Buzo, the El Buzo, Whisky Fox-trot fire-eight six-one, over."

"To the vessel calling Coast Guard Radio Santa Barbara, this is Coast Guard Radio Santa Barbara, this is Coast Guard Cutter Cape Sable, over."

"Cape Sable, this is the El Buzo, the El Buzo, Whiskey Fox-trot five eight-six-one. We have a diver aboard with the bends; request assistance over."

I couldn't bring myself to tell them that I was the diver with the bends. I seemed strange to me. Here I was dripping wet, still in my wetsuit, telling them I needed help. I gave them some phone numbers to call to ready a chamber then told them to have an ambulance waiting on the dock and to be sure that they had some oxygen. (Oxygen, I knew from past experience, gave some relief even at surface pressure.) The radio call seemed as though I had been ordering flowers for my funeral. Perhaps I was. I stumbled outside.

On deck I suddenly became aware of a tingling numbness invading my legs. It began to slowly. At first I didn't notice, but soon a lack of feeling spread up my legs.

"I'd better get out of this suit," I said. "I think this is gonna be a bad one." They helped me out of the suit as the numbness continues to spread.

"Why don't you lie down?" someone suggested. The tingling sensation increased, spreading to my chest.

"Yeah, wait," I said briefly. I struggled into the cabin to get to the radio again and thousands of tiny nitrogen bubbles expanded in my bloodstream.

I called Santa Barbara again, saying: "Look, this is gonna be a bad one. Can you clear the harbor -- have the harbormaster get all the boats out of the way? It's gonna be close. I'll leave the radio on all the way in so you can call us."

"You'd better give it everything she's got," I advised Harold. "This is gonna be a bad one."

I lay down on my back, eyes to the sky, satisfied that nothing more could be done. The tingling numbness in my legs had spread to my thighs. Probably a spinal hit. Left untreated, it could mean paralysis. The tingling in my chest increased with it the pain. My vision swam again, this time blanking out. I tried to fight it. The wave of pain subsided and my vision returned. I dimly remembered the others deciding what could be done. Treat him for shock? Keep him warm?

"No, don't let him go into shock. Try to keep him cold. Let him fight it. He's got to fight it," said Harold. "Get the compressor ready in case he needs air. We can blast it through the purge on the regulator. It might help."

"Look you guys, I'm really sorry this is happening. I..."

"Shut up! You're acting like an old lady! You'll be O.K.," said Harold.

I sank back on the deck. It must be bad. He'd never have talked that way if it wasn't. Well, I understand now. I'll fight it. I've got to fight it!

My vision whirled again, blanked out momentarily, then was replaced by several snapshot-like glimpses of my friends bending over me. Suddenly, I was off the deck suspended in midair, then I fell to the deck with a hard slam that cleared my senses. Underneath me I could feel frantic vibrations from the giant Chrysler laboring its heart out at 5000 revolutions per minute. I had installed it that year, the largest engine available at the time. Three hundred twenty-five horses carried me closer and closer to salvation. Five thousand revolutions per minute were geared down to a more usable 2500 as the enormous two foot propeller viciously bit in the seas with its three blades pushing the twenty-six foot boat through the choppy seas at nearly forty knots. On every sizable swell the boat would leave the water, causing cavitation that surely would over rev the engine beyond its limits.

"Slow it down! You'll blow it up!" cried Jerry, echoing my own thoughts.

As I recall, he received only a glance in reply, but for me the look exchanged was very significant. Harold, a local design draftsman, was one of the most skilled hands with practically any machinery I could think of. What he couldn't make work he could design and build a replacement for and with his own hands. We both knew full well how much punishment the Chrysler could take -- and it was being stretched way beyond the red line. But so was I. We could always replace the engine, but I liked to think that it would be more difficult to replace me -- at least from my standpoint it was.

The tingling sensation spread slowly over my body, bringing with it a wave of pain.

"God.. the doc.. that guy that died... I said..."

"What'd he say?" asked one of the crew.

"I don't know. I can't understand him," was the reply.

I tried to speak. My mind formed the words, but I knew then that I couldn't speak clearly. The problem with my vision, now this. It's in my head... in my brain now. I remembered a conversation that I once had with a doctor who specialized in cases of the bends. Another abalone diver had struggled aboard his boat just as I had done. Help was swift in arriving, but not swift enough. He died within minutes of the first symptoms, a victim of a massive attack from the bends. Explosive decompression, they had called it. The tissue damage had been so severe that he had succumbed to a swift and horribly painful death. And now it was happening to me. The same thing. I couldn't stand it.

"Rub my chest.. OH GOD IT HURTS!" I managed to croak out. Paul and Jerry began rubbing my tortured chest as though they could squeeze the evil bubbles

out of me, oddly enough yielding a certain amount of relief. My vision went blank again. "I can't see... I'm blind... It's in my brain..."

Voices from another world spoke to me. The rubbing continued. I became aware of a rattling, choking sound. God, that's me! It was hard to believe. Saliva formed a froth in my mouth as I frantically continued to breathe like some giant rabid beast in the last throes of death. A ripple of warmth spread wave-like up my legs to my abdomen. Realizing almost too late what was happening, I summoned up every bit of will power I had to fight it. I tried to scream -- anything for relief. Kaleidoscopic images formed in my brain and were brushed aside by wave after wave of pain. I was swimming in a sea of pain for which there could be only one ending.

"No.. no!," I stammered.

"Take it easy... take it easy."

"Take it easy, how could I do that?" Fear manifested itself in wave after wave of pain. My vision gone ... No feeling in my legs anymore... I'm dying, I realized, I'm going to die. Easy to lie back, shut off my mind, let it come. It's warm now... pain's not so bad... I just want to sleep now.. just get a little rest.

My heart rose in my throat pulsing in frantic on gallon contractions. I could sense my jugulars expanding in my neck throbbing hammer-like in the corridors of my dying mind. For the first time in my life I was really afraid. Not merely frightened -- I was terrified. It would be so easy to lie back and let it come. Such a relief. It could be easier. The warm fingers of death glided through my body; welcoming, all-embracing.

"God... NO! NO! NO! LET ME LIVE! I'VE GOT TO LIVE!" I screamed. My vision returned momentarily. With it came the pain. Pain the like of which I have never felt before. I was absolutely staggering. Every part of my body screamed to torment as the satanic bubbles racked me. I fought on. Somehow my mind remained still relatively clear. I could still think. I had to fight it! Anger replaced terror as I concentrated. I could feel a battle between the hammer blows of pain and the warm embracing passage of death. If I relented even momentarily in concentrating on surviving, an almost pleasant feeling would come over me. No longer would it deceive me. Every last bit of strength I had I tried to pour into my desperate determination to survive.

"The harbor's just ahead," someone said. "It's O.K. You'll be all right."

The harbormaster had done his work well. No boats were anywhere near the channel. The coast was clear. The patrol boat stood by at the harbor entrance its lights flaring a warning. Harold held the throttle all the way down as he had done all the way across. Still at 5000 rpm, we swept by the patrol boat under full power in a broad turn. Later, I was told that the propeller had been the only part of the boat in the water. The patrol boat was passed as though it had been going backwards.

"Slow down! You've got to slow down!" yelled Jerry. Less than a hundred yards to go and still wide open! Harold jerked back on the throttle as bystanders began to scatter. He timed it perfectly. The boat stopped at the city float as the stern wake splashed against the boats in the marina.

I could feel myself being lifted by eager hands towards the waiting stretcher. I fell on my shoulder on the wooden planks of the float. Someone had dropped me! Then I was on the stretcher. A brief flash of vision passed through my brain -- people everywhere striving to get a better look.

"GET OUT OF THE WAY, YOU DUMB BASTARDS!!!" bellowed Harold. A path opened by magic for the stretcher bearers. I don't even remember being put in the ambulance, but I can remember fragments of the fast ride.

"Oxygen... gimme oxygen."

A sticky rubber inhalator was placed over my mouth and nostrils. Cool O₂ suffused into my lungs. Any relief was welcome. My vision left me again. How far do we go in this damn thing? Am I dreaming this? Am I still alive?

No chamber was available in Santa Barbara. We had to go all the way to Goleta - - eleven miles away; eight more precious minutes! I could feel us slowing down. "Thank God," I thought. We're here. I might make it. But no, we were only stopping long enough to get more oxygen from a waiting vehicle. My heart sank in despair. I'll never make it. Somehow, the pain and the warm feeling had merged. I was losing the ability to concentrate. I fell back on another wave of pain struggling weakly to resist.

Then we were there. THE CHAMBER. I could see it... had to make it... I was in it! The dogs¹ were slamming home! The pressure whirled about me as concerned hands opened every storage tank into the chamber slamming the pressure down quickly. So quick, I thought look at the caisson gauge²! It raced past ten feet, then twenty, thirty -- my vision was clearing -- sixty feet!

"Ohhh... Oh, God," I stammered weakly. Strange how believers and non-believers alike all call for God in times of need.

"You all right?" -- concerned eyes peering into mine -- am I all right!

"Yeah... yeah, I feel better. Boy, am I ever glad to be here. It's good to be here. I never thought it would be so good to be here."

"How is he?" a voice asked from the microphone.

"He's O.K. -- how do you feel?"

¹ Dogs are lever-like closures around steel doors that make the door airtight (or watertight in ships).

² A gauge measures pressure as equivalent depth in sea water.

"Better. Much better... I'm really weak, though. Still feel a little dizzy... and sore. Sore all over, but I'm O.K."

You hear that?"

"Roger that. Take him into the inner chamber now."

With the pressure equalized in both sections of the large chamber, assistants, doctors, and relief crews could enter and exit the chamber without undergoing lengthy decompression. Inside the larger chamber were lights, a bunk and communication with the outside.

"How you doing? Do you feel anything wrong now?"

"I feel much better... much better. Vision's back and the pain is gone except I feel sore all over. Like I've been run over by a truck. And I'm still a little dizzy, but not bad. I think I'm O.K."

"Your vision went out?" he asked, somewhat taken aback. "That's really serious. You must have had a brain hit. Or a spinal hit."

"I know," I replied briefly.

"Have you had an oxygen tolerance test before?"

"Yes."

"O.K., we're going to put you on O₂. It'll save a lot of time. Better take of your shoes and watch."

"Right."

I knew from past experience that a super concentration of oxygen under pressure was dangerous. Any chance of a spark being generated by friction, such as metal striking a rough spot inside the tank could result in an explosion. Then too, anything that might restrict the flow of blood anywhere, such as a tight-fitting pair of shoes or a tight belt had to be eliminated. The advantages of decompressing with oxygen however, far outweighed the advantages of decompressing with air. Oxygen decompression was much swifter than air decompression. It also usually proved to be more effective, since no nitrogen was present in the breathing medium.

"How do you feel now?" the voice from outside demanded.

"Good." And it was good. Good to be alive after coming so close to death. Coming so close to many times. This time had been by far the worst. Sixteen years of diving then -- three years ago -- eight of them commercially. In actual logged time I had spent literally YEARS underwater. And now this. The choice

was mine. Either give up the heavy commercial work or kill myself. Or worse yet, incapacitate myself that was a very real possibility. The numbness and lack of feeling in my legs indicated a spinal hit. I could have been paralyzed for life. The vision blackouts and the loss of speech suggested also a brain hit. Probably considerable brain damage had occurred, together with a great deal of tissue damage. Altogether it was not a cheery prospect³. But I was still alive.

I did quite a lot of thinking in that tank. I knew that I was greatly weakened and that already a massive amount of internal damage had racked every part of my body. How great the damage was I had no way of finding out until I was successfully decompressed, if I was successfully decompressed. My tolerance for the bends had decreased so greatly that I could no longer trust the tables. I had been well into the green. There was no reason that I should have suffered such a heavy case of the bends. I had been down at forty-five feet for less than fifteen minutes then surface to move the boat into an area that was less than forty feet deep. I had again descended staying there slightly more than an hour. I should have had at least two hours or so before any decompression was necessary yet I had felt the first symptoms underwater, a very rare occurrence. Some two weeks earlier I had experienced a milder case of the bends under similar circumstances. During the last incident I experienced every severe symptom of decompression sickness with the fortunate exception of death.

I resolved to quit the heavy commercial diving. At least then I could still continue diving in moderation as a sport. Continuance could only lead to one thing and I was not anxious for another confrontation with death. Formerly, brimming with confidence, absolutely on top of everything physically, afraid of nothing, the proud but young owner of an \$8000 boat, I emerged from that tank as a shadow of my former self. Completely shaken, immeasurably humbled, I knew that the path was to become far more difficult for me. Everything I had built up crumbled around me while I was in that tank. Little did I realize that it would take me well over a year to even begin to feel remotely like my old self. Bone sclerosis (diagnosed by a hyperbolic specialist) probably will cause problems as I grow older; tissue damage still causes some aches in the harder-hit areas.

I emerged from that wonderful steel tank aged beyond my years. I shuffled painfully outdoors. It looked like it was going to be a beautiful sunset. What the hell, I thought. It's great to be alive! I'm still young. I'll try another path. Where will it lead me?

³ Studies later indicated that damage had indeed occurred, although no drastic problems arose later. Some of the effects will probably not cause any problems for some time, but undoubtedly the process of aging was greatly accelerated from this incident.

WHEN A JAPANESE SUBMARINE ATTACKED ELLWOOD OIL FIELD

By Walker A. Tompkins

No event in Santa Barbara history, with the possible exception of the 1925 earthquake, created more excitement at the time, or evoked more discussion in its wake, than the abortive Japanese shelling of Ellwood on February 23, 1942. Details of that event are still sealed in the top-secret files of the U.S. Navy.

"FIRESIDE CHAT"

President Franklin D. Roosevelt was addressing the nation by way of one of his radio "fireside chats" on that fateful Monday evening, on the subject of America's defenses against enemy attack on its west coast (Pearl Harbor had plunged our nation into World War II only eleven weeks previously).

Even as the President started speaking on a subject of such vital interest to Santa Barbarans and other coastal dwellers, shore watchers at Goleta beach saw the long black outline of a submarine surface out in the channel opposite the Ellwood oil field. It was later identified as the I-17 of the Japanese Imperial Navy, 48 feet longer than a football field. On her after deck was a 5.5 cannon.

SKIPPER WELL KNOWN

Her skipper was Kozo Nishino, well known as the pre-war captain of a Japanese oil tanker, which frequently anchored off Ellwood to take on cargo. In the early 1930s Captain Nishino had suffered a humiliating loss of face when, on a shore trip, he stumbled onto a patch of prickly pear cactus at the entrance to Las Armas canyon (the cactus clump grew at what is now the 11th green of the Sandpiper golf course). Because American oil workers who witnessed this mishap laughed at him, Captain Nishino was said to have sworn to some day get even. Was this why he chose a relatively unimportant military target—a few oil derricks and tanks at Ellwood—as the site for the first naval attack on American soil since the British shelled Cape Cod in the war of 1812?

BAD MARKSMANSHIP

Crewmen swarmed out of the I-17's conning tower and manned the deck gun. At precisely 7:07 p.m., the shelling began, the target apparently being a pair of large oil storage tanks located near the coast highway overpass of the Southern Pacific railroad.

But the Japanese gunners were remarkably inept. Some of their projectiles sailed miles inland and exploded in the chaparral above Winchester Canyon. Others left deep craters in a field of mustard along the shoreline mesa where the Sandpiper Country Club's fairways now invite golfers to dig their lesser craters.

One shrapnel-burst damaged a catwalk and riddled a tin shed at an oil derrick marking Luton-Bell No. 17 on the beach below the seacliffs. This damage, assessed at \$500, was the only think approaching a hit, which the Japanese skipper could claim with truth. Navy short-wave monitors later heard Nishino boasting by radio to Tokyo that he had "left Santa Barbara in flames".

LOOKOUTS WARNING

A volunteer lookout, Harold Conklin, manning a spotting tower at Tecolote (Embarcadero) Canyon, dispatched a message to the West Los Angeles Filter Center concerning the attack, some 13 minutes after the shelling began. For some unaccountable reason, no bombing planes were dispatched to Ellwood until 10 p.m.

After 45 minutes on the surface of a glass-smooth sea, the Japanese sub cruised westward into the darkness and submerged. Of the 25 shells it had lobbed ashore, missing point-blank targets, a number were duds, which were later picked up by souvenir hunters.

THREE SUBMARINES?

A Hope Ranch woman reported seeing not one, but three subs in the channel that night. Her report was dismissed as a crank call, but it has recently come to light (and published here for the first time) that approximately fifteen corpses of Japanese submariners floated ashore along Goleta beaches after the Ellwood raid, and were taken secretly to the basement morgue at the General Hospital.

A week later, a two-man baby sub, of the type that could be carried by a larger submarine of mother ship, came ashore near Ventura. Its crewmembers, obviously killed by depth charges dropped by U.S. planes, wore uniforms and insignia identical to those on the bodies of the enemy which, according to eyewitness reporters y General Hospital nurses, "were stacked like cordwood" in the morgue that night.

ATTACK'S AFTERMATH

Although the I-17 created no damage of military importance, it caused a wholesale exodus of terrified people from Santa Barbara. A local dairyman, Russell Doty, had his entire milking crew desert his cows in their haste to return to the safety of their native Oklahoma. Real estate values in the city plummeted to historic lows.

According to Japanese military records seized after V-J Day, Captain Nishino went down with his sub when it was destroyed by Allied planes off New Calendonia on August 19, 1943. He took to his water grave the details of why he chose to attack Ellwood or what actually took place on that eventful night in 1942.