



# HISTORICAL DIVER

The Official Publication of The Historical Diving Societies of Canada, Germany, Mexico, Russia and the U.S.A.

Volume 15 Issue 3

Number 52, Summer 2007



**Zale Parry**

The First Lady of American Diving

- Development of the Canadian Decompression Computer (Part Two) •
- HDS Award Winners • ADCI Hall of Fame • *Blue Water, White Death* DVD •
- *Bridging Across the Pacific* • Blind Diver Bert Cutting •
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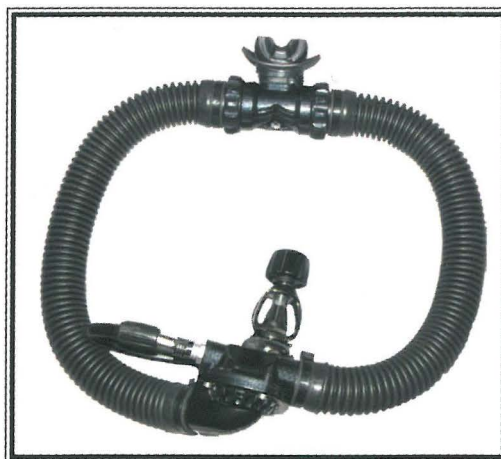
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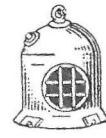
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# HISTORICAL DIVER

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## FEATURES

### ZALE PARRY

#### THE FIRST LADY OF AMERICAN DIVING

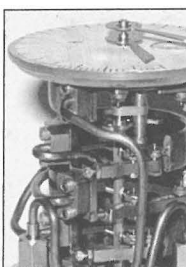
BY BRET GILLIAM..... 11



Zale Parry's list of accomplishments is staggering. Pioneering lady diver, depth record holder, actress, TV personality, stunt-woman, safety diver, scuba instructor, movie maker and accomplished underwater photographer, dive equipment spokesperson, scuba equipment developer, scientific researcher, author and grandmother are but a few of her many attributes. HDS USA is pleased to present Bret Gilliam's interview with this remarkable lady of diving.

### CANADIAN DEVELOPMENT OF THE MULTI-TISSUE DECOMPRESSION COMPUTER (PART 2)

BY PHIL NUYTTEN .....31



Dr. Phil Nuytten continues his narrative of the two enterprising Canadians, D.J. "Piet" Kidd and Roy Stubbs, who pioneered the submersible decompression computer. Their success followed a monumental number of test dives to develop the software parameters and the invention of a number of prototype analog computers.

### BERT CUTTING: BLIND COMMERCIAL DIVER

BY DOROTHY BARSTAD ..... 38



In 1952, Bert Cutting salvaged 146 out of 155 new cars and their three deck transport barge lost in a winter snow storm on the Ohio River. What makes Bert's story so remarkable is not the fact that he used homebuilt equipment, or that he taught himself to dive, but that Bert had been blind from the age of 15.

#### On the Cover

(Left to Right): Zale Parry preparing to dive off of the Alaskan coast in 2007, gearing up for a 1955 TV special at Marineland of the Pacific and diving a Kirby Morgan Superlite at BTS show.

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## Editorial

HDS members are in for a treat with Bret Gilliam's interview with Zale Parry. Bret asks Zale the questions you always wanted to ask; from her *Sea Hunt* days and other movie work, to the present. Sharp-eyed readers have already spotted her name added to our Advisory Board members list on page 1 back in issue 50 (see page 4 this issue). Few, however, realize that Zale has been our champion from the day she met us ... some 12 (or more) years ago. We (the HDS) are proud to have Zale onboard.

Phil Nuytten continues with his HDS 2006 Conference treatise on the advent of the personal dive computer ... a truly worthwhile endeavor (both the dive-computer and Phil's hard-won research). I suspect this article will be reviewed by technical historians and inventors for many years to come.

Dorothy Barstad found, researched and interviewed Bert Cutting's family for the "Blind Diver" article. You will find it as well written as *The Com Line* newsletter she publishes for CCED (California Classic Equipment Divers) on a quarterly basis.

We wish to congratulate the Pioneer, the E.R. Cross and Nick Icorn Award winners found in these pages. As you know this is one of our methods of recognizing those who have gone beyond the call of duty in man's plunge beneath the sea. *Historical Diver's* recurring columns are another way of recognizing and recording our diving history in a systematic fashion.

While on a recent trip, I reread and enjoyed Brad Matsen's expertly written text "*Descent*, the story of Beebe and Barton and their 1930's Bathysphere descents." As your editor, I was particularly intrigued with his short history of the National Geographic Society (NGS) and their *National Geographic* magazine. I found it fun to compare with our own HDS and our *Historical Diver* publication. You can do this as well.

In the winter of 1888, 33 prominent men of scientific backgrounds met to form the Society, and in 1889, to illustrate its mission, began publishing a magazine. For the next 10 years the unpaid board of editors (read "volunteers") published the *Geographic* whenever they had material. In the summer of 1899 NGS president Alexander Graham Bell dropped the unsuccessful newsstand sales for a member based type organization and hired his son-in-law, Gilbert H. Grosvenor, as assistant editor. Grosvenor accepted the challenge and headed the then 1,400 member magazine for the next 35 years.

Within the first year, Grosvenor had doubled memberships and had come up with an editorial formula that would see the *National Geographic* grow into today's high-quality publication. Sponsors and benefactors helped promote the aims of the Society, and with growing finances the Society in turn sponsored new adventures (like Beebe's). Both Bell and Grosvenor understood that belonging to a society of explorers, scientists, writers, and photographers who traveled the world in their service was more important to the members than their subscription.

— Kent Rockwell, Editor

## HISTORICAL DIVER MAGAZINE

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## Advisory Board

### HDS USA Welcomes New Advisory Board Member

#### The Board of Directors Announces the Appointment of Zale Parry to the Society's Advisory Board

Zale Parry was born in Milwaukee, Wisconsin and is the eldest of seven children. She is internationally recognised as a pioneer skin diver, starting in 1947. She began to scuba diving recreationally in 1951.

Her many career achievements include being an aquatic specialist; early underwater equipment tester for Scientific Underwater Research Enterprises; a hyperbaric science/research partner; a *Sports Illustrated* cover girl in May 1955; one of America's first three certified female scuba instructors; and co-founder and co-producer of the International Film Festival which was launched in California in 1957. As an accomplished underwater photographer, Zale was elected first woman President of the U/W Photographic Society 1960. She was a student of Theatre Arts at UCLA and also at Twenty Century Fox Studio, studying under Agnes Moorehead. As a professional diver she has been a SAG & AFTRA member since 1954, and her list of screen credits include *Kingdom of the Sea*, *Sea Hunt*, *GE Theatre*, *Wagon Train*, *Peter Gunn*, *Boy on a Dolphin*, and more.

Zale is known as someone deeply involved in recreational diving and who has encouraged thousands of people, men as well as women, to experience the underwater world. Much of what she has witnessed in the growth of recreational diving was recorded in her book *Scuba America Vol. I, The Human History of Sport Diving in America* which she co authored with Albert Tillman. It was published in 2001 and is now out of print.

In recognition of her accomplishments she has received The Underwater Academy of Arts and Sciences™ NOGI Distinguished Service Award in 1973; DEMA™'s Reaching Out Award in 1993; Women™'s Scuba Association, Scuba Diver of the Year for 1999; Women™'s Scuba Hall of Fame in 1999; National Association of Underwater Instructors Hall of Fame 2000; and the Los Angeles County Parks and Recreation Education Award in 2001.

In October 2001 Zale was chosen to be The Academy of Underwater Arts & Sciences™ Ambassador at Large ... a lifelong appointment. In 2002, she was inducted into the International Scuba Diving Hall of Fame in Grand Cayman. A fuller accounting of her unique career can be found in Bret Gilliam's interview which is the featured article in this issue.

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# Historical Diver Magazine Pioneer Award 2006

## George Fletcher Bass, Ph.D.

The Society is pleased to announce that Dr. George F. Bass is the recipient of the *Historical Diver Magazine* 2006 Pioneer Award.

George F. Bass was born in Columbia, South Carolina, on December 9, 1932. He graduated from Johns Hopkins University in 1955 with an M.A. in Near Eastern archaeology, and then attended the American School of Classical Studies in Athens, Greece, for two years. During that time he gained excavation experience at Lerna, in Greece, and Gordion, in Turkey.

From 1957 to 1959 he served as a lieutenant in the U.S. Army, mostly in Korea. He then began doctoral studies in classical archaeology at The University of Pennsylvania. In 1960, he was asked by his professor, Rodney S. Young, if he would learn to dive in order to direct the excavation of a Bronze Age shipwreck reported off Cape Gelidonya, Turkey. It was the first ancient shipwreck excavated in its entirety on the seabed.

Dr. Bass devoted the rest of the 1960s to the excavation of two Byzantine shipwrecks off of Yassiada, Turkey, where he developed new tools and techniques for underwater research: a submersible decompression chamber, a method of mapping underwater by stereo-photogrammetry, and a two-person submarine, the *ASHERAH*, launched in 1964, the same year he received his doctorate and joined the University of Pennsylvania faculty. In 1967, his team was the first to locate an ancient wreck with sonar. In 1968, however, he returned to land archaeology to spend a summer with Professor Spiridon Marinatos in the initial excavation campaign at a Bronze Age city covered by volcanic ash on the island of Santorini. In 1971, he directed an excavation on land in southern Italy.



Dr. George F. Bass.

Dr. Bass left the University of Pennsylvania in 1973, in order to found the Institute of Nautical Archaeology (INA). In 1976 the INA affiliated with Texas A&M University, where until his retirement in 2000, Dr. Bass was a professor of nautical archaeology. INA conducts research on four continents, and has excavated the oldest known wrecks in the Mediterranean and Caribbean seas, but Dr. Bass continued to concentrate on shipwrecks in Turkey.

In 1986, Dr. Bass received the Archaeological Institute of America's Gold Medal for Distinguished Archaeological Achievement and a Lowell Thomas Award from the Explorers Club. The next year he

received an honorary doctorate from Bogaziçi University and in 1998 he received a similar degree from the University of Liverpool. The National Geographic Society awarded him its La Gorce Gold Medal in 1979 and, in 1988, one of its 15 Centennial Awards. In 1999, he received the J.C. Harrington Medal from The Society for Historical Archaeology, and in 2002 President George W. Bush presented him with the National Medal of Science. He joined the Advisory Board of the Historical Diving Society in 2003.

Dr. Bass has written or edited seven books and more than a hundred articles, and has lectured around the world; his projects have been televised internationally. With his wife, Ann, he divides his time between College Station, Texas, and Bodrum, Turkey, where he was made an honorary citizen of the city.

The Directors and staff of the Historical Diving Society congratulate Dr. Bass on this latest significant career achievement.

# The HDS 2006 E.R. Cross Award

## Nicholas Toth

The Society is pleased to announce that Nicholas Toth, of Tarpon Springs, Florida, is the recipient of the HDS 2006 E.R. Cross Award. In announcing the award, the Society noted the tremendous amount of personal time and effort Nicholas had committed to establishing the successful partnership between his home city of Tarpon Springs and the Historical Diving Society.

Nicholas Toth learned to construct diving helmets from his grandfather, Antonios Leros, who was born on the Dodecanese island of Kalymnos, where people have dived for sponges for millennia. Leros learned helmet making and other maritime crafts in the shipyards of Istanbul, before coming to Tarpon Springs in 1913 to join his father, who had emigrated in 1905. Over the years he established a reputation as the finest and most innovative maritime craftsman in the community, creating a diving helmet of copper with redesigned windows, air valves and breastplate. This helmet became standard gear for Tarpon Springs' divers, and is still in use today. Leros continued to make helmets almost to the end of his life. Antonios Leros passed away at 100 years of age in 1992, having passed the secrets of the craft to his grandson, Nicholas.

Nicholas grew up in the house where his parents and grandparents lived, regularly visiting his grandfather's machine shop to watch him work and try his hand at making equipment. Nicholas earned a degree in political science from the University of Florida but, rather than pursue graduate studies, decided to apprentice



Nicholas Toth.

himself to his grandfather, then in his eighties, and master the art of helmet-making. They began working together in 1979 and continued the relationship until Leros's death, in 1992. At that point Nicholas assumed the family business. Since that time Nicholas has continued to produce and improve the diving helmets, making both technical and aesthetic innovations as his grandfather did before him. Each helmet takes over 120 hours to produce, and his helmet workshop is the subject of a *National Geographic Explorer* program.

In 2003 the National Endowment for the Arts announced that Nicholas Toth was the recipient of a 2003 National Heritage Foundation Award. Nicholas earned the award in recognition of his artistic skill and personal

dedication in keeping the art of traditional diving helmet construction alive. He received his award at a black-tie reception in Washington, D.C. Recognizing the important role that history and culture play in everyday American life, President George W. Bush made the following comments:

"Folk arts reflect the creativity and freedom of our nation. Through the National Heritage Fellowship award, our country honors American artists for their contributions to our nation and for helping us better understand our history, culture, and values. I commend the National Endowment for the Arts for recognizing artistic achievement and encouraging the creative spirit of talented individuals across our country. I also applaud this year's award recipients for your

dedication to excellence in folk and traditional arts. Your work inspires young artists and brings joy to people of all ages."

Nicholas Toth's importance to his community lies not only in his singular craftsmanship, but also in his role in preserving and perpetuating the cultural heritage of the Greek community of Tarpon Springs. His work in forging a partnership across America between Tarpon Springs, Florida and Santa Barbara, California, is a further reflection of his important, and historic, contribution to our nation's diving heritage.

The Directors and staff of the Society congratulate Nicholas on this significant career achievement.

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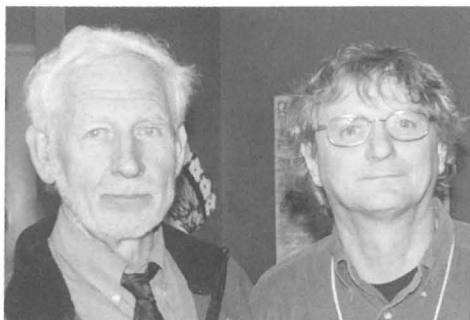
# HDS Nick Icorn Diving Heritage Award 2006

## Sandy Lydon and Tim Thomas

The Society is pleased to announce that the recipients of the 2006 HDS Nick Icorn Diving Heritage Award are Sandy Lydon and Tim Thomas for their work in presenting *Convergence 2006: The Abalone Connection*. The program was subtitled "Celebrating the Shimmering Bridge between the Monterey Bay Region and Minamiboso, Japan."

Sandy Lydon is a respected historian and expert in the history of Japanese immigration and the Monterey Bay region. He is historian emeritus at Cabrillo College, Aptos, California, where he has taught history for almost 40 years. Tim Thomas is an HDS member and historian at the Monterey Maritime Museum.

The event was held in Monterey, California, in April 2006 and was a celebration of the 109-year connection between Minamiboso, Japan and Monterey, California. It was Japanese



**Sandy Lydon and Tim Thomas at Convergence 2006.**

helmet divers from Minamiboso who assisted in developing the California abalone industry in the early part of the 20th century. The event was supported by the Japanese book *Bridging Across The Pacific*, which included a foreword by Akiko Domoto, Governor of Chiba Prefecture, and included text in Japanese and English on the history of this unique trans-Pacific relationship.

From their positions as co-directors of Convergence 2006, Sandy and Tim organized

this expansive international cultural program, which included Amas diving at Whalers Cove, Japanese drumming, a sister cities presentation, a children's choir, and a full program of diving history, and a lot more. These events were held in various locations and drew a wide spectrum of attendance from an audience as diverse as divers and politicians. An indication of the Tim's successful leadership is that admission to all the programs was free. A report on the event appeared in issue #47.

The HDS Nick Icorn Diving Heritage Award is presented annually to recognize those who have supported the HDS motto "Preservation Through Education" by promoting the importance of diving history to the public.

Our congratulations to Sandy and Tim, who we hope will be part of the HDS 2008 Conference in Monterey.



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## In the Mail

### Thanks, Historical Diving Society

I recently joined the HDS and ordered the complete set of *Historical Diver* magazine back issues. I really had no idea what I was missing. Last year, I sold the last of my diving companies and retired after 35 years in professional diving. One of the things I promised myself was to make time for things that other business demands had placed on the back burner for years. Getting involved in the HDS was one of those things ... and I dove in with a vengeance this weekend by consuming the entire library of magazines.

What a fabulous wealth of information on so many topics. I particularly enjoyed the excellent feature on the making of the *Sea Hunt* series by Kent Rockwell and several pieces on Hans and Lotte Hass. The account of Hans Keller's 1962 deep dive was another gripping tale well told. Whether providing accounts of old helmets, chronicles of diving adventure, or simply Bonnie Cardone's brief glimpses into lady pioneers of diving, it was a thoroughly engrossing exercise in supreme couch leisure at its finest.

Thanks for a uniquely rewarding journey through diving's history. It's one of my passions, and clearly the HDS was a group I should have stumbled onto long ago. I look forward to the Tarpon Springs conference and will pass the word to others. Many thanks for filling a niche and reawakening old connections that might have been forgotten. Well done!

**Bret Gilliam**  
*Arrowsic Island, Maine*

*Bret conducted the interviews with Bev Morgan and Zale Parry which appear in Historical Diver.*

—Editor

### Twila Bratcher Remembered

Thanks so much for sending a copy of the article you published on Twila Bratcher. I was happy to read that your magazine was doing a memory piece on Twila as our publication *The Festivus* had published a special memorial issue on Twila (July 12th). She was a wonderful, special person and deserves all recognition.

It's a very nice memoriam to a terrific lady.

**Carole Hertz, editor**  
*The Festivus*

### Vintage Images

I was happy to see my historical dive gear image in Weeki Wachee's "Dive into History Day" published in *Historical Diver* Issue 51 (p 53). I have been photographing vintage dive(s), from helmet to scuba, including authentic Cousteau- and UDT-outfitted divers for the last

three years. Any publication needing images feel free to contact me. davidhaas@sbcglobal.net, www.haasimages.com

**David Haas**  
*Stow, Ohio*

### Information Wanted

#### *Waterbug* magazine

My father Frank Berger was the layout artist for *Waterbug* magazine and I am trying to locate copies of it. I have four but would like to obtain more.

**Nancy Auten**  
*biffbiff72@yahoo.com*


### 1913 Joe Gordon — World's Deepest Dive

I am a clock- and watch-repairer based in Wymondham, Norfolk UK. I recently obtained a collection of watches from an amateur collector, and among these watches was a watch with a diving history. The hexagon pocket watch is inscribed "Presented by I.D.U to JOE GORDON for world's record deep dive 157 feet Nov. 22 1913."

The case is rolled gold and has a limited value. It would, however, be nice if instead of going into the drawer with the hundreds of other unrepaired watches, we could find some more information and maybe some relatives or a museum that would be interested in this piece of diving history.

**Dirk Duwel**  
*DIRKDUWEL@aol.com*

**NAUTIEK**  
Marine goods & diving equipment



Marine goods and diving equipment  
182, van Polanenpark, 2241 RW Wassenaar  
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Tel. +31 (0) 7051 14740  
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### Conference Diving

On Sunday, October 28, 2007 there is an opportunity to dive traditional Greek Sponge diving gear at this year's Tarpon Springs Conference. This will be a repeat of the 2005 program, which was featured on the cover of issue 46, when Tarpon City mayor Beverly Billiris made the first dive. The dive will again be made from a traditional sponge boat. A very limited number of spots are available on a first-come, first-served basis. For complete information contact Rick Ford at 305-394-1706 or email him at [ricklynn@terranova.net](mailto:ricklynn@terranova.net).

### Conference Auction

The Awards Banquet will again feature a live auction for an authentic traditional deep sea diving helmet donated by Advisory Board member Jim Caldwell. A brand-new diving suit donated by Jim Knannlein of KME Diving Suits is also being auctioned. The person with the winning bid will get to select the model and size of suit. Log on to [www.kmedrysuits.com](http://www.kmedrysuits.com) and check out Jim's full range.

### Diver Monument

The HDS is partnering with fellow non-profit Cannery Row Foundation (CRF) to establish a permanent monument to commemorate the vital role played by divers in creating Cannery Row.

The monument will consist of a life-size bronze casting of a period Morse three-light helmet, generously made available by HDS Director Tim Beaver. It will be set atop a concrete piling. The piling will bear a bronze plaque naming monument sponsors who have contributed \$500 or



Circa 1940. Monterey diver Eddie Bushnell with tender Andy Skov.

more for the project. The memorial will also provide historical information and period photos. The project liaison is A.L. 'Scrap' Lundy who has served on the Board of both organizations.

The purpose of the project is to publicly recognize the critical role the Cannery Row divers played in the development of Monterey's world-famous sardine industry. In fact, without their assistance, Cannery Row could never have grown to the size and importance it did, and very possibly, John Steinbeck could not have written his classic book *Cannery Row*.

Because there were no protective breakwaters offshore Monterey, the canneries could not build piers for the fishing boats to offload on. Prior to the new method of offloading sardines that required the use of divers, the sardines were offloaded by hand, one large bucketful at a time. Had this method continued, Monterey's sardine industry would have remained small.

Fortunately for Monterey, in 1927, Knut Hovden invented the wooden hopper. The

hoppers were anchored about 200 yards off each cannery and received the sardines from the fishing boats. The hopper system was the answer to moving hundreds of tons of sardines ashore each day; however, the hoppers were useless unless they were connected to the canneries.

The divers enabled that connection to be made. After installing a hopper's four mooring anchors, the divers put the pipelines together piece by piece on the bottom from the cannery to the hoppers.

They then connected the pipeline to the hoppers with a heavy rubber hose. They worked constantly at maintaining the pipelines and hoses, often under severe conditions. Like commercial divers today, they were on call 24 hours a day to make repairs. That was necessary because when a pipeline had a problem, all or part of the cannery had to be shut down. The workers were sent home until the repairs were made. Their vital role lasted from 1927 until the 1960s, when the last cannery shut down for lack of sardines.

The monument site is San Carlos Beach Park. The beach site has some cannery ruins and has been recognized as one of the top shore diving locations in the country. This memorial will allow the public and the "new" Cannery Row divers to learn the story of the original Cannery Row divers and the important role they played in creating Cannery Row. It is expected that the monument will be unveiled prior to the HDS 2008 conference in Monterey.

To make a donation to this project contact the HDS office at 805-934-1660, or put "Cannery Row diver's monument" in the subject box and email [HDS@hds.org](mailto:HDS@hds.org).

### MK-V Monument Update August 8, 2007

The Institute of Diving (IOD) Mark Five Monument Committee, with the help of Mr. Brian Dietz (NDSTC) and the sculptor Mr. Greg Polut-nouch, has provided a rendering of approximately what the monument will look like.

The production of the initial clay model is nearing completion and will ensure a "JAKE" that all graduates (past, present, and future) of navy dive schools will all be proud of.

There's still confusion over the HDS's previous association with Home-land Security Policy Institute Group (HSPIG) and their endeavor to erect a Man In The Sea Memorial at the Washington Navy Yard. The Mark Five Monument project is an eight-foot tall bronze JAKE to celebrate gradu-ates of all U.S. Navy Diving Schools. We plan to erect the monument at the Naval Diving and Salvage Training Center (NDSTC) in Panama City Florida.

The Divers Gifts & Collectables will produce the Mark Five Monu-ment. In addition, 300 18-inch certified, serialized, limited edition, exact replicas, in solid bronze statuettes, will be available for \$2,000 each. The first run is expected the beginning of October. Reservations require pay-ment in full. You can reserve (with payment) a specific serial number for

the first pour only. At this time numbers # 001, #005, # 007, # 021, #049, #056, #057, #072, #081, and #300 are reserved. If you have any questions please contact any of the committee members.

Bob Barth..... (850) 785-6249 or (805) 819-7220 (C)  
 Dave Sullivan ..... (850) 234-4162 or (850) 819-4163 (C)  
 Ed Delanoy ..... (850) 235-5230  
 Dave Thompson ..... (850) 234-4697  
 Kellard Jansen ..... (850) 235-5264 or (850) 271-3260 (C)  
 Jim McCarthy ..... (850) 271-1441 or (850) 819-6360 (C)

We are accepting donations and, in addition, we are printing 1,000 "drawing" tickets at \$10 each for serial # 001 statuette. The winning ticket will be drawn at the erecting of the Mark Five Monument or when the 1,000th ticket is sold. For those who purchased the original "raffle" tickets, they are designated for the statuette. We are stapling the corresponding "drawing" ticket stub to your stubs.

Please help in spreading the word. The sooner we sell the 300 statu-ettes, the sooner the Mark Five Monument will be erected. See our [www.markvmonument.org](http://www.markvmonument.org) website. Progress of the project can be viewed at <http://www.diversgifts.com>.



**Bob Hollis**  
 Founder & CEO

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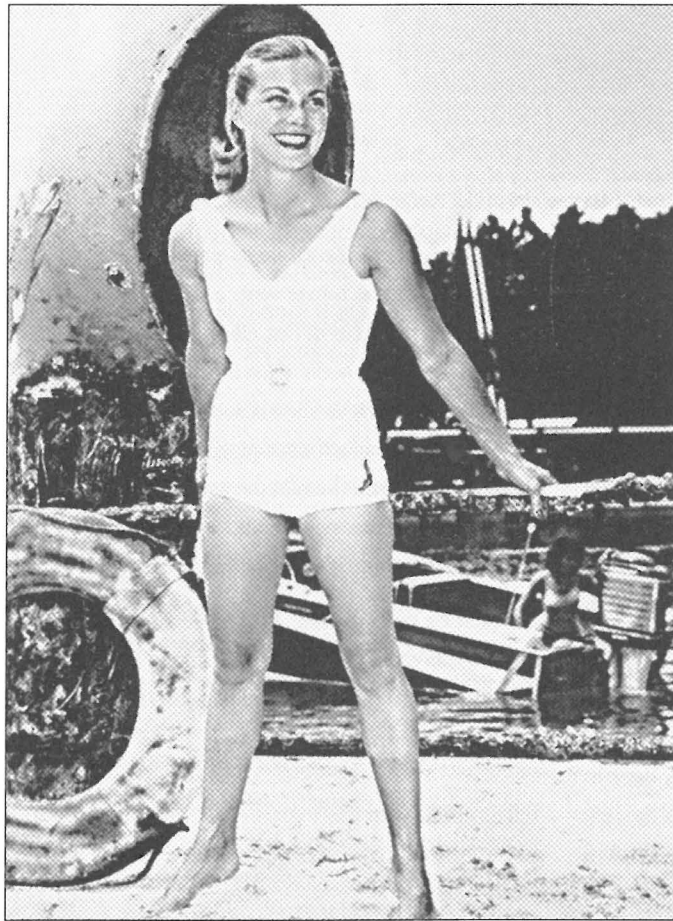
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# Zale Parry

## The First Lady of American Diving

BY BRET GILLIAM

HDS Advisory Board member Zale Parry has been a self-appointed, behind-the-scenes ambassador of our HDS for more years than I can remember. Featuring this amazing lady in *Historical Diver* magazine has been one of our goals for some time, and with Bret Gilliam's in-depth interview, we have the perfect opportunity. — Editor.



*Zale Parry gives off the aura of Princess Grace of Monaco: Grace Kelly the movie star, too pretty and nice to be more than just window dressing. But this lasting icon of sport diving history is made of steel and hard-working parts. Nobody helps her put her diving gear on although every male in sight is eager to do just that. No dive is out of her range. Good Lord, I don't dare tell you the experimental stuff her brilliant first husband, Parry Bivens, M.D., set up for her to "guinea pig" through. She pushed into the unknown of diving in those early days while most of us*

*scuba pioneers were wallowing in the shallows. Zale broke the scuba depth record and surfaced to become the prettiest woman ever to grace the cover of Sports Illustrated. She was the first bathing suit issue.*

— **Albert Tillman, diving pioneer**

Zale Parry is a true icon. She literally was the "face" of scuba diving for millions of people who first began to notice the emerging sport in the 1950s. She was one of the very first diving instructors, a champion competitive swimmer

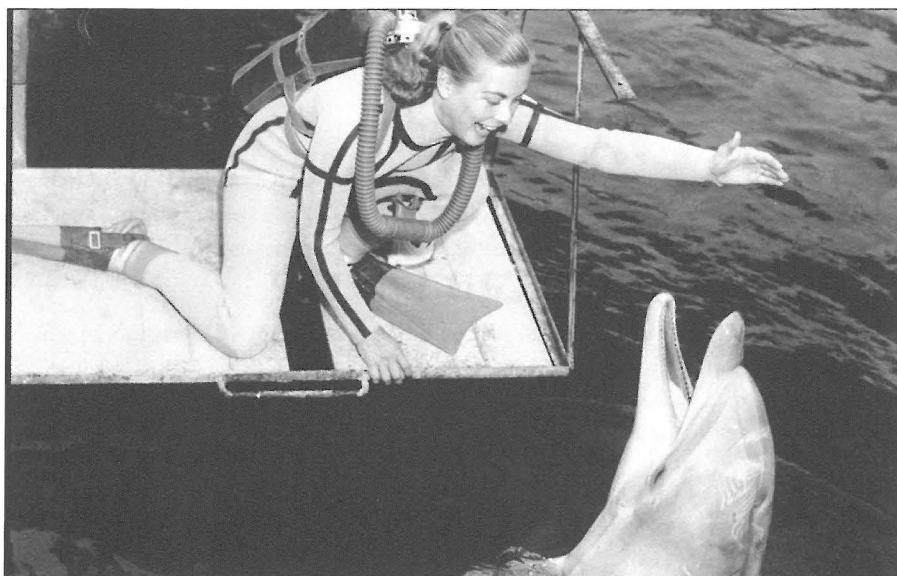
and veteran of the grand "swim show circuit," a test diver for new equipment, pioneer in underwater photography, and the "go to" actress for just about every movie and television production that had a diving or water theme for over a decade.

I remember Zale from the very first time I saw her. It was one of her never-ending "damsel in distress" roles as co-star with Lloyd Bridges in the blockbuster television series *Sea Hunt* which

captured the interest of the entire nation and gave a weekly glimpse into the then-foreign world of scuba diving. The series combined underwater action with one of the earliest environmental and conservation themes. It gave Bridges his signature role as Mike Nelson, diver detective. And Zale became the sex symbol that everyone wanted to give CPR.

Al Tillman notes above that Zale had the "aura" of Grace Kelly. True enough, but she also was a dead-ringer for her. Her diving skills





**Zale Parry and friend at Marineland of the Pacific in 1955.**

allowed her to set an international women's depth record in 1954, but her natural beauty put her on the cover of *Sports Illustrated* and launched an acting career that continues to this day. If she wasn't handling her own starring roles, she was backstopping other leading actresses as their stunt doubles. She even doubled for Sophia Loren in her breakout role in *Boy On A Dolphin*. There's an impossible choice for admiring male movie fans: Sophia or Zale? Call it a draw.

I met Zale when I was researching my book *Deep Diving: An Advanced Guide to Physiology, Procedures and Systems* back in 1991. The opening chapter was on the history of deep diving, and I had to track down some images of Zale's record dive. I cornered her at a diving show and was introduced. She recalled the dive, nearly 40 years prior, as if it were yesterday and steered me to a source for archived photos. I was struck not only by her keen sense of diving's heritage but also her striking allure. Years later, when I asked her about being interviewed for this book, she immediately embraced the idea and gave me her fullest cooperation as the long process took place over the course of several months.

Recently she was the MC of Beneath the Sea's 2007 Saturday Evening Film Program. Sharing the stage with Stan Waterman, Rodney Fox, Ron and Valerie Taylor, John Chatterton,

Richie Kohler, Ernie Brooks, and myself, she brought down the house with a film clip from one of her roles in *Sea Hunt*. Most of the audience wasn't born when the program originally aired, but as the black-and-white footage splashed across the two jumbo-screens behind her, she held them in the palm of her hand and was greeted with a standing ovation to close the evening.

But she's used to that. And the acclaim is well deserved. She helped give diving its identity. She is a pioneer in the truest sense. And a grand lady.

#### **Tell us about your early years and how you got interested in the water and acting.**

I was born on March 19, 1933, in Milwaukee at my grandparents' house. The snow was falling fast and high when I came into the world, and the heirloom cradle that I was supposed to go in was still in storage. My dad quickly emptied a dresser drawer to hold me when the doctor handed me over. The world of water was a natural for me. We moved to Pewaukee Lake, 30 miles outside the city, when I was only three weeks old, and my formative years were spent in and around the water. My parents were athletic and strong swimmers who encouraged me since I was a child. My dad made the U. S. Olympic Team in Track and Field. The fruit is always

close to the tree, as the old adage proclaims: I became an ardent dedicated swimmer. By the time I was 8, I was skin diving without a face mask or fins. I followed the turtles when they appeared and watched the nasty muskrats swim away after they left their calling card on the top step of the pier ladder. With bare feet, I walked along the shoreline to turn over the rocks and nooks to catch crawdads, frogs and fat toads. My strength was built with my feet pressed against the tackle box while rowing the boat along the shore beneath huge willow trees while Daddy cast for northern pike and black bass. Fishing was a marvelous way to procure a fine meal.

During high school from 1947 to 1951, I joined the swim team in breaststroke and Australian crawl events. I was the water ballet president during my senior year. Speech and drama were intermingled with the usual study courses. I was popular due to my unabashed, outgoing personality and became homecoming queen as a junior. During those four years of high school, I attended fourteen formal dances and fell in love with every escort even though they were advised to bring me home immediately afterward. And only with a short kiss at the door. Nothing more since my mother was waiting in the doorway!

In October 1951, I got a job at Douglas Aircraft in Santa Monica, California, as a stenographer. That same month I met Parry Bivens on a blind date and learned of our mutual interest in the waters around us. During this same period of time, I began teaching swimming classes in the evenings twice a week for the Santa Monica Red Cross Chapter, utilizing and alternating the indoor swimming pools in The Chase Hotel, The Deauville Hotel and the Kabat-Kaiser Hotel along the beaches. The Kabat-Kaiser hotel was similar to a rehabilitation center for the victims of poliomyelitis, the dominant crippling disease of the 1940s and 1950s. Some of the stronger victims, who could remain out of the helpful lung-chamber (aka. iron lung) a while, would be lowered by a special lift into

the swimming pool for aquatic exercise. I'd be in the water to release and balance the victims as they tried to move with their arms only. There were teenagers to middle-aged people who were as eager and determined to beat their rap of paralysis as I was to help them.

I stayed with the Red Cross Swim Program for several years. Of course, after class one evening, I tried one of Parry's tanks and regulator in a pool when he came to watch me volunteer teaching. His only instructions were, "Don't hold your breath and surface slowly." To be underwater and breathe there was remarkable ... a wish to behold.

### **Who else was around in the diving scene then and how did they regard a woman's interest in the sport?**

You know, it's incredible but true, no one but the media was inquisitive about a woman's interest in that so-called "man's sport" of diving. Furthermore, in that era women stayed at home as housewives with children. I considered that a backbreaking, 24-hour position. The men were the breadwinners. One way they could include a seafood meal and enjoy a free sport of skin diving was with a spear. It was a keen scheme to add pleasure during tough times after WW II.

Al and Norma Hanson lived out at Avalon on Catalina Island. They were workhorses of the sea, doing moorings, search and rescue, that sort of thing. E. R. Cross had his Sparling School of Deep-Sea Diving; Mel Fisher and his wife, Deo, had a compressed-air station on his mother's chicken farm; or we could get fills at René Bussoz's sporting goods store. Courtney Brown was there and later became Lloyd Bridges' double on *Sea Hunt*.

There were a bunch of real characters from the early days, including Rory Page (of Hope-Page nonreturn valve mouthpiece fame), Phil Jackson, Paul Streate, "Cap" Perkins, Dick Anderson, Jim Auxier and Chuck Blakeslee, who founded *Skin Diver* magazine, Commander Doug Fane, Johnny Weissmuller

(*Tarzan*), Buster Crabbe (Olympic champion swimmer and actor), all the members of The Bottom Scratchers Club of San Diego, Connie Limbaugh from Scripps, Al Tillman, Bob and Bill Meistrell (Body Glove), Bev Morgan (commercial diving manufacturer), Paul Stader and Fred Zindar. Norma Hanson was the first woman I knew who did hardhat-helmet and scuba diving.

### **You were a professional swimmer and toured the country in that role. What was that like?**

Childhood choices affect our adult lives. An advertisement in the *Milwaukee Journal* in May of 1947 was a call for an audition to perform in the Sam Howard Aqua Follies. I became what I am today on a whim to earn my own allowance doing what I loved ... swimming while entertaining.

I auditioned and was accepted to join the troupe of performers. In competition for the water production circuits were the three "biggies": Buster Crabbe, Johnny Weissmuller and Sam Howard, who had the Mid-West Sportsmen Shows, and state and county fairs. So I began show business at 14. All performances were during the summertime and during Easter vacation so as not to interfere with school studies. All six female swimmers traveled in Helen Howard's (always) new Lincoln Continental. Sam drove the 18-wheeler with the stage, the huge deep swimming pool, diving platform and guide wires. It was the big grandstand show.

Life was exciting. World War II was over. Fashion and fabrics changed. The pizzazz of color appeared, copied from the electric raspberry and chartreuse shades used for bailout military emergency gear, as in "find me quickly." Our swimsuits for the show were costumed in black with front panels of the hot pink or green slippery fabrics. Our bathing caps, gloves and ribbons laced around our big toes and criss-crossed up our ankles matched the colored panels of the swimsuit. We practiced the water ballet routines until we were

perfect since we performed with black light and full, live orchestra music. Swim movements in error would be a neon sign. And we'd be "payroll-sanctioned" if dignitaries were in the audience and we screwed up. Modeling the swimwear, precision swimming, and surface diving to Big Band Era music provided a colossal show. We were Hollywood in miniature. We knew it!

My popularity and ability in water was soon noticed by several manufacturing companies, and by 1948 I was appearing in advertisements for Mercury and Evinrude outboard motors, as well as for Harley-Davidson motorcycles.

### **How about the old days for equipment?**

You'll be surprised, but no modifications were needed with the early diving equipment for me. Any size person could easily fit the Jack Browne DESCO diving gear of full-face mask with adjustable straps, hose and compressor-combo. The compressor was placed on the stern thwart of the skiff, so the operator had room to work it. Many times the compressor quit. Free ascents were commonplace, two or more a day. We knew to continue to exhale until we reached the surface. Simple and no fuss. Diving was all easy.

Early air tanks were thin and small. All had the medical K-valve that needed a slot-wrench to open and close the airflow. The purged fire extinguisher cylinders were chubby and slightly heavier on deck but underwater made no cumbersome effect. Tanks were longer in size and circumference when the new swing of all same-size air tanks came on the market in 1953-1954 by U.S. Divers. Pressed Steel Tanks, with the ICC stamp, were manufactured out of Milwaukee, Wisconsin. PST tanks had a short wingnut-on/off valve, easy to operate without the valve wrench. My hair became tangled in the wing nut unless I used a bathing cap or clipped my hair with a barrette. Since the tanks were longer in size, they rode high and on an angle on a small person.



Zale operating SURE's chamber in Santa Monica (circa 1954).

Safety regulations came slowly for the diver and for the equipment. The tank was one of the legislative items. No longer did one see divers using fire extinguishers. In 1951-1952 some divers yoked two tanks together. Some of the Scripps Oceanographic Institution divers used these smaller tanks. Later the Pressed Steel Tank company produced this size bottle with the ICC stamp for a while. One would recognize these tanks if viewing a *Sea Hunt* episode, where they were frequently used. Many times I used my own smaller tanks for diving when I was working on a movie set.

The choice of masks was limited. We called them "face plates." By the way, much of the nomenclature for skin and scuba diving came from the books used for hardhat-helmet diving ... better known as the U.S. Navy Diving Manual. Face plates modeled by U.S. Navy frogmen were the popular French Squal mask priced at \$4.95. It was smart-looking and fit well. For a short while the Italian Cressi "death-trap" masks were on the market. These were a full-faced mask with either single or double built-in snorkels, each topped with automatic closure of a light ping-pong ball- sized cup.

Gustav Dalla Valle arrived in America in 1954 representing Italian lines with the new look of the face plate. In his cache of diving equipment were the Pinocchio goggles with a molded nose to pinch by the diver who needed to clear his ears. Today, various versions of this

formed shaped goggle are popular throughout the underwater community.

#### Did you have thermal suits?

No, rubber suits did not arrive until about 1953. The all-rubber drysuits came from Italy and France. If it fit properly, one would wear full long underwear beneath. A heavier rubber, supposedly "dry" suit, called the Pescasport from Italy was worn by only those who could afford it. By 1954 U.S. Divers Corporation, formerly René's (Basso) Sports, sold the Pirelli rubber dry suit used by the frogmen for a while. It came with a hood for \$70, expensive, as all equipment for diving was. I never owned or wore one. Parry and I went to the Army-Navy Surplus Stores to shop for military stuff ... as in itchy khaki garments ... and used double woolen sweaters to keep from shivering. We looked like urchins of the streets in our "thermal" wear. It didn't matter until Dr. Hugh Bradner, a friend of Parry's from Berkeley, came up with the invention of the true neoprene unicellular wetsuit and created EDCO (Engineering Development Corporation). We were having fun until play turned to pay very soon.

#### Weren't you one of the first female diving instructors?

Yes, I was the third woman out of the Los Angeles County Underwater Instructors

Course. Dottie Frazier was the first. Barbara Allen was the second. Other people in my class, who had already been teaching or life guarding, but needed a certification card (like a license), were Dick Anderson, Mel Fisher and Bob and Bill Meistrell. Al Tillman was our leader and creator of the course at the Los Angeles County Underwater Unit.

#### You also did test diving for some manufacturers. What did this entail and what kinds of gear did they want you to try out?

I was associated with the Scientific Underwater Research Enterprises (SURE). This company had a very competent and experienced diving team of which I was a member. The team was composed of engineers, geologists, scientists, ichthyologists, watersports experts and plain old deep sea divers. It was the best group of this type to have been formed thus far. It was the aim of the group to found and develop into practicality a sort of "underwriter's approval" for underwater equipment. We would test, prove and submit redesigns for products that were placed on the market for sale to the consumer. We were able to furnish manufacturers with information from practical tests and analysis by people who were not only qualified to dive, but who had the technical range to suggest practical redesign. This way the product would be made safe before a user would lose his life finding out, or maybe never discovering, the weakness or error.

SURE's team was compiled of (my future husband) Parry Bivens, research engineer; Phil Jackson, geologist and oceanographer from Scripps Institution of Oceanography; and "Cap" Perkins and Paul Streate, underwater specialists for search and rescue from Avalon, Santa Catalina Island. I was the stenographer, business executive and a lead diver.

#### In 1954 you set a record for deep diving. Tell us about that.

It was on Sunday, the 22nd of August 1954, at Avalon Bay, Catalina Island. I set a new world's



record for women, with a dive to 209 feet, exceeding the old record set by Esther Lorenz at Avalon Bay the same year by 24 feet. Esther's brother, Bob Lorenz, was attempting deep dives approaching 300 feet during that year. Depth diving seemed to be popular, what with the new diving gear and the guts of the new divers to explore the sea deeper and deeper. But a record was not really the purpose of my dive.

Rory Page was the engineer of the Hope-Page nonreturn valve mouthpiece. He wanted to test his mouthpiece with a nonreturn valve design that allowed air to enter on inhalation from the right side of a double-hose regulator and exit on exhalation that followed without permitting water to enter where we could accidentally breathe or swallow it. This new arrival on the dive market was the true reason for the deep dive to 200 feet: The valve worked. From that date forward, all dive regulator manufacturers changed the mouthpiece design. It was a "Safety First" nonreturn valve that stopped water from entering the breathing hoses. There was no more panic from losing your mouthpiece, because the valve allowed replacement and continued breathing with no additional effort: One need not lift the right intake hose, tilt the head, and blow hard to remove any water that entered it. There was no more gurgling from water that had seeped in around the mouthpiece into the breathing hoses while underwater.

René Bussoz, President of U.S. Divers Corporation, who made the famed Aqua-Lung, furnished us with all the equipment we desired. Of course, all of the regulators had the mouthpiece removed and replaced with the Hope-Page nonreturn valve mouthpiece. No one on the team suffered equipment trouble at any time during the entire dive.

The day before the record dive, the team made a practice dive to 165 feet. We prepared and coordinated signals and methods. They were also smiling and making crazy signs about the slight narcosis they all had experienced. I wasn't having any trouble with narcosis.

We gathered together Carl Bailey, who was Mr. Big of KBIG radio fame, Ensign John Stein of the U.S. Coast Guard and Bill Gressman, Restaurateur of Avalon, as witnesses as we proceeded. Parry, Phil and Rory prepared the diving course, time and decompression. Phil moved the vessel that we were diving from out into deeper water while the remaining team members prepared the diving equipment. I rested in one of the top bunks nurturing menstrual cramps. Parry lowered the diving line and things were beginning to take shape fast. When the witnesses arrived the diving line was pulled up and examined by them, and after fastening a plastic slate to the bottom of the diving line, it was again put over the side hand-over-hand. The team then began to suit up to dive.

It was decided that Parry and Phil would accompany me to the bottom. Parry would keep a constant vigilance on me, and Phil would guide the other two to the bottom. We would drop one diver at the 100-foot level and another at the 150-foot level with an extra Aqua-Lung in the event anyone ran into any trouble. Rory acted as safety man, not descending below a level where he would be required to decompress, in case he had to ascend in a hurry to secure other equipment or help. This was the dive plan.

Just before the dive at zero hour, I came out on deck and joined the rest of the team in preparing for the dive. All divers were treated equally. No special treatment, not even for the test of a new piece of equipment. I wore a swimming suit, a suit of long khaki underwear, three sweaters, and a two-piece dry rubber suit made especially for me by Bel Aqua. The dry rubber suit was a free-flowing water outfit. Water entered at the neck, wrists and ankles and was pushed out by my movements. Yes, of course, I was toasty warm.

The entire team then donned their gear, and at 3:00 p.m. we entered the water. We assembled at the surface and started the dive immediately. The water temperature on top

was 68 degrees; before we reached the 100-foot level, the water temperature had dropped nearly 16 degrees. As we left the 100-foot level, the water was beginning to get a little dark. On arriving at the bottom, Parry watched me while I signed my name on the slate with the red crayon I had brought with me. Phil picked up a couple of starfish directly below the guideline, and then we started our ascent.

They reported the bottom temperature at 50 degrees, an 18-degree drop. Visibility was about like a dimly lit room. It had taken approximately two and half minutes to make the descent, and three and half minutes to ascend to the first decompression stage.

I wrote on a slate that I was okay but cold. We were all trying to talk with our hands and eyes. When decompression was over, we exited the water. Everyone was cold, elated and excited. The dive was complete; the nonreturn valve mouthpieces worked like a charm, and a new record was set. The total time underwater was 23 minutes. I had a big satisfied grin on my face and then a laugh and a wave for everyone. The dive had gone off like clockwork. Everyone had done a perfect job.

Interestingly, the group, excepting me, had experienced slight nitrogen narcosis from 160 feet on down. They were all very curious about this problem and were preparing to do extensive research to try and analyze it more thoroughly. The intention was to prepare a technical paper on the subject of nitrogen narcosis since we could not find enough subject matter. We wanted to give a good true picture of what happens.

The event changed my life. All it took was three miles off the shores of Avalon, Santa Catalina Island with a slight afternoon chop and a dive to 209 feet to a sandy, rippled bottom with a strand of bull kelp and one discarded Schlitz beer can. From there on, the radio, television, newspapers and magazines had agents calling for interviews and fun game shows.



Zale testing Rory Page's prototype mouthpiece on an Aqua-Lung.

It was fantastic to successfully complete an equipment test. But little did I know that my new identity, "Girl Skin Diver," as *Sports Illustrated* called me, would be in prominent demand. The dive shot me into the limelight. At first, this interruption of life was disturbing. Every interviewer didn't know "oxygen" in the dive tanks would kill after a certain depth. They misused the nomenclature, and it wasn't always possible to catch the writer before the story went into print. I was teaching diving procedures with each inquirer. After a while the routine of being questioned in person or over the telephone became a plateau in life I accepted.

**Can you tell us about your husband, who was quite a notable intellect?**

Parry and I had a blind date in October 1951. We stuck together like peanut butter and jelly for all the experiments and diving. We even finished a boat together. I lived at home with my family while working at Douglas Aircraft in Santa Monica, and he went back to school to complete a medical degree. Jumping into the ocean in those early days was sheer bliss, especially since we were in love and had projects we could work on together. Many times we dived with Mel and Deo Fisher, who were made of the same ingredients. We were married in July 1955 and immediately honeymooned on location in

Baja, California, for the television production *Kingdom Of The Sea*.

Parry was a graduate in structural engineering from Berkeley in 1947. He was a reader, a visionary, a genius in all ways. He experimented with his wild dreams, challenging himself and the marketed diving equipment in the sea. He worked a slide rule quicker than a wink and studied all the available books . . . mostly from the U.S. Navy's Experimental Diving Unit. He communicated with Dr. Edger End at St. Luke's Hospital in Milwaukee, with Dr. Edward Lanphier and Dr. Christian Lambertsen, long before they became common names in the diving community. He queried E. R. Cross for comparison of thoughts on hardhat helmet diving equipment and chamber dives. He worked out new solutions of numbers with his ever-ready slide rule. His mental and physical library of technical information on everything from cybernetics to cryogenetics, to Einstein to quantum physics, to psychopharmacology was extensive. He was all of that and much more. Parry was ahead of his own future, a genius that wanted to change the world's thinking. Never satisfied with the status quo, he became friends with Dr. Linus Pauling and Aldous Huxley when he was 29 years old.

He cared a lot for the indigent and the homeless. One Saturday morning when I returned from grocery shopping, I found Parry on one knee next to a stranger who was sitting

in the living room on the sofa. The stranger was a peddler who was selling fresh strawberries, had all the signs of an alcoholic. I noticed the entire crate of twelve boxes of berries on the kitchen sink. Parry very kindly talked with the man for a short while, paid for the berries and handed him a bottle of multivitamins. Then he led the man to the door with the verbal prescription to "take one of these pills once a day and get some needed sleep. You will feel better." I'll never forget the day or the scene. Furthermore, I visualized a stream of outsiders coming to the door. The thought was not too far from the truth. Our home was home to medical students and visitors from faraway lands that Parry met through his associates. Some stayed longer. One visitor from India stayed a week. He made a comment about all the conveniences I had, compared to his family without a toaster, washing machine and vacuum cleaner. "A woman's work is appalling in America," he softly whispered.

**Parry encouraged your interest in acting as well, right?**

Parry was my guiding light, my incubator for all I know today. He encouraged my enthusiasm for learning. Through him I met actor Dick Powell, June Allyson's husband. Dick in turn introduced me as a student to Agnes Moorehead's 20th Century Fox classes. I attended evenings twice a week for one year. Miss Moorehead taught theater, period dances, fencing and quick improvisations. She was a delight! Next I entered UCLA's Theater Arts class. My teacher, Mr. McGowen, was Jimmy Cagney's brother-in-law. Sometimes Jeanne Cagney, the teacher's wife, was our substitute.

**Parry designed some early underwater camera systems, didn't he?**

One Sunday afternoon, on our way home after diving, Parry stopped at a large junkyard in Torrance, California, to purchase a cylinder of steel big enough to arrange a 16mm gun camera in it. He measured the configuration

of the outside trigger, lens port and welding to seal the ends. He took his blueprint to a steel company for completion (later this same company, Butane Tank, produced our three chambers). Parry now had his own underwater movie camera, used it and sold footage to the up-and-coming underwater television and motion picture producers. Some footage was sold to Disney Studios, who paid \$20 a foot of film at the time.

**He also designed portable recompression chambers. How were they marketed and used?**

The underwater camera housing was the beginning of his work with decompression/recompression chambers. The first chamber was a small one for small-sized dive equipment and large enough to place three guinea pigs in for a 1,000-foot-deep dive on air. They made the dive successfully while munching lettuce

unabashed. Wristwatches and depth gauges were the most popular dive equipment for testing. Water-filled kettles from my kitchen were used to place the items to be tested in this first chamber. In 1957 Gustav Dalla Valle purchased the small chamber for the laboratory to use at Healthways, to save the company money for the outside service we provided.

In 1955, the first civilian single-lock chamber was built. It was large enough for one victim and technician-operator sitting Indian-style or victim lying down with technician-operator on the outside controls. It had a medical lock (used for food, medicine or lavatory transfer). The unique feature was that the chamber was portable. It could be trailered and had steel rings on top for easy lifting aboard ships or dockside.

In this chamber we easily tested the breathing ease or difficulty at different depths of almost all the regulators by all the manufactur-

ers existing in the era of 1953 to 1959. The same was done for wristwatches and depth gauges of all sorts. I did a 307-foot dive on air in this chamber. I had with me a portable typewriter, paper, pencils and complicated metal puzzles. It was a test of brain and brawn, successfully completed, I might add!

As important as the chambers were to a diver, we had little success in attracting clients. Every single communication we wrote to military facilities and main hospitals in the nation's cities was ignored. One person in our search for buyers finally accepted our invitation to visit us. He was Commander Francis Douglas Fane, who became a terrific colleague and friend. Fane was the Commander of the Underwater Demolition Team Unit One on Coronado Island in the San Diego area. He had the finest, toughest UDT frogmen in all the U.S. Navy, and he was as tough. They called him "Red Dog."

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Parry Bivens, baby Margaret Zale Bivens and Zale modeling for an *LA Times* 1960 photo shoot.

Commander Fane contacted his bosses in Washington, D.C. and the U.S. Navy Experimental Diving Unit. He wanted a chamber for his Unit One frogmen. But he couldn't convince the U.S. Government Procuring Department of the need for a chamber. They never bought one despite Fane's insistent efforts. Here we had a vital piece of safety equipment and no interest from the people who probably could have best utilized it. We were too early in the conception of the sport of diving.

In 1957, we received a telephone call from The United States Atomic Energy Commission Office. The gentleman calling represented the U.S. Navy, too. Interested in the chamber, he asked to visit. Our hearts leaped. Finally, a buyer. The chamber was shipped to Eniwetok Atoll, where sailors were skin and scuba diving on their leaves. The chamber would be a safety factor for any bends-related situation. The first single-lock SURE chamber we supplied is still in operation today. The second and last chamber built was a double-lock, longer in length. It was sold to an oil drilling company in Maracaibo, Venezuela, in 1959. It, too, is still used today.

**Parry got involved with some "mind-bending" research experiments later.**

After the chamber business, Parry concentrated on medicine. As a physician and surgeon, he was developing his research in

pharmacopsychology. He worked with Dr. Sydney Cohen, Dr. Keith Dittman and Dr. Oscar Janiger with patients from UCLA and The Los Angeles County Hospital. The patients suffered from schizophrenia or incurable alcoholism. A new drug for America, from the Sandoz Pharmaceutical in Switzerland, was delivered to our address and shared with the other doctors on the first run of experiments with the patients. The state of a human mind after administering the drug changed drastically, sometimes for the better and sometimes for the worse. It was a promising experiment for healing.

But as time went on in the world at large, artists, writers, musicians, screen actors including Cary Grant, Aldous Huxley, Time-Life founder Henry Luce and wife, Clare Boothe Luce, and others were eager to have the drug administered to them individually under a watchful eye for the many hours it took to wear off. "The Doors of Perception," as Huxley wrote, were opened. Slowly the medical world and the government played with the drug: d-Lysergic Acid. It was more often known by the acronym "LSD." By now there were other hallucination ingredients available: Peyote, marijuana, psilocybin and a list of such derivatives became popular. Soon the college inmates and street people became acquainted with these medical instruments without control. This was a classic example

of how a meaningful cure turned into the horrors of abuse and misuse.

**This came to a tragic conclusion.**

Life was out of control for the world, and Parry saw it coming. Also, his father, a wealthy contractor, had constructed a beautiful medical building that we understood was to be given to Parry as a gift. After all, his parents did treat him as the proverbial "Golden Child." But the medical building instead was sold to a corporation. Other doctors rented the offices.

This was the coup de grace, the end of Parry's hope to have his own practice. As it was, he was employed by the Ross Loos Hospital in Santa Monica as a physician and surgeon. He was healthy and strong, yet depression took over. He took his own life with a .357 Magnum. The coroner's report listed cause of death as simply "gun shot." No drugs were found in the body.

**You were featured in a dramatic cover shot for *Sports Illustrated* in 1955. How did that come to be?**

The cover shot for *Sports Illustrated* came about because of the international record deep dive I did the year before. They were fascinated by a "girl skin diver." A female diver really wasn't publicized except in the few diving newsletters. The story was ripe, and the photography of a girl in a scanty bathing suit was a good draw. A celebration dinner for four of the *Sports Illustrated* cover people was held at the famous Tail of the Cock Restaurant on Sunset Boulevard in Hollywood. Our surprise guests were Mr. and Mrs. Charles Alden Black, none other than the gracious Shirley Temple and hubby. What a treat!

**So you were the inspiration for their annual swimsuit issue?**

I think they would tell you so. I did some more appearances in the magazine later. The 35th anniversary issue with all the covers appeared in 1990. "Catching Up With Zale

Parry, Diver, May 23, 1955," was a feature in the Swimsuit Issue, Winter 1999.

**Your role as "girl skin diver" attracted a lot of other attention from newspapers and magazines in the mid-1950s. Were you surprised at the fascination the press had for you in this "lunatic fringe" sport?**

The press was in "lunatic thinking" in those days. No different than in today's media. Yes, I appeared in quite a few more magazines. *Argosy* made a wonderful fuss. Even my hometown *Milwaukee Journal* told the tale. I was surprised and overwhelmed. I still have those feelings when I am approached today by someone with a copy of the real issue from 50 years ago. I get asked to autograph a lot of those by the collectors. Its great fun and an honor to be remembered so fondly.

**Many credit you as the face of a new sport and with advancing it beyond the exclusive status as something only for the hardest macho types. What's your memory of the era?**


Women are hardy, and in some respects, have less back problems than men. We can tolerate pain in greater and longer sessions than men, too. If you remember in my story of the record dive, I needed no help to gear up, and I didn't pout or ask for assistance. Enjoy the whole of the sport: Servants do not increase bliss. My memory of the era is simply that the sport of diving was for everyone. It is an enhancement of richness for the knowledge of the sea.

**Your publicity also led to a lot of public appearances and lectures.**

Wow, I did hundreds of medical meetings, Rotary Clubs, Lions Clubs, grade-school classes, diving clubs. Hilo Hatti arrived in

town and I appeared with her for a publicity gathering. The list is long, including the National Sporting Goods Convention, where I represented Healthways Products in Chicago in 1955. Evel Knievel with his stunt bike appeared with me in my dive gear at the Seattle Space Needle Convention Center for a sports event. Publicity shows continued for the opening of resorts and guest speaking gigs with a display of diving gear and my shell collection.

At this present time, I've appeared in my little town of Tillamook's Chamber of Commerce Meetings and have latched onto the Tillamook Estuaries and Watershed Partnership programs. The next appearance was April 10, 2007, for the Children's Clean Water Festival. Busloads of fourth graders from seven cities of Tillamook County have their water festival about the importance of one drop of water. My exhibit with explanation of plastic debris in the waterways that lead to the sea



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and what happens to it when it gets there. Appearances never stop. I love the people, they are so enchanted and interested in diving adventures.

**At some point, television beckoned. Share with us those early experiences.**

Jack Douglas Productions presented a television series of adventures. They were *Seven League Boots*, *Golden Voyage*, and *I Search for Adventure*. Jack Douglas had a legendary traveler and underwater pro, Colonel John D. Craig, as his guest presenter often. At a production meeting one day, Jack asked Col. Craig whether he would like to include a series of his own and he agreed. Before we knew it, *Kingdom of the Sea* was conceived. The end of each episode would feature a live three-minute demonstration of diving techniques. They wanted to get a diver to perform in a tank on the live stage set. This was a daunting thought. Who would be the diver with the knowledge and stage presence? The discussion of ideas for demonstrations became more crucial when a name of a skin and scuba diver was not instantly perceived.

The publicity director for Jack Douglas Productions was Jerry Ross, my parents' next-door neighbor. He attended this meeting, listening to the dilemma. Then interjected, "The kid next door is swimming and diving all the time. But ... she's a girl!"

That evening Jerry told my folks to have me call Jack Douglas the next day. "He needs a diver to perform in a new series," he mentioned. So I called and made arrangements to meet after work, thinking it was another one of a string of free appearances. It was my first introduction to Colonel Craig, who became a friend forever with wife, Mildred, and two gorgeous daughters, Sharon and Kathy. Jack Douglas wanted to take me home with him, even though he had a beautiful wife. Everyone was pleased, and a television contract was drawn. I signed it without even getting wet.

Our first assignment coincided with the opening date of Marineland of the Pacific Oceanarium in Pacific Palisades, California. It was May 1955. The television program went underwater. We wore Scott Hydro-Pak diving gear with a microphone inside the full-face mask, that enabled us to talk to the television audience and the throng of observers outside the aquarium windows. We took turns pointing out fish life at the bottom of the main tank. There was a variety of common sea creatures for us to point out and explain where they live and what they eat. We had to fight a swift current as we settled to the sandy bottom. First day opening was a continued test for the structure's plumbing that brought the seawater directly into the tank from the ocean close by. The fish-feeding diver had double weights to help him walk. We were free-swimming with diving gear.

*Kingdom of the Sea* premiered on Saturday, June 4, 1955. This was the first program of this type produced for television that was devoted entirely to the underwater adventure. Verne Pedersen and Colonel Craig did the underwater photography with cameras on tripods. By now, my husband, Parry, owned and used his Sampson-Hall 16mm camera to shoot other angles and stock footage of fish and kelp.

Each filmed episode consisted of an adventure experienced by us or one by Colonel Craig. The studio had set up a special water tank for the purpose of showing and demonstrating safety in skin diving and underwater equipment of various types by me in a timed three-minute segment as a close ... and we did it all live.

**I can vividly remember seeing you in episodes of *Sea Hunt*. How did that involvement come about?**

As *Kingdom of the Sea* was coming to an end, actor and associate director George Wilhelm called me in 1956 and told me about a new underwater series being discussed by

filmmaker Ivan Tors. The series was to be modeled after Tors's feature film, *Underwater Warrior*, a movie loosely based on the exploits of Commander Francis Douglas Fane, decorated in World War II and, later, Commander of the Underwater Demolition Team One. Fane had once confided to Tors that he would like to get a boat for search and salvage and go into the diving business after his military retirement. This new program was to follow that concept.

George told me they were looking for someone to co-star with Lloyd Bridges in this new show, to be called *Sea Hunt*. I met with Ivan, and he said in his very thick Hungarian accent, "Vell, you look okay. I want you to do the show." Then he said that he also wanted me to help his secretary with the technical aspects of the program.

At the time, Westerns were popular, and Lloyd Bridges had the opportunity to do one. But Ivan convinced him to do *Sea Hunt* instead. In actuality, the show was like an underwater Western: the bad guys always wore the black wetsuits and the good guys always wore the gray wetsuits. You have to realize, too, the dynamics — the technology, the equipment, everything in diving in those days — was so primitive. We had no idea what was going to happen next. We were all very powerful swimmers because you had to be. For example, I'd be dropped off a helicopter quite a ways from the camera boat, and then the camera boat would simply come in and try to find me. No GPS for divers (or even automobiles) at that time.

During the production of *Sea Hunt*, I worked in numerous capacities. I performed all of the underwater work and stunts for other actresses, and starred in 12 episodes, portraying a variety of characters both underwater and on the surface, except for the last two months of my pregnancy. Between shootings, I often-times scouted locations, applied for permits, or did whatever else a script might call for. I often traveled from one location to another



since Unit One with Lloyd Bridges was in Los Angeles and Unit Two was on locations along California's Channel Islands, the oceanarium Marineland of the Pacific, in Silver Springs, Florida, the Bahamas or wherever a scene might dictate.

While the days could be long and the water cold at times, I had the opportunity to work with some of the best divers and watermen of the era. Courtney Brown played Mike Nelson, Bridges' character in all underwater scenes except close-ups. Ricou Browning, who won acclaim playing the *Creature from the Black Lagoon*, usually played the villain. Another diver turned actor was Jon Lindbergh (son of famed aviator Charles Lindbergh), a former Navy frogman. Chief underwater cameraman Lamar Boren led the underwater crew, with Paul Stader as underwater director. A number of the actors we used in the series achieved a grand degree of stardom later. They were Victor Buono, Robert Conrad, Ken Curtis,

Bruce Dern, Anthony George, Larry Hagman, Ted Knight, Ross Martin, Jack Nicholson, Leonard Nimoy, and Robert Quarry.

#### What was Lloyd Bridges like?

He was a well-seasoned Shakespearean actor and the true "actors' actor" as the industry labels people. He played stage summer stock whenever he could. Lloyd, "Bud" to his close friends, was a genuine gentleman ... handsome, kind, considerate, physically fit and eager to learn to do the proper action with this new equipment. After all, he was used to the props of a holster and pistol and was an excellent swimmer. Diving gear was a lot different.

He was a caring family man with sons Beau, Jeff and daughter, Lucinda. Later Beau and Jeff were placed in the cast for some episodes. Dorothy was the teacher for the children's theatrical prowess and a "Rock of Gibraltar," beautiful wife.

#### He had to be trained in scuba for the role, right?

We didn't really have time for that in the beginning, so his training was every day on the set, although Courtney Brown and I had him in a swimming pool for quick lessons at first. Lloyd was an expert at copying a character and mimicked Courtney's flutter kick to perfection. It wasn't until the end of the series that Lloyd came to Bob Meistrell and told him that he would like to take the full scuba course so that he would be considered a certified diver.

#### So you were more experienced as a diver than the man who single-handedly came to be the figurehead for diving for many?

That's true. I had a lot of experience diving, but he really made the character of Mike Nelson come alive for audiences. He was a great actor and a great friend.



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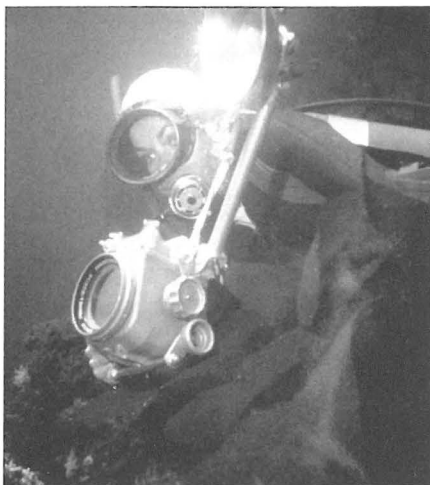
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**Zale Parry dives the kelp forest off the California coast with Rolleimarine photo gear, 1960.**

There is a great story that comes to mind, though. After the *Sea Hunt* series was over, Lloyd wanted to do some diving on his own, purely for his own enjoyment. He arranged for Dick Anderson to accompany him. Dick, of course, had done just about everything in diving from commercial work, stuntman, filming and equipment design. They get out to Catalina and Lloyd says, "Dick, I want to make it clear that I'm really a beginner. I'm not Mike Nelson." Dick replied, "Don't worry, I am!"

**For those of our readers who became collectors of the series, what were some of your favorite appearances?**

Favorite? They were all favorites! I was going to work each day having a fun time. And getting paid to do it!

**It seemed that the guys always got to wear wetsuits but you always were in a swimsuit. Didn't you get cold?**

Guys did wear wetsuits much of the time. However, if possible, I wore a wetsuit. But because of my early swimming days with the Aqua Follies and with Kingdom of the Sea demonstrations in cold water pumped into the performance tanks by the fire departments, I didn't shiver as much as the men. Lamar Boren wore a wet suit ... once. As our main cameraman on the set much of the time (and Jordon Klein, another pro camera man on the East Coast) balancing to steady a large 35mm

camera housing was easier in his blue satin swim shorts.

**I heard that one time you had to do some re-shooting of scenes, originally done in Florida or the Bahamas, in California. And the director let the guys wear wetsuits but you had to stay in your skin. How about that?**

What can I say? There was no complaining. I knew I had to wear whatever the script called for. And for reshoots to maintain continuity, I had to wear the same outfit we originally shot the scenes in. So, yes, there were times when it got pretty chilly for me and the guys had a better deal in wetsuits.

**Your television work led to mainstream Hollywood films as well. Was that much of a transition?**

No, it was fairly easy from television to motion picture work. It's all sort of the same rules and procedures.

**What films were you in, and what actors did you work with?**

*Underwater Warrior*, an Ivan Tors-MGM production, was a wonderful experience. Dan Dailey played the lead character of real-life navy veteran Commander Doug Fane. I played his wife in underwater scenes.

Another great film was *Boy on a Dolphin*. It was a good story by 20th Century-Fox studio. I was the double for Sophia Loren underwater. It was difficult, all breath-hold diving from surface to the 22-foot deep underwater set. She had that famous wet shirt scene in that film. It almost caused a scandal. She was years ahead of Jackie Bissett when she did her similar scene in *The Deep*.

**Tell us about the film *Underwater Warrior*?**

That film was put together before the *Sea Hunt* series aired. The cast, crew and six of Commander Fane's top frogmen flew to Hawaii on a United Air Lines DC-7 Hawaiian Mainliner, a 4-engine propeller airplane. It took eight hours to get to Honolulu on September

27, 1957. The entire airplane was treated as first class. On our return, we were on a Pan American Stratocruiser, with a piano bar on the main level and sleeping quarters with a ladder to get into them. Our first location was the Hawaiian Village Hotel, the tallest building at that time along Waikiki Beach. Contractors were starting the fifth floor while we were there.

Commander Fane appropriated a Pacific Fleet minesweeper. Next he made an appointment with the Admiral at the U.S. Navy Base at Barber's Point for approval before having me play Fane's wife underwater in the film and living aboard the ship with the remaining cast and crew of men.

"No woman was going to sink the U.S. Navy's Pacific Fleet" were the undertones. I was presented to the Admiral for inspection, thoroughly interviewed and checked out in the Barber's Point Dive Tower. A military diver accompanied me in the tall tank of fresh water. The two of us wore swimsuits and nose clips ... no masks or fins. From the surface near the ladder we took a deep breath, feet-first, pointed toes and descended with a swoop of our arms overhead with precision. It was a quick drop. The sides of the tank clearly labeled the depth. We went to 70 feet when the military diver touched my shoulder and gave the signal to stop. We kicked to the surface. As we broke the water, I could see the catwalk balcony around the tank with uniformed men, the Admiral and Doug Fane resting their elbows on the rail watching intently. This was my test to be with the film crew or be flown back to the mainland. The Admiral gave the "thumbs up" sign. I was the first female to dive the tower. I passed.

The minesweeper carried all the UDT equipment, rubber rafts, scuba gear, crew and cast. The first officer assigned to that ship was given leave to allow accommodations for "the girl" on board. The month of September and weeks into October were practically used up with underwater and topside filming, using almost every Hawaiian island, as backdrops.

For one of the shots, a submarine joined us for a full day's shooting. We were in 60 feet of water off the island of Molokai. The submarine submerged very slowly while cameraman Lamar Boren captured every angle. The star, Dan Dailey, performed well in the submarine escape hatch sequence. When we finished the day's work, we were allowed to stand on the deck of the sub while it surfaced very, very slowly. When we were ankle-deep in water, Dailey performed a Broadway stage soft-shoe-shuffle while still wearing UDT garb with fins and those of us next to him joined the dance. This was serious fun!

When filming was complete, arrangements were made for Fane and his personal choice of UDT men and, with Lamar Boren, we boarded an airplane to the Marshall Islands to find and film sharks. These were to be the stock footage of the live shark scenes not only for *Underwater Warrior* but also for the upcoming *Sea Hunt* television series.

#### What kind of man was Fane?

Doug Fane was a brilliant Scotsman, world traveler and a great entertainer as a dinner guest. He knew lyrics to a book of clever musical ditties. Sang them with a good voice. He relished eating unborn eels and raw fish of certain sorts ... a real connoisseur of gourmet delights. He had wit. He enjoyed our company and the best Scotch whiskey. It has been said (by him) that he had six wives. I'm not so sure about the truth of that. He was a Commander and a strong one, top-notch diver with and without diving gear. I know. I dived with him. He had command of the English language as an author and wrote well.

**In addition to the famed Ivan Tors, you also worked with Lamar Boren. Share some insight on these two pioneers.**

There is only one Ivan Tors. Ivan was a

treasure. He was intelligent in all living ways, and clever. A Hungarian by birth with a brilliant mind, Ivan wrote and produced episodes of the series *Science Fiction Theater*. When the Russians' *Sputnik* shot into fame in space, no broadcasting company had a staff scientist to draw a diagram of what *Sputnik* was and how it worked. In one of Ivan's earlier writings for the *SFT* program, he had the workings of a spacecraft drawn and filmed. The broadcasting companies were issued a piece of that film to portray the news properly. It was Ivan's imagination that created the true picture.

He loved animals and created Africa USA animal park with his friend, Ralph Helfer, in the Santa Clarita Valley, California, before it became a city. He had big animals and later arranged for Collette Martine to establish a home and hospital for them. He was so caring that everyone loved him. Frequently, he and his family went to Africa to enjoy the safari. His

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oldest son, Steve, eventually stayed in Africa to become the youngest ranger on the plains.

Lamar Boren was a huge teddy bear that, at one time had a growing photography studio in La Jolla, California, where he lived in a gorgeous house on the beach. He was part of the Bottom Scratchers Club, active with the group, and of course, had underwater housings for his cameras. He was honored as the Underwater Photographer of the Year at one of the International Underwater Film Festivals. Albert Tillman and I put on the festivals for 17 years as producers and directors.

Lamar was the photographer chosen to film the movie *Underwater* with Jane Russell. Lamar knew still and motion picture photography better than most because it was his business and career. I liked Lamar. He had a constant watchful eye on what was going on through the camera lens, especially for the safety of the "damsel in distress." That was frequently me. He saw everything before the safety diver could move in to help anyone in need.

#### **How deep did you work on the television and movie shoots?**

We worked where the ambient light was the best for underwater photography. For most of the underwater movie shoots, we did not need to go any further than the depth of Marineland's tank (22 feet) or the depth of Silver Springs (60 feet). Offshore, in preferably clear water, we were no more than 30 feet deep. Sometimes we worked through a few scenes in a row.

In the shallow waters, for practical reasons, we stayed under a long time to finish the direction. This was long enough to run out of air. A signal and a stand-by safety diver would deliver a fresh tank. Frequently, tanks were replaced while we were underwater. Naturally, those who had more swimming or fighting action used air quicker than stand-by safety divers. Lloyd Bridges used a small tank of water on stage for the close-ups.

#### **Did you use stunt doubles?**

There was never a stunt double for me. For the other characters in a story, stunt doubles were used. I took pride in doing my own stunts.

#### **What do you consider the hardest role you had to play?**

None of the roles were too difficult. Although, I do remember one where the damsel in distress was actually rolling in the surf and being tossed by the strong waves. That's where you can lose control.

#### **Any close calls?**

Maybe one, when I wanted to make a free ascent during a scene. The regulator was feeding me water instead of air. Lamar held me in position by the strap of my swimsuit and another regulator was given to me to breathe air ... instead of water.

#### **Your work as an actress spanned a huge breadth of parts. Didn't you do Westerns?**

*Wagon Train* was fun. Sometimes the costume of a period made the acting interesting. And, Andy Devine was divine ... marvelous.

#### **For some years you had always been on the other side of a camera, but you developed an interest in photography yourself. What was the gear like then?**

My mother had an ancient fold-out bellows-type Kodak camera that used 616 film with eight exposures. I was given permission to use it when I wanted, but Mother would want it returned in the place I found it. For my high school graduation gift, my parents presented a Brownie Camera to me, my first and very own. I used it on everyone, every flower and everything. When I met Parry, he gave his older 35mm Kodak camera to me. Jack Douglas knew my interest and gave me a Leica with a Zeiss lens he wasn't using any longer. When I was on the Groucho Marx show, I won enough money to purchase the first, or at least the next to first, Rolleimarin underwater housing with a 3.5 lens Rollei to fit into it.

Later, I purchased another Rollei with a 2.5 lens. The Weston II Light Meter was used with a housing for underwater, too. But after a while, I got to know a reading of the light ... ambient, sun, part sun ... without a meter. The setting F11 worked well in most places in clear Caribbean waters or F8 to F5.3 for California waters. The Rolleimarin had the flash and all the filters. It was the dream still camera to have early on, with one snag: It only had 12 exposures.

Everyone was taking pictures underwater. Everyone had photos stored in shoeboxes or dresser drawers. Al Tillman and I originated the Underwater Photographic Society in 1957. It developed into the International Underwater Film Festivals. The Society is now called the Los Angeles Chapter. Many underwater photographic clubs grew from then on. We were the whale ... and the minnows slid off our back.

#### **You share my interest in preserving the history of diving. Please tell us about your own journalistic work in this regard.**

Since 1978, Al Tillman and I researched the human history of the sport of diving and the defining events that occurred during its golden era. *Scuba America Volume One* premiered in the year 2000. It's now out of print but I'm working on *Volume Two*.

#### **You now live in Oregon. What attracted you to that spot?**

Tillamook, Oregon ... my home in Fernwood Forest is serene, peaceful and beautiful, no comparison to California, where I spent a chunk of my years. Without shoveling much snow and suffering severe cold weather, Tillamook reminds me of my childhood days of Wisconsin. I had lived alone for almost 10 years. Three of those years I was on a hunt to find a new, delightful place to enjoy the rest of my journey.

I checked out the land and homes in Al Giddings's neighborhood in Pray, Livingston and Billings, Montana. I checked up and

down the California Coast, from San Diego to Big Sur. Anacortes, Fedilgo Island and Orcas Island, where Al Tillman had his roots, were other places I studied. Then, when Sue and Jack Drafahl realized I was seeking to move, they suggested Cape Meares, Oregon, where they live in a beautiful home on the beach. Another "seek and find" trip took me to their home. From Cape Meares to the foothills of Tillamook, I found Fernwood Forest.

**I understand that you've been working on a movie project called *Tillamook Treasure*. Can you share with us what that's about?**

It's a wonderful family film set in the beautiful coast village of Manzanita, Oregon. Manzanita is about 45 minutes north from my home. The movie is based on an Indian legend about a treasure buried on Neahkahnie Mountain by Spanish sailors in the 1600s. This is the story of a 14-year old girl's discovery of what is important in life. Bright Light Studio, an independent, used the Sony HDW-F900

(High Definition) technology pioneered by Lucas Films for its *Star Wars* series. *Tillamook Treasure* is digital cinema from front to back. The film will be distributed digitally directly to theaters, bypassing the need to go to film.

The process opens the doors of feature film-making to low-budget independent films and reduces the cost so that high production values are within the budget of independent filmmakers. It is a new world of picture-making, with the highest quality digital filming, edited digitally, and released to theaters digitally.

News appeared in our once-a-week Wednesday *Headlight Herald* about a Hollywood company coming to town with the list of characters to be cast. I emailed the producers to audition for the grandmother's part. A reply came from Jane Beaumont Hall by telephone that evening. Jane said, "We know who you are, Zale. You are too young to be the grandmother. But we'll find a place for you." They did. I was cast as the hardware store owner where the

girl shops with her dad to buy the tools for excavating the buried treasure. The movie has won the Outstanding Family Award in a number of film festivals.

**Do you still dive?**

Of course. Diving is like bicycling. My next outing is in July 2007 on the *Nautilus Explorer* on a dive trip through the Alaskan Straits where the cruise ships cannot squeeze through the narrow passages. Then in October, I'm off for a caged great white shark adventure at Guadalupe Island.

**Who are your personal heroes in diving?**

First, my dear Parry who was my love and hero from the start. He went beyond any other. Then E. R. Cross is another hero. I worked with him one day as buddy-inspector on the Standard Oil pipeline off Barbers Point, Oahu. Dick Anderson had been working with him for several weeks before I arrived and his other worker was ill for a day. I was staying with Cross



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Convention Hall, Dema 2006; Zale Parry with Bev Morgan (L) and Bobby Meistrell (R)  
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and Diana while researching dive stores and diving in Hawaii. I needed to interview Cross, too, for my writing. He asked if I would like to help him for a day. Cross was an amazing person with an incredible diving history. He was fun to be around.

Others would be Valerie Taylor and Dr. Eugenie Clark. I never dived with these special women, but I would have liked a day or two with them with their adventures. They are honored as I am in the Women Divers Hall of Fame, and of course, hold the "Oscar" of the underwater community, the NOGI, as a fellow of The Academy of Underwater Arts and Sciences. Dr. Eugenie Clark's book, *Lady With A Spear* was one of the first gifts I received from Parry.

### Has the growth of diving met your expectations?

No one was expecting the sport of diving to take off into the splendor it has when I began diving. Water was cold, sometimes rough, and the equipment was not for ignorant sissies. The early divers were lifeguards or water-proofed with water safety certification. They were strong swimmers, first and foremost.

Modification of equipment made the sport warm and comfortable. Shooting fish for dinner wasn't as much fun as shooting pictures, after all.

### How can diving best attract newcomers?

The scuba shows around the world have offered so many amenities, treats of exhibits, resorts and live-aboards with comforts of home and film festivals to entice the young and old to join the experience. Then when they repeat the experience farther away from home, it makes more memories. At the same time, diving groups are encouraging young people to make a career out of studying the creatures of the sea, protecting them and in turn protecting us for the future.

Our Tillamook Estuaries Partnership and Oregon States educational institutions are spilling over with sea lab programs. The Northwest is earnest in protecting the sea and getting the sea programs injected into the school curriculum, beginning in grade school. The Children's Clean Water Festival is an annual event for the entire county that includes over 100 schools. I'm delighted to be a part of this.

### What has been your favorite place to dive?

Every dive spot that I have entered.

### If you had one choice of a place to go diving right now, where would that be?

I believe I will be happy with Alaska and narwhals. But I'm always looking forward to the next dive, no matter where.

### Awards:

Los Angeles County Underwater Instructor Life Recognition Award  
NOGI Distinguished Service  
DEMA's Reaching Out Award  
NAUI Hall of Fame  
California Wreck Divers Hall of Fame  
Women Divers Hall of Fame  
Woman Diver of the Year - Woman's Scuba Association  
Ambassador At Large / The Academy of Underwater Arts and Sciences  
Los Angeles County Underwater Instructor Education Award  
Beneath The Sea Diver of the Year  
International Scuba Diving Hall of Fame, Grand Cayman, Cayman Islands  
The Zale Parry Scholarship through the Academy of Underwater Arts & Sciences

### Film and Television Work:

*Underwater Warrior*  
*Boy On A Dolphin*  
*Danny and The Mermaid*  
*The Tillamook Treasure*  
*Sea Hunt*  
*Aquanuts*  
*Marineland Carnival*  
*The Munsters*  
*Beverly Hillbillies*  
*Arthur Godfrey Loves Animals*  
*NBC Watersports Spectacular*  
*Flipper The Skipper Television Programs*  
*Kingdom of the Sea*  
*Panarama Pacific*  
*Art Linkletter Show*  
*Ernie Kovacs Show*  
*Malibu Run*  
*Thriller*  
*Man and The Challenge*  
*GE Theater*  
*Wagon Train*  
*Steve Allen Show*  
*Underwater*  
*To Tell The Truth*  
*Underwater Presentation*  
*What's My Line*  
*Truth Or Consequences*  
*You Bet Your Life with Groucho Marx*  
*Voyage to the Bottom of the Sea*  
*The Magician*  
*Magic Circus*  
*The Bold Ones*  
*The New Land*  
*Twilight Zone*

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# Zale Parry

## The First Lady of American Diving



**Top:** Zale Parry, as she appeared in the very first swimsuit edition of *Sports Illustrated* magazine, May 23, 1955.

**Middle:** Zale Parry today; Valerie Taylor, Zale Parry, and Wendy Benchley.

**Bottom:** Zale suiting up for a recent dive with the Kirby Morgan Superlite helmet; Zale diving.



# ADCI Hall of Fame West Coast Exhibit

## Santa Barbara Maritime Museum



Top: Left, top shelf; Santa Barbara, Calif. helmets, bottom shelf; Boutte, La. helmets. Right; Kirby Morgan group.


Center: Left to right; Kirby Associated Helium Recirculator on DESCO shell, Kirby Japanese Helium Recirculator for Pete Brumis, Kirby DIVCON Recirculator for Murray Black. Al Hanson TOA conversion. Dan Wilson-designed Helium Demand on a DESCO.

Above: Santa Barbara-built helmets for Hollywood movies *SPHERE* and *The Abyss*.

Left: Lindbergh-Hammer Recirculator.

These are some more of the helmets that are on display as part of the ADCI Hall of Fame West Coast Exhibit. Images of other helmets along with a complete listing of the exhibit appeared in issue 51. The ADCI and HDS wish to thank Daron Micallet, Karla Blancus, William Cochran, Greg Gorga and Julie McDonald for their assistance with the project. The exhibit runs through to December 31, 2007. More details can be found at [www.sbmnm.org](http://www.sbmnm.org).

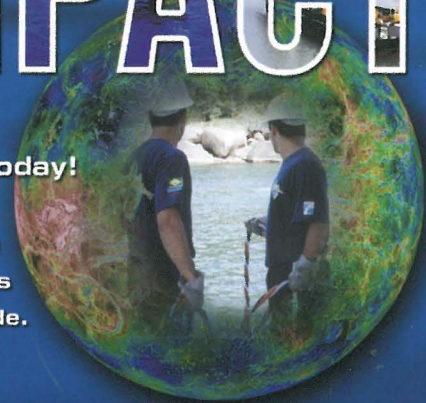
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# Blue Water, White Death DVD



Back row, left to right: Jill Leaney, Stan Waterman, Rodney Fox. Front row, left to right: Leslie Leaney, Maria Hults, Valerie Taylor, Ron Taylor. Photo © 2007 Joe Curran.

The long wait is at last over! *Blue Water, White Death*, one of the most influential diving films ever made, is now available on DVD. For years divers have been watching poor-quality videotape versions of the movie that was released in 1971, but which soon disappeared from public view. The new DVD was released by MGM to celebrate the 20th anniversary of Discovery Channel's popular *Shark Week* programs.

As reported in issue 51, crew members Valerie and Ron Taylor, Rodney Fox, Stan Waterman, James Lipscomb and Tom Chapin reunited earlier this year for the Beneath The Sea / Historical Diving Society Legends program. On March 26, 2007, BTS and HDS staff took the Taylors, Fox and Waterman to a Manhattan recording studio to record additional material for the DVD. Once comfortably stationed in front of their individual microphones the full-length movie was screened without the audio track running. As the film rolled each diver gave their recollections of what appeared on the screen. This unrehearsed encounter provided a unique glimpse into the personal trials and near-disasters of the crew as they battled to complete the movie.

This historic session is included on the new DVD in the feature "Audio Commentary From The Underwater Crew." Another feature titled "Diving Into *Blue Water, White Death*," adds more historical perspective to the film. In addition to the movie there is also footage from the BTS show that was shot at the Legends evening by Jason Baffa and his Hollywood-based crew. From an historical perspective the long wait for this important film's availability on DVD has certainly been worth it.

The DVD is currently available at the suggested retail price of \$19.98.

— Staff report



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# Bridging Across The Pacific



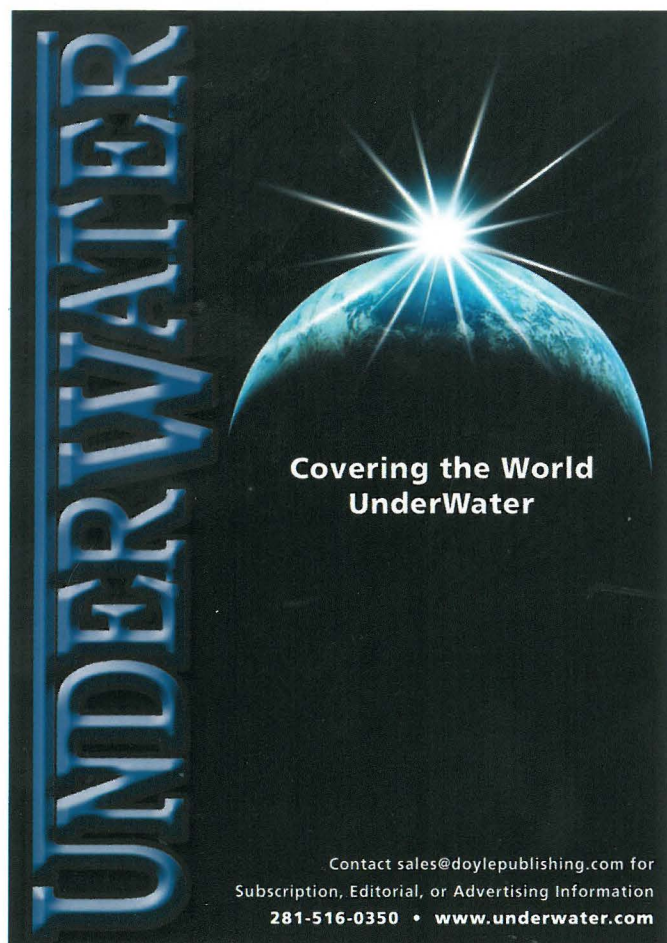
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This Japanese printed book with text in English and Japanese was part of the supporting material for Convergence 2006, for which Sandy Lydon and Tim Thomas received the Nick Icorn Diving Heritage Award. The cover shows the Maiwai Jacket, which was made in 1899 and features a Japanese diving helmet as part of its design. This is one of only two known surviving "Monterey" jackets in the world and is on display at the Maritime & History Museum of Monterey.

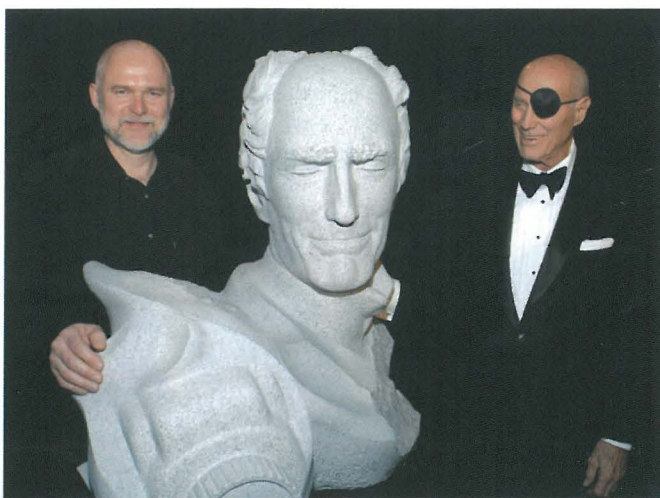
At right, Ms. Toshiko Yasuda was photographed in Japan with a large red abalone shell from Monterey, California. This photo is part of the pictorial record shown in *Bridging Across The Pacific*. All rights reserved.



*Bridging Across The Pacific.*



## Diving Legacy Foundation 'Pioneer Award'

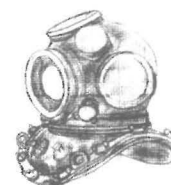


Sculptor Viktor stands with his one-ton granite bust of Stan Waterman, which was presented to Stan at the Beneath The Sea Show. The bust was presented along with the Diving Legacy Foundation "Pioneer Award" and a \$35,000 honorarium from the awards selection board of Bret Gilliam, Jim Clark, Howard and Michelle Hall, Phil Nuytten, Douglas Siefert and Peter Meyer.

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# HISTORICAL DIVING SOCIETY CANADA

## Canadian Development of the Multi-Tissue Decompression Computer



BY PHIL NUYTEN

### Part Two:

*This concludes Phil's 2006 HDS Seattle Conference paper on the advent of the first dive computer by two Canadian pioneers.*

#### Analyzing the Threshold Current Data

It became somewhat of a chicken-and-egg situation. If the analog computer was truly representative of what went on in the body, then hundreds and even thousands of test dives could be made safely and the tables refined for the optimum balance between efficiency and safety, but the Kidd-Stubbs computer should be mechanically “programmed” for the tissue times of the “best” known tables, and the improvements started from there. So, what were the “best”-known tables?

Kidd recalled, “So, first off, I started measuring and analyzing — in appalling detail — all of the various gas transfer theories that people had worked on and all the tunnel and caisson-worker’s stuff. Then I went through and got all the details of well-documented instances of serious decompression trouble — really bad bends or other pressure-induced ailments — hundreds and hundreds of them. Then I analyzed their decompression profiles to find out if that told me anything, and it did, quite a lot; because, of course, in each case they had exceeded the bubble threshold, and that was useful information.”

#### Standard Tables (Prior to 1960)

Since it was impossible to predict the multiple depth levels that could be experienced in a typical working dive profile, “standard” decompression tables always considered the worst-case situation; that is, the maximum depth attained for the total time of the dive — from leaving the surface to the beginning of the ascent.

If the actual time and depth profile didn’t match the standard table increments, the diver was instructed to always apply the next greatest depth and the next longest time. Thus, a 22-minute dive at 92 feet called for decompression as though the dive had been for 30 minutes at 100 feet. In this case, the dive tables would give a safe ascent time, but one that was



**MK5-S Diver-carried computer plumbed directly into the casing of an “Aqua-Master” scuba regulator.**

grossly inefficient as compared to the actual required decompression. The same sort of conservatism was particularly true in the case of multi-depth levels within a given exposure — the diver could spend 80 per cent of a one-hour dive at various depths shallower than 60 feet and make a single five-minute descent to 90 feet and be forced by the table convention to decompress as though the entire dive had been at the full depth.

From a gas-transfer standpoint, this type of multi-level dive would involve a constant rise and fall in the gas tensions of the fastest tissues, a

layered involvement in the middle-rate tissues and a slow continuous gas flow into the slowest tissues. Standard mathematical calculations could, theoretically, consider these changing dynamics only by freezing them to a single instant in time — providing that the complete gas transfer history of the dive up to that time was known and could be calculated into the equation. This was possible in theory, but virtually impossible in dynamic practice.

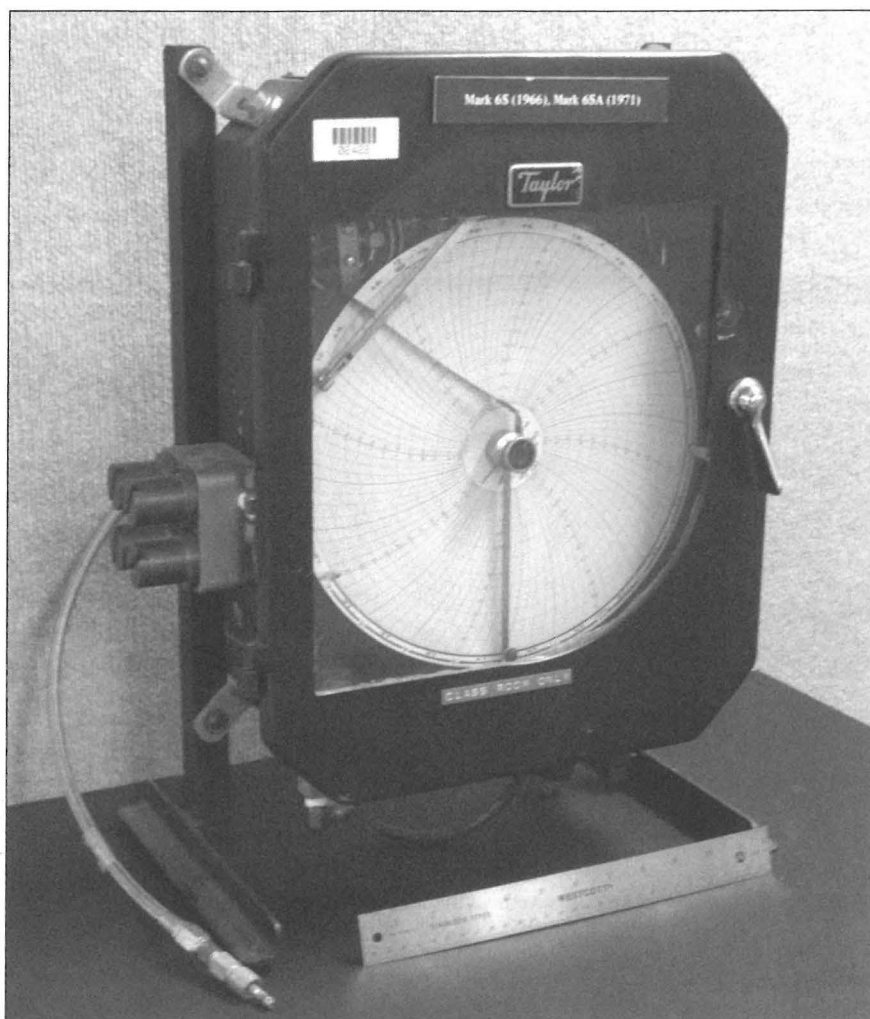
The Kidd-Stubbs multi-tissue decompression computer changed that situation completely.

Kidd continued: “By this time, we had reduced my very tedious analysis down to four tissue tensions and after much trial and error, we started in earnest in 1962. We did precise dives with various other tables and were able to see how those profiles compared with our physical model. After a few hundred dives and many adjustments — based on results — we began to see that we had something good.”

Prior to the development of the Kidd-Stubbs DCS computer, the effects of a pressurization on the assigned gas-transfer speed to a tissue compartment (10-minute compartment, 20-minute tissue, compartment, etc.) were calculated manually, mathematically or by a slide rule-type computational aid.

This historically standard process has been described as “labourious and extremely slow” by Kidd and Stubbs (1969). If the diver has exceeded the no-decompression limit for a given dive, then one or more of the compartments have a limiting “ceiling” — a shallower depth above which the diver may not safely go — lest the critical threshold be exceeded and bubble formation provoked.





**MK6 Chamber Controller Recorder.**

In the Kidd-Stubbs unit the breathing gas is forced by ambient pressure through a resistive orifice into a known fixed-volume container. The orifice/volume combination may be adjusted to give a particular diffusion rate, which then becomes the compartment speed in minutes. Since the rate of diffusion or gas transfer is rapid at the start and then tapers off (as equilibrium is approached) a convention of table calculation has been to use tissue 'half-times', the time it takes a particular tissue to reach half the surrounding or "driving" pressure.

Each of the tissue half-times were then assigned an inert gas ratio threshold. The values were initially settled on by observation of actual dive results, but the process varied widely with the experimental evidence available to the researcher.

For example, for a tissue with a half-time of 10 minutes, the ratios assigned by different sources were:

U.S. Navy (1958) 2.6 (2.6:1)  
 Royal Navy (1956) 2.4  
 French Navy (1959 GERS) 2.3  
 New York Caisson Workers (1958) 1.9

Roy Stubbs had a friend who was both an engineer and had a good mechanical bent, so Kidd and Stubbs prevailed upon him to build their various analog computer prototypes.

The initial Kidd-Stubbs computer models used four half-time tissue rates: 10/20/40/80 minutes. The 10-minute compartment was assigned a 2.6:1 critical ratio, and an experimental dive series was commenced to test those time and ratio values.

### The Dive Series

The Kidd-Stubbs unit "breathed" the same gas that the diver breathed, experienced the same "see-saw" pressure exposures, and displayed the state of each of the various pre-selected tissue-time compartments at a glance.

The Kidd-Stubbs device allowed the researcher to maximize the efficiency of decompression tables to a degree not previously possible.

Consider this: In the final analysis, the only thing that matters to the diver is how shallow he or she may come, during the ascent from a dive, without exceeding the critical bubble formation threshold. The faces of the various tissue pressure gauges on the Kidd-Stubbs computer could as easily be blank — with just a red line marking the threshold pressure of each tissue compartment. As long as all the needles of all the gauges are below the red line, the ascent may continue. When the needle on any gauge reaches the red line, the diver must stop there, until the falling needle has indicated a falling gas tension and the ascent can continue. It is not necessary for the diver to know the depth attained, the current depth, bottom time or the time to surface: Just watch the needles and they will bring you safely home (always providing that you have sufficient breathing gas, don't develop hypothermia, dehydration, or other unpleasanties).

By "riding the curve" (as it is now called) the diver can maintain the maximum safe pressure differential between tissue gas and ambient pressure. This gives the greatest driving force to gas outflow and results in the shortest possible comeback time for a given decompression dive.

All of this is common practice today — in this era of miniature, wrist-mounted, multi-gas, decompression computers that neatly replace watches, depth gauges and gas supply gauges; but in the 1960s, to know the safe ascent ceiling, in real time, for an actual multi-level dive was nothing short of a miracle.

After a dive series that produced no symptomatic DCS, the values were adjusted to be slightly less conservative, and then the series was repeated. Each dive series comprised about 500 exposures, and then the computer values were adjusted according to observed results. The series of "production" dives and the computer configurations were designated as Mark 2, Mark 3, Mark 5 and Mark 6. The number of dives had reached nearly 4,000 by 1969 and involved more than 150 subjects ranging in age from 18 to 56 years. By the end of the trial period, the incidence of bends had dropped from 5 percent to 1.5 percent and finally to 0.5 percent.



## The Results and the Computer Models

During the 20-year period between 1962 and 1982 more than 5,000 dives were made and monitored by the Kidd-Stubbs computer.

A compact version of the Kidd-Stubbs pneumatic analog unit had been developed at DCIEM (Defense and Civil Institute of Environmental Medicine), over the period of 1963/64, and was later (1969) put into limited production by Spar Aerospace Ltd., a well-recognized aviation specialty manufacturer (the “Canada Arm” on the U.S. space shuttle) located in Ontario. This unit was designated as the MK2 through MK5 and much of the early field testing was carried out at Fleet Diving Unit-Pacific, located in Esquimalt, B.C.

One of several permutations of the analog unit was a precise chamber control unit that included a full record of the dive profile, courtesy of a built-in Foxborough recorder. This system was designated as the MK6 and was developed from 1966 through 1971.

In 1975, a fully electronic version was developed and called the “Digital Decompression Calculator.”

Another electronic model series was produced based on a reworking of all the data previously obtained. The series was called XDC and was designed as the last word in decompression chamber dive controllers and recorders. Produced by Canadian Thin Films Ltd., this unit made possible the final development of the world-famous “DCIEM Decompression Tables.” Next came an updated unit called the “Cyberdiver XDC-3.” The DCIEM tables (with particular emphasis on the management of repetitive dives and dives at high altitudes) were the major work of a team of DCIEM researchers and dedicated test subjects led by R. Y. “Ron” Nishi. His summation paper was published in 1982 and paid homage to the work of Kidd and Stubbs in its title: “DCIEM Decompression Tables For Compressed ASIR Diving — Based On The Kidd-Stubbs 1971 Model.” Nishi and the DCIEM team used a second-generation XDC computer called the XDC-2 to carry out the enormous number of dives required to fully validate the DCIEM tables. The DCIEM tables were originally considered an operational “back-up” to the use of electronic dive computers like



(Left) 1976 bench model XDC-2 and earlier 1975 model on the right.

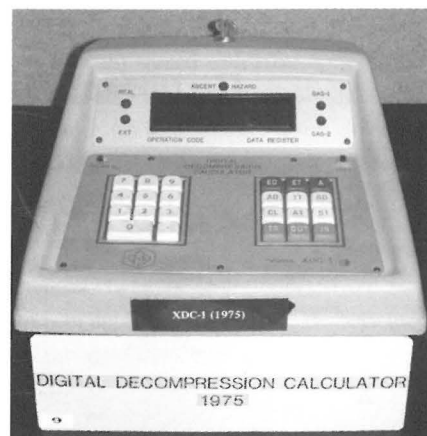
the XDC-2, for field operations. The tremendous acceptance of these particular schedules by working divers, serious sport divers and instructors worldwide was unexpected but, as Nishi has said, “very gratifying to all involved.” This author considers the development and testing of these tables such an important contribution to diving safety that they will form part two of this overview and will appear in a future issue of *DIVER* magazine. Readers will be interested to know that today DCIEM is called Defence R&D Canada — DRDC.

### A Repetitive ‘Dive’

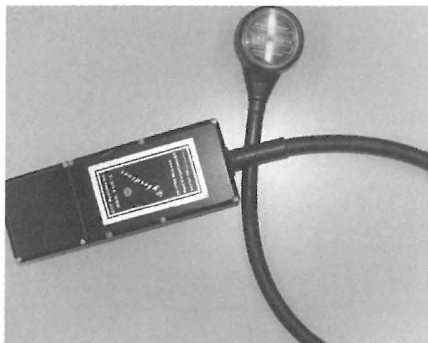
Repetitive dives have always been a serious problem to diving physiologists and researchers — at least until the development of the Kidd-Stubbs device. From a 2006 interview with D.J. “Piet” Kidd:

“In the mid ‘60s I was in the chamber in Toronto — deep, about 300 feet (91m) or something — and we got a call from the east coast about a bad diving accident. I was the one who did most of the rushing back and forth on these things, getting involved in the treatments. That was one of best outcomes of our work: We had a really good handle on treatment by then. Anyway, I was down in the chamber and I had to get to the east coast [Halifax]. I had to decompress from that dive. In the meantime, we’d organized an aircraft to take me from Downsview [military airfield in Toronto]. As soon as I could surface, I did so — then grabbed all my bits and pieces

and went to the aircraft. Of course, I had my computer still running from the chamber dive and it showed the altitude limit. So I arranged with the pilot not to go above a certain ceiling and up we went. When I got to the chamber, I entered the lock and was compressed down to 165 feet (50m) — we were treating on table 4 — and transferred in with the patient and the attendant. All the while, my computer was running, keeping exact track of my exposure level, since it had been breathing the same gas that I was and had been subjected to the same initial dive pressure, the subsequent decompression, the flight at reduced altitude, and then the repetitive dive to 165 feet (50m) and the subsequent decompression from that dive. All of this, it handled without incident — and bloody good job that it did!”



Digital decompression calculator, 1975.



**XDC-3 Cyber Diver computer.**

## Conclusion

In conclusion, this brief overview serves to draw attention of diving historians to the work of D.J. "Piet" Kidd and the late Royston A. Stubbs in the development of the first decompression computers. Whether used by an enthusiastic amateur or a long-term technical or commercial diver, each time a diver surfaces safely, assisted by a dive computer, their well-being is at least partially the result of the efforts of these pioneering Canadian researchers.

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Ron Nishi — DRDC (retired)  
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# HISTORICAL DIVING SOCIETY U.S.A.



*As noted in the Publisher's Letter printed in the last issue, the operation of the Historical Diver magazine will now reflect more closely the vision and direction of the Board of Directors, and this will sometimes be recorded on the HDS USA page.*

## Historical Diver Magazine International

The Society recently received an inquiry regarding the use of *Historical Diver* magazine by other Societies. As noted in the last issue, HDS SEAP became the first overseas Society to use this publication as their official membership magazine in the Summer 1997 (issue #12). They were followed by HDS Canada in the Summer 1998 (issue #16), HDS Germany in the Spring 1999 (issue #19), HDS Mexico in the Winter 2000 (issue #22, Vol. 8, issue 1) and HDS Russia in the Winter 2002 (issue #30). The magazine was also briefly used by HDS France to promote the establishment of their new Society.

The original idea from HDS USA was that International Societies could use *Historical Diver* to support their mission by providing their membership with a benefit that did not require a huge investment of time and money on their Society's behalf. Through personal experience, the Directors of HDS USA were aware that the commitment of time and money to produce any reasonable publication was not something that could be easily done by new Societies. It would require substantial personal investment or outside sponsorship, which would take time to secure. The ultimate goal of the USA Directors was to assist fellow Societies in building their national membership base so that their Society could flourish and be a valuable part of their nation's cultural resources, and an active participant in the growing family of international HDS.

To assist the new Societies the USA Board agreed to make *Historical Diver* magazine available, often at a financial loss to HDS USA. Each Society had a dedicated page in the magazine for which it could provide content. To supplement the content of this magazine, Societies often



**Skip Dunham and Bonnie Cardone.**

produced a locally printed newsletter insert that informed their members of national Society news and events. For more information on these newsletters check the Societies' websites.

## Third-Quarter Activities

The summer quarter of the year required two Board conference calls as refinement of the five-year strategic plan continues. HDS SEAP Founder Bob Ramsay and his long-suffering wife, Elisabeth, and son, Andrew, visited the HDS office in April, as part of their California vacation. Part of Bob's visit was to finalize the details for another helmet-building course with Bob Kirby for HDS members in Australia. Unfortunately, Kirby and his wife Claudia are no longer physically able to undertake the 13-hour flight from California to Australia so the course will not take place. Bob and HDS staff tried to set up an alternate course with Kirby as a part of this year's Tarpon Springs Conference but as we go to press this also seems unlikely. However, Bob and Claudia Kirby have confirmed that they will be attending the Conference.

The West Coast Chapter of ADCI held its annual meeting in Santa Barbara on May 4, 2007 at the Santa Barbara Maritime Museum. The meeting enjoyed good attendance by ADCI and HDS members, and plans are under way

for the Chapter to again join the HDS Conference next year, which is scheduled for early May in Monterey, California. A Call for Papers appeared in issue #51. HDS President Leslie Leaney, the lunchtime speaker, gave a presentation on modern commercial diving history that complemented the equipment on display in the museum as part of the ADCI Hall of Fame Trophy Exhibit. (See photos in this issue and #51). In a gesture welcoming him back to Santa Barbara, HDS Advisory Board member Lad Handelman presented ADCI Executive Director Phil Newsum with a set of special posters for his landlocked Houston office that were a gift from Kirby Morgan Diving Systems and HDS.

On the first weekend of June the HDS booth was at the Scuba Show in Long Beach, California. This is a "local" show and a lot of members dropped by to visit, including Society co-founder Skip Dunham and former Director Bonnie Cardone.

## Strategic Plan

The Board of Directors and staff are now working to implement the reviews called for in the new five-year strategic plan. Staff have been revising the 2008 budget and fund raising targets. A review of membership is currently under way also. At the international level, the 2007 Board of Directors are fully committed to the International Affiliation Agreement, and to continue to assist the international affiliates in our mutual goal of accurately recording and preserving diving history. To this end, an Agreement of Affiliation was recently signed with HDS Spain. Similar agreements are also in place with the Societies in France, Canada, Russia, Mexico, South East Asia & Pacific, Germany, Italy, U.K., Poland and South Africa.

The last part of the quarter will be spent on preparations for the Tarpon Springs Conference and our appearance at DEMA. We hope to see you at one of those events.

— Staff report





# Helmets of the Deep



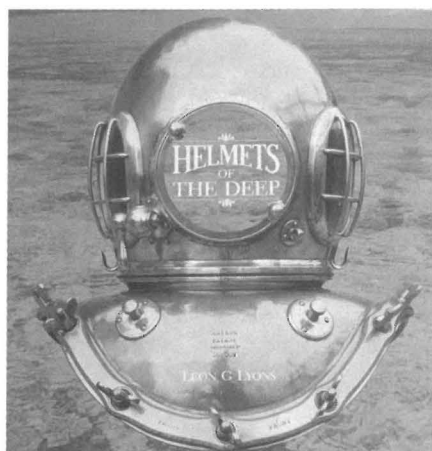
*This column was created in issue 8, Summer 1996, to cover helmets that were not featured in Leon Lyons 1988 book, Helmets of the Deep. Leon is now undertaking a second edition of the book and took time out in August 2007 to answer some questions for us.*

**HDM:** We have received a lot of interest in the announcement that you are doing a second edition of *Helmets of the Deep*. Our pre-orders are past 100. What was the most import factor in your decision to undertake this new project?

**Leon Lyons:** It's hard to say what the most important factor is. I would probably have to say there are three, the first one being the questions from many friends and collectors of why don't I do a reprint. The second is how many more helmets have shown up on the scene since my first book was published. The third is finding the right person to do the photography. What with all this digital stuff they do today, and myself not wanting to get into the learning how-to-do-it mode, the photographer came along at the right time, and is also very helpful in assembling the contents of all the new pages.

**HDM:** Are you retaining the core of the first edition and expanding it with new material?

**Leon Lyons:** Yes. Some 380 pages. I am adding another 500 pages or more, and therefore I'm having to raise the initial price quote I made. Initially I thought that I would be adding only another 200-300 pages. I thought it was going to be easy reprinting the pages from the original book, but I found out that most of the newer publishing houses do not work with



the kind of color separations I have from the first book, so we had to re-photograph each page again from the original proof pages. This was a kind of a godsend, in that I can now insert all the new material in their respective chapters, creating all new page numbers.

This reprint project was cast into four phases. The first was taking pictures of all the new helmets I have collected since my first book was published, second re-photographing all the pages in the first book, third checking out all the CDs I have received with new material, and the fourth was to do the layouts of all the new pages. When all the info is on CDs, then they will be mailed out to the publisher, who needs maybe three months to have the finished product at my door. So, if I can get it all done by the end of this year, my end of the project, you could be seeing the book around March of 2008.

**HDM:** Will you be updating any of the first edition information?

**Leon Lyons:** Yes, some updating of the helmets in the first edition. I have taken some of these hats and have taken them apart to show what they look like unassembled in the normal

way, photographing serial numbers, name plates, military and commercial markings.

**HDM:** What sort of new content will you have and how many copies are you printing?

**Leon Lyons:** It is amazing the great response I have had from people wanting to contribute pictures for this edition. They have certainly added to the amount of new pages for the book. New content will include pictures of old-time diver helmets, the new generation of fiberglass, brass, and stainless commercial helmets used today. The new content will consist of many newer dive helmets to be pictured. I am doing 1,900 regular and 100 leather bound copies.

**HDM:** Are there any major surprises in what you have discovered since the first edition?

**Leon Lyons:** Yes, there will be many surprises. For example, in the chapter on Russia in my first book, there was only one style of helmet shown. In the second edition there will maybe be an additional 18 helmets pictured that collectors have not seen. Also Brazil will be featured with several helmets.

**HDM:** The number of people collecting helmets seems to have expanded considerably with the advent of the internet, which was not really active when you published the first edition. Are there many contributions from collectors who were not featured in the first edition?

**Leon Lyons:** Yes, some others, with photos that I do not already have, could be in the book. I have mentioned earlier about the number of new pages to be added, but I can only guess

that it will be another 500 pages, but quite possibly add on another 200 pages to the 500. I have no way right now of telling the exact number, until we finish with the CDs, and I'm also waiting for a few more CD's to arrive. Also, I have added another three helmets to my collection since last month, so there are three more pages, maybe four. One hat is very interesting in the condition it is in, and from where it came.

**HDM:** What is your estimated retail price?

**Leon Lyons:** Price for the normal edition is looking to be in the \$400-range now, and the leather edition, near \$800. I'll know better once I have all the contents together. When I am working on phase four, I shall let HDS and others who have pending orders know. Probably around November. I will give my best estimated cost of the book and once I receive payment the order will be confirmed.

With HDS I might just ship your complete order directly from the printers to your office and then fly in to sign them all. You can throw a party for me if you want. This book will be much larger in format size than the first one, so that it opens flat in the middle binding area. It will need a special-size shipping box so you need to figure out that cost plus your shipping.

**HDM:** What about the book on diving knives?

**Leon Lyons:** If all goes according to plan in getting my material to the publisher of the helmet book, then sometime next year. In April or May, I will probably begin work on a book about diving knives, the brass and steel hardhat diver knives, knives used by frogman and SEAL teams around the world, and scuba diving knives. Up to this date in time, I have some 1,500 diving knives in my collection, all different variations. You may see 30 of them that look alike, but they will have different company names stamped on them, that were

made on contract for the navies, and others that have military markings stamped into the metal parts. So you will have the one knife with nothing, and the next will have markings on it, therefore, a variation. It will be one heck of an undertaking to do this book, as all the knives are hanging up for display, and they are not in any kind of order. As they found their way into my collection, they would be hung on the walls in the groups they came in, all over the museum area.

On one wall alone, there are 496 knives hanging there. You could say it is a job I will not be happily looking forward to, something akin to going back to work. But I know that this book will be the definitive record of diving knives that are known to us collectors. I expect that I will also have photos of knives from other collections. I have been asked by many, when the book is coming out. All I can say is, that it will be published.



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# Bert Cutting

## Blind Commercial Diver

BY DOROTHY BARSTAD

*In 1952, Bert Cutting salvaged 146 of 155 new cars and their three-deck transport barge, which had been lost in a winter snowstorm on the Ohio River. What makes Bert's story remarkable is not that he used homebuilt equipment, or that he taught himself to dive, but that Bert had been blind from the age of 15.*



**Bert Cutting.**

According to the family history, as told by Harry Cutting, Bert Cutting's eldest son, the cartoon hero "Dick Tracy" is credited for Bert becoming a diver. Bert, born in 1894, lost his eyesight at the age of 15 from complications of typhoid fever. In 1936, while the family was living in Illinois on the Little Wabash River, Bert and his son Harry were "musseling" along the shores. Before the development of plastics, the mussel shells were used to make buttons. Using a johnboat and holding onto the side with one hand, the 42-year-old Bert used his bare feet to find the mussels buried in the mud of the banks and sandbars. He would duck under the water and scoop up the mussels with his free hand. Young Harry's job was to guide the boat, watching for fallen trees, snags and debris as his father rowed them from place to place in their search for shells.

One of Harry's other duties was to read the newspaper to his dad. It was while reading the Dick Tracy comic strip one day that Bert

came up with the idea of working underwater. The story had Tracy chasing a crook through Central Park. The crook managed to escape by jumping into a lake, and with a reed to breathe through, hid under the lily pads.

Over the next few days, Bert tried several of his ideas for breathing underwater. He first tried rigging up a piece of hose to use instead of Dick Tracy's reed, but water went up his nose. The next day he clamped a clothes pin on his nose, but this caused too much pressure to build up in his head. After several unsuccessful tries, he contacted the Miller-Dunn Diving Company in Florida. He explained to them his ideas and his need for getting into the deeper water. The Miller-Dunn engineers drew up plans for Bert's first helmet, a windowless shallow water helmet similar in appearance to the famous Miller-Dunn Divin Hoods.

It was designed to receive air from a two cylinder tire pump, that would pump on both the

up and down strokes. Bert took the Miller-Dunn plans to a metal worker in Marion, Indiana, but realizing that his young sons could not sit and hand-pump air all day, he substituted a connection for a garden hose to replace the small air hose fitting of the Miller-Dunn plan.

He bought a paint spray compressor for \$10 and used the gasoline motor from his wife's Maytag washer to run the compressor. From that time on

Bert Cutting was a diver.

Bert spent the summers diving, often staying underwater for six hours at a time, using his unique hand-made hat, barefoot, and wearing only a bathing suit. On a good day Bert could recover 120 pounds of mussel shells, bringing \$40 to \$100 a ton, according to the quality, at the button factories. (That is \$2.40 to \$6 per day). His mother, Della Cutting, or one of his young sons remained in the boat to operate the old washing machine motor and compressor. With a guideline attached to his waist and carrying a wire basket over his arm, Bert would walk around underwater using his hands and feet to find the shells. Because of the cold water temperatures, the diving was primarily summer work. Occasionally during the winter, a small job would come along such as raising a boat, but for the most part he worked cutting timber. His 15 year-old son Harry, worked with him using a cross-cut

saw. When the tree came down, he simply held onto the saw, trusting his son to lead him away from the danger of the falling tree. They even felled trees and had them milled to build their own cabin.

During the Depression years and into the 1940s, Bert continued musseling, but with the development of plastics, pearl buttons made from mussel shells soon became a thing of the past. Bert continued to dive, whenever salvage jobs came his way. Overcoming his handicap wasn't as difficult as convincing people that a blind man was as capable as the next man. "There's always been plenty of work available," stated Bert, "but the job has been to convince the other fellow that a blind man can do it."

In 1941, an oil truck went off the end of a ferry into the Wabash River. The driver spent a good week trying to find a sighted person to retrieve the truck, but finally contacted Bert. It took all of 20 minutes for Bert to get a line

hooked up and have the truck pulled out. A few weeks later the same thing happened on the opposite side of the river. Having made a believer out of the first trucker, Bert was called immediately and that truck was also pulled out in short order. In 1942, Bert had "a nice job" on the Ohio River laying 180 feet of 12-inch pipe for a waterworks. The pipe was assembled above water and floated with oil drums. Bert simply went along and cut away the drums, allowing the pipeline to settle on the river bed.

The Cutting family then moved to Mattoon, Illinois, where he was employed as a broom-maker and his wife, Eila, did rug-weaving and chair-caning. Bert continued to dive, salvaging several boats that had sunk and doing other salvage jobs. He also recovered a couple of bodies, a gruesome task, for which he always refused payment.

It was a surprise to find Bert's military registration for WWI, but even more amazing

was the story his sons told of how he tried to enlist in the Navy during WWII. He felt that his unique ability to work in total darkness would be an asset when working underwater at night. After being turned down by the Navy, Bert then came up with a proposal to train blind people for war emergency work but received a cold shoulder from the military. He continued with his campaign by writing letters to President Roosevelt and felt that something might have been done if not for untimely death of the President.

His most successful and profitable venture was the job of recovering 146 new cars and a barge from the Ohio River near Golconda, Illinois in 1952. There were a number of newspapers that covered the feat and attracted the attention of Robert Ripley of Ripley's Believe It or Not! Ripley determined that true to Cutting's claim, he was the only blind commercial diver known at that time.

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The barge, loaded with 155 new cars (Dodges, DeSotos and Plymouths) went to the bottom of the river in December 1951 during a snowstorm. By June of 1952, two large salvage companies had attempted to recover the vehicles, and after spending large sums of money, had given up. The first project failed, with one car salvaged at a cost of \$35,000. Three cars recovered by the second effort were in poor condition after being underwater for several months. Those cars were beached on the river bank to dry out, only to be striped by river pirates a few days later. Five of the cars were lost when they washed down river and were never recovered.

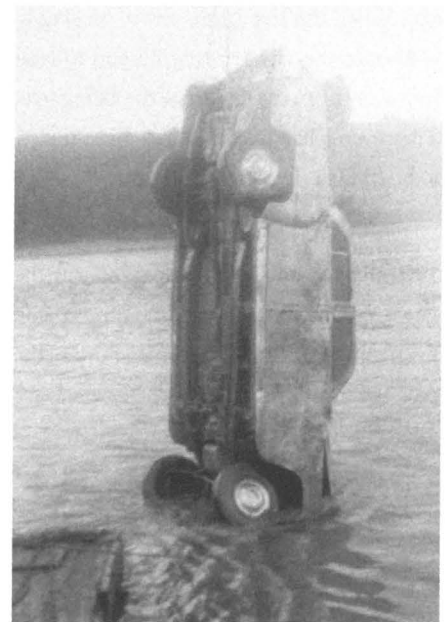
Directing the third attempt was Thomas Strickland, Sr., another blind man and head of the Strickland Construction Company in Moline. Bert and Strickland, Sr. had met by chance at a St. Louis insurance office that was handling the insurance claims for both the vehicles and barge. The two blind men formed a working

partnership with Strickland's son, Thomas, Jr., and took on the job of salvaging \$300,000 worth of vehicles and a large river barge.

Tom, Jr. was the foreman in charge of cleaning, selling and providing security; Bert Cutting was the diver; and Tom, Sr. financed the venture. A requirement of the insurance company was to have a secondary diver. Bert's youngest son, 14-year-old Carroll "Shorty" Cutting, was immediately pressed into service and worked with his dad until he returned to school for the fall term, missing the last two days of the operation. During the salvage work the Cutting family lived on a house boat tied to the barge in order to keep the river pirates and other salvage hunters away from the site.

Bert worked in approximately 15 to 24 feet of muddy water, barefoot and wearing only his swim trunks, a vest loaded with weight, his hand-made shallow water helmet with no port, and his garden hose connected to a small air compressor. Working underwater, six to eight hours at a stretch, barking his shins and cutting fingers on broken windshields and twisted metal, Bert labored for 100 days to complete the job, salvaging 146 of the original 155 cars.

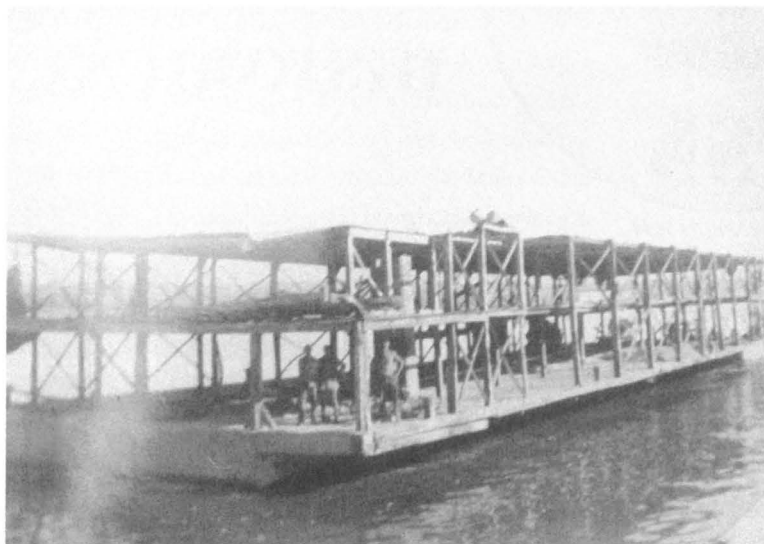
The cars were hauled onto the river bank to dry out and were then ferried upstream to Golconda. There they were sold for \$800 each with no regard to the make or model,



as many of the Dodges and Plymouths were convertibles or hardtops. The cars were in good condition mechanically, with damage only to the bodies and in need of new upholstery.

Salvaging the barge was "a little more of a problem," he said. First, they had to pump out about 300 tons of mud and then plug the numerous openings in the decks with planking, corking or cement-filled burlap bags. Once they were able to refloat the barge, it was an easy tow up the river.

With the \$10,000 from the salvage job in his pocket, Bert bought one of the cars, a 1952 Plymouth station wagon and took his first vacation. With daughter Marguerite doing the driving, Bert and wife, Eila, his mother and son Shorty, the family journeyed to California for a visit with Harry and his family. While in the L.A. Harbor area, Bert contacted several commercial divers, including E.R. Cross (HDM Issue #37, p. 22) to investigate the possibility of working as an abalone diver. But he was unable to overcome the preconceived opinions of sighted divers, that a blind



**Clockwise from top left:**  
Bert making a salvage dive  
in 1952, car being pulled  
from the Ohio River, salvaged  
three-deck barge.

man was not capable of doing the job just as well as anyone else.

The old saying goes, "You can't keep a good man down," and it certainly applied to Bert Cutting. Soon after going blind he attended the Indiana School for the Blind at Indianapolis. By the time he was 19, he had attended Marion Business College and became a steno typist. On August 27, 1914, The *Marion Daily Star* carried the story of 19-year-old Bert Cutting using a Stenotype machine to record a speech by the governor of Indiana, thus earning Bert the distinction of being the first blind shorthand reporter. He was also a graduate of a chiropractic school. It was while attending the Blind School that he met the woman who was to become his wife. Eila was also blind from the improper use of a medication in her eyes as an infant. Bert

and Eila were married on February 2, 1919, raising six children. Discussing the family in 1969, Eila was quoted as saying, "We've had our ups and downs like any family, but my husband and I have been a happy, congenial couple. God has been good to us."

In August 2006, on the day we turned up on Harry Cutting's doorstep, his first comment was, "I knew that someday, someone would show up about my dad!"

Thanks to Harry and Carroll "Shorty" Cutting, we can share in their pictures, news clippings and memories of their father, commercial diver Bert Cutting.

*Text and images copyrighted by Dorothy Barstad and the Cutting Family.*



Bert Cutting's helmet.

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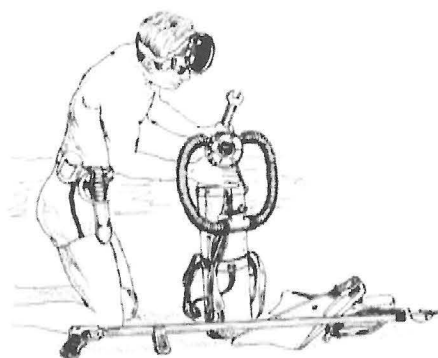


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# SCUBA WORKSHOP

## The Porpoise Prototype

BY DES WALTERS



Some HDS SEAP members enjoy restoring heritage diving equipment, and Des Walters from Descend Underwater Training Centre at Albury, NSW, is certainly qualified to do so. In this article Des explains how he re-created Ted Eldred's Porpoise prototype, by using a 1940's "Comweld" regulator supplied by HDS SEAP member Mel Brown and contemporary photographs.

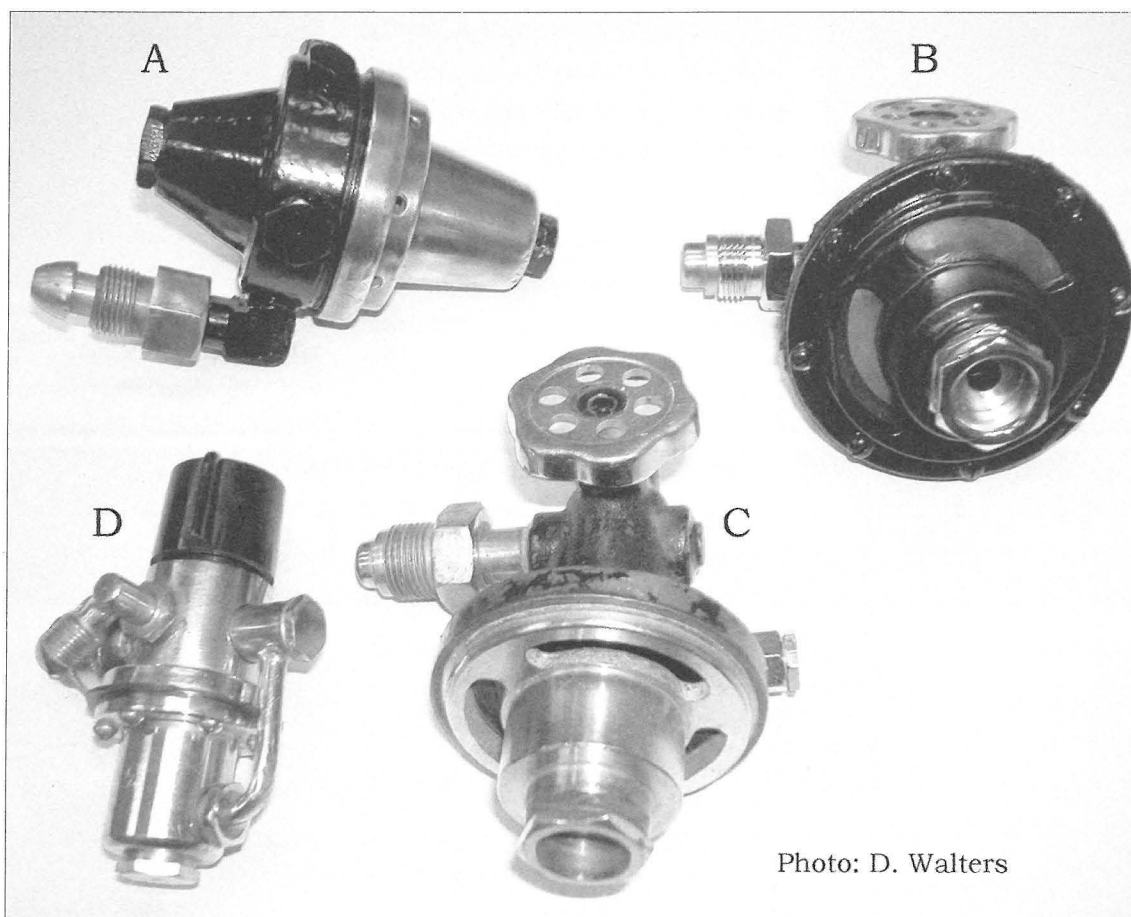


Photo: D. Walters

**The Porpoise evolution — a unique photographic timeline. Clockwise from top left: (A) Modified Comweld first stage. (B) One of only two known surviving Porpoise CA-type first stages, with its bolted-together body. (C) The popular Porpoise CA1 with slightly smaller diameter body, screwed together. (D) Ted's masterpiece, the powerful "Porpoise UNIVERSAL" first stage, capable of delivering 290 litres of air flow. (Photo © Des Walters — Descend Underwater Training Centre.)**

It's no secret that I am a Porpoise nut, so you can imagine my excitement when long-time scuba collector Mel Brown offered me a chance to rebuild one of his old Porpoise first stages. Actually it wasn't, strictly speaking, a Porpoise as it had never been used as a scuba regulator. It was a Comweld welding regulator of the same model that Ted Eldred had used

in the very early development stages of scuba production.

When Ted actually started building scuba units, the true genius of his design was the fact that he did not copy the Cousteau twin-hose design, but instead produced a single-hose two-stage design. Not only was it safer, but it performed so much better that virtually

every manufacturer in the world today uses Ted's design principle.

Ted actually began with the second-stage demand valve, because nothing like it existed. He connected this prototype second stage to a modified Comweld welding regulator, as it was readily available commercially in Australia.



This configuration was never produced commercially, and we are probably lucky to even know about it.

My curiosity was raised when I found several photos of this unit in Ted's scrapbook. On the back of one photo was a handwritten note indicating that the first stage was a welding regulator.

I thought this unit was gone forever, but Mel Brown has a keen eye for detail, and when he found an old welding regulator, he identified it as the same type used by Ted, as shown in the early photos.

Now it was my job to modify the regulator, as Ted did, but I had the benefit of Ted's photos to follow. The first part was easy—remove the gauges and plug them off with one-quarter BSP plugs. The next bit was harder, as I had to remove the oxygen spigot and connecting tube that attaches the regulator to the cylinder and replace it with a right-angle fitting, so that

it fitted properly to a scuba cylinder. These fittings had been soldered into place. I dismantled the regulator, removed the fittings, re-machined the regulator body to accept a standard brass elbow and soldered it all back together. I took the opportunity, while the regulator was apart, to ultrasonically clean all of the parts and polish the front brass cover of the regulator, before repainting the body in its original gloss black.

Now for the reassembly. It was obvious from the photos that Ted had replaced the Tee screw adjusting handle with a fixed bolt, so I did the same. It was ready for a test run. I connected a Porpoise CA1 second stage and pressurised the unit, but nothing happened.



1948 Comweld welding regulator. (Photo © D. Walters)

No air came into the second stage. I thought about that for a while and decided it was the high-pressure seat adjustment. The seat is accessible via a plug in the back of the body, and it has a locking screw behind it.

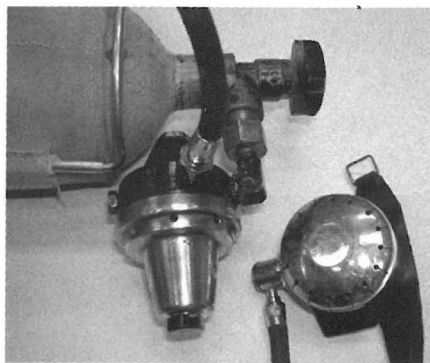
I removed the plug and the locking screw and backed the HP seat one-quarter turn out,



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**Top:** Ivor Maloney at Melbourne City Baths, early 1950s, with the Porpoise prototype and Ted's modified Comweld regulator.  
(© E. Eldred collection)

**Center:** Another view of the Porpoise prototype.  
(Photo © W. Taylor collection)

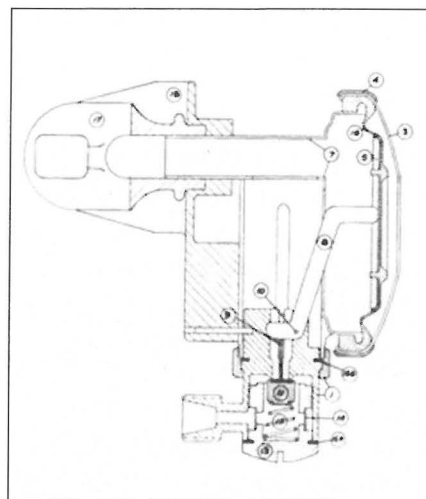
**Bottom:** Des Walters' modified Comweld regulator and Porpoise second stage.  
(Photo © D. Walters)

reassembled and tried again. This time I got air, but there was a high inhalation effort and a lag between breaths, a bit like not having the cylinder valve opened properly.

I then decided to up the pressure on the bolt that replaced the Tee screw. Bang! I blew the LP hose. Well, I was learning. There are two adjustments. The HP seat gap controls the volume of the flow and the Tee screw controls the pressure. Obviously, both need to be just right. After a new hose and some more trial and error, I found the right combination. For this regulator it was one-half turn out on the HP seat and the bolt replacing the Tee screw needs to be 18.5mm long to get the 40psi line pressure that Ted used on the Porpoise CA1 second stages. When you get it right, it breathes great.

Of course, bench testing is one thing, but I couldn't resist putting it underwater, so I went off to the pool. My pool is shallow, but the regulator worked faultlessly. It was smooth and dry, although the inhalation effort was about .4. This was still acceptable even for a modern regulator, but this one was made around 1948.

Of course it wasn't good enough for Ted, and before he put the Porpoise into production in the early 1950s, he built a completely new first stage which we call the CA. The CA was not a copy, in any way, of the welding regulator. This is obvious when you look at the photo of the evolution of the Porpoise first stages.



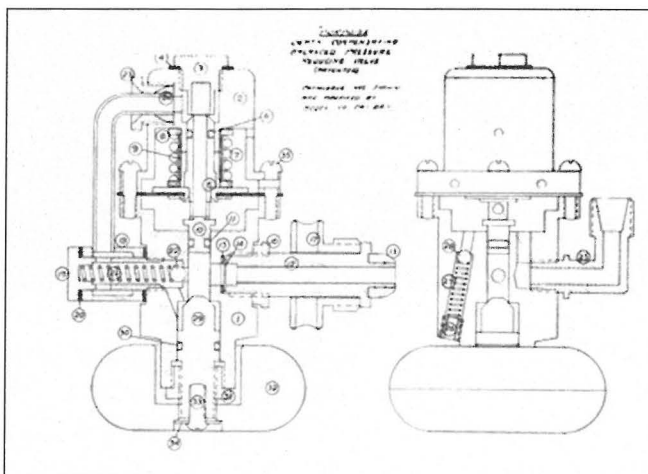
The timeline is:

- (A) The COMWELD prototype.
- (B) The CA with its body bolted together;
- (C) The CA1 with its slightly smaller-diameter body screwed together; and
- (D) Ted's masterpiece, the vacuum-assisted "Universal," which set the performance standard for all modern scuba regulators.

The "Universal" could produce 290 litres of flow. This may be the first time all four Porpoise regulators have been photographed together.

*Thank you, Des. An excellent achievement, especially as we can at last see how Ted's Porpoise evolved. HDS SEAP members Mel Brown, Des Walters and Tony Gregory work as a team and have restored several vintage Porpoise units.*

— Kent Rockwell, Editor



The cutaway drawing above is of a typical Porpoise second-stage regulator.

To the left are cutaways of the Porpoise Universal first stage. This is a balanced first-stage diaphragm regulator with a large reserve knob on the bottom ... operating the reserve system.

This is a listing of recent articles on diving history and related subjects appearing in other publications. Please send submissions to the Publisher, at the Society address on page 1.

"Why Some Divers Want To Work in Nuclear Reactors." *The Wall Street Journal*, 1/17/07. It takes a lot to get diving on the front page of any publication, but the WSJ headed a front page above-the-fold column with this one. Submitted by William D. Downing, P.E.

"Operation Crossroads, Sixty Years Later," by Eric Hanauer. History and current diving on the wrecks. A terrific article with fabulous photography by a founding HDS member. *Fathoms* magazine 2007 number 19. [www.FathomsMagazine.com](http://www.FathomsMagazine.com)

"Gold 70 Fathoms Deep," by Leigh Bishop. Technical diving on the WWII wreck of the *Niagara* including recovery of the ship's bell. *Dive New Zealand* issue 100 June/July 2007. [www.DiveNewZealand.com](http://www.DiveNewZealand.com)

"Celebrating 100 issues," by Dave Moran. A review of the history and the historical events and people covered in the first 100 issues of *Dive New Zealand* magazine. A very complete guide including interview references, deep wreck diving, freediving, wreck discovery, and

## Recent Published History

more, laid out in a scrapbook style. *Dive New Zealand* issue 100 June/July 2007. [www.DiveNewZealand.com](http://www.DiveNewZealand.com)

Chuck Nicklin Interview, by Eric Hanauer. *Fathoms* magazine 2007 number 19. [www.FathomsMagazine.com](http://www.FathomsMagazine.com)

"On Eternal Patrol. The Unexpected Discovery of USS *Perch* SS - 176," by Kevin Denlay. Technical diving in the Java Sea by a well-respected wreck diving authority. *Sport Diving* magazine issue 122, June/July 2007. [www.divetheblue.net](http://www.divetheblue.net)

"Up the Down Line. Excerpts from Cast A Deep Shadow, The Joe Savoie Story," by Gary L. Harris. *Underwater* magazine March/April 2007. [www.underwater.com](http://www.underwater.com)

"A Trip Down Memory Lane. Antique American Diving Helmets from the Atlantic Diving Collection." *Underwater* magazine, March/April 2007. [www.underwater.com](http://www.underwater.com)

"Dr. Roger Hanlon Interview," by Rhonda Moniz. Hanlon is one of the world's leading experts on cephalopods working out of Woods Hole. *Fathoms* magazine

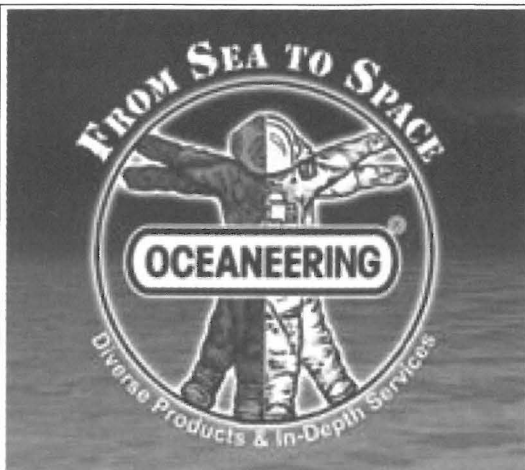
2007 number 20. [www.FathomsMagazine.com](http://www.FathomsMagazine.com)

"Baby Boomer Divers. Midlife and Beyond," by Linda Lee Walden. *Dive Training* magazine, August 2007. [Divetraining@spc-mag.com](mailto:Divetraining@spc-mag.com)

"Dawes Descent. The Wreck of the S.S. *William Dawes*," by Richard Harris. Technical diving on this WWII Liberty ship sunk by Japanese submarine 1-11 off the coast of New South Wales on July 2, 1942. *Sport Diving* magazine, issue 121, April/May 2007. [www.divetheblue.net](http://www.divetheblue.net)

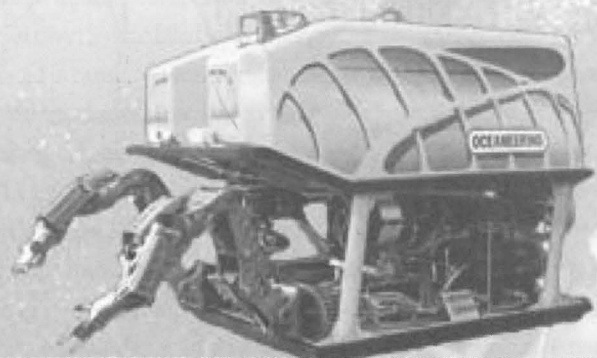
"Goin' with the Flow. Ernest Cox's Salvage of the Scuttled German Fleet at Scapa Flow," by Don Walsh. Also images of the remaining wrecks and HMS *Royal Oak* using sidescan sonar, by Martin Dean, Mark Lawrence and Chris Rowland. *DIVER* magazine, July / August 2007. [www.divermag.com](http://www.divermag.com)

"Leigh Bishop Interview," by Dave Moran. Bishop was one of the first UK recreational divers to start using mixed gas for deep shipwreck exploration. Includes diving on the *Lusitania*, *Britannic*, *Egypt*, and others. *Dive New Zealand* issue 101, August/September 2007. [www.DiveNewZealand.com](http://www.DiveNewZealand.com)



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# The First Practical Closed-Circuit Breathing Apparatus

BY JAMES VOROSMARTI, M.D.

(No Model.)

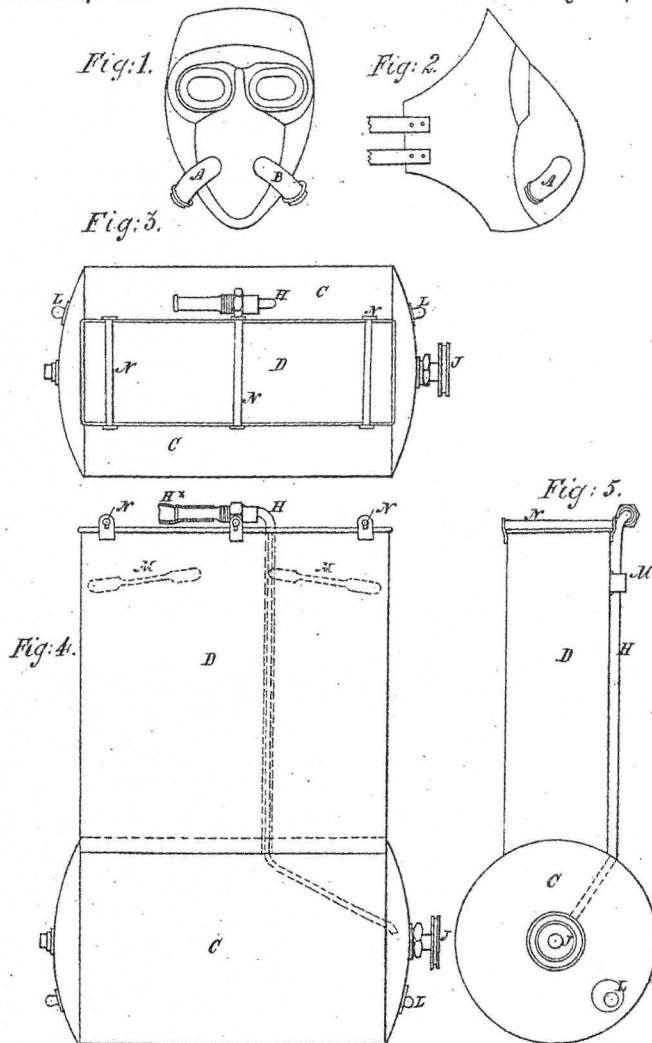
3 Sheets—Sheet 1.

H. A. FLEUSS.

APPLIANCE FOR ENABLING PERSONS TO REMAIN UNDER WATER  
OR IN VITIATED AIR.

No. 244,043.

Patented July 12, 1881.



Witnesses,

*Wm. A. Skink*  
*Jos. S. Latimer*

Inventor,

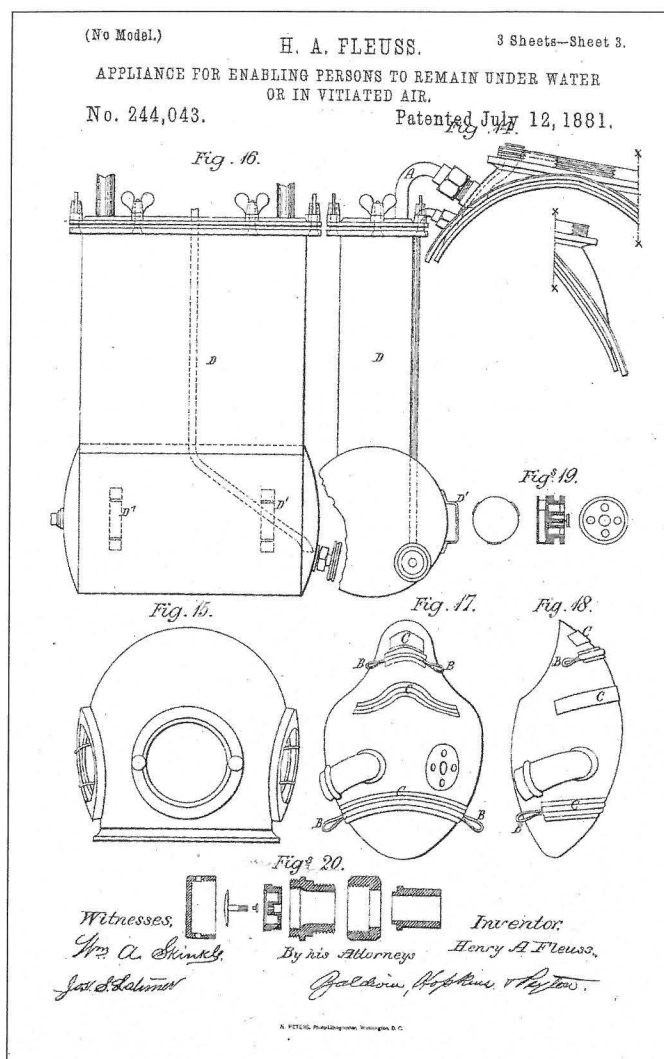
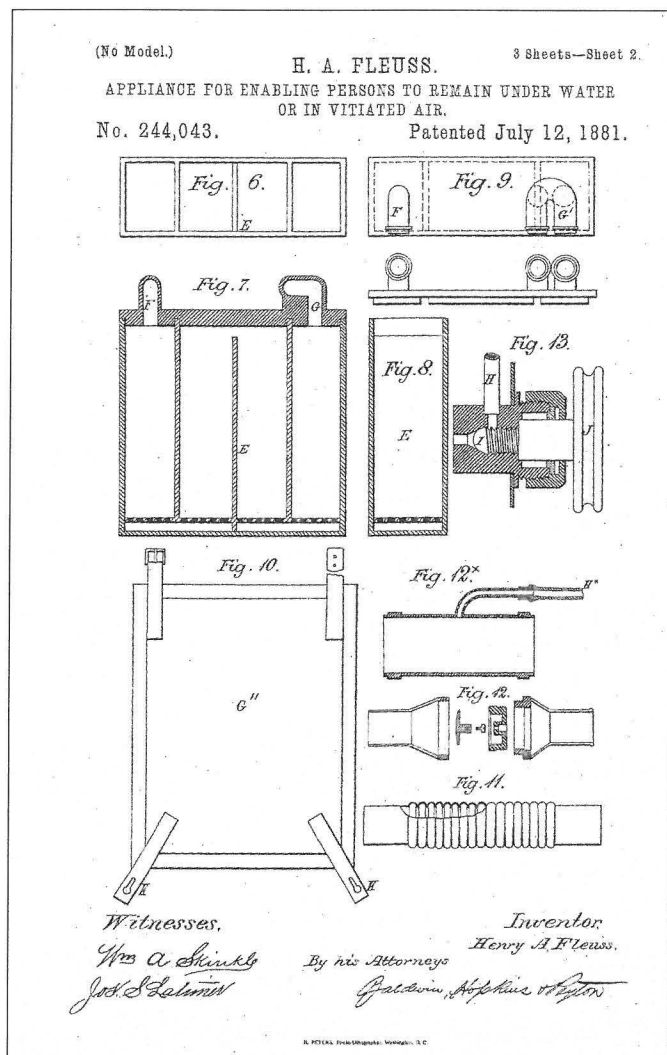
By his Attorneys *Henry A. Fleuss*  
*J. Edwin, Hopkins & Co.*

N. PETERS, Photo-Lithographer, Washington, D. C.

The first practical closed-circuit breathing apparatus (or rebreather) was devised and patented by Henry A. Fleuss in England in 1879 (Patent Number 4,137, dated 13 October). On 7 February 1881 he applied for a patent in the United States for this apparatus, and it was granted on 13 October 1881, Patent Number 244,043, Appliances for Enabling Persons to Remain Underwater or in Vitiated Air.

Fleuss was not the first to have had the idea for a rebreather. Stephen Hales, of England, in 1726 had designed one which was a simple bag and breathing tube system.(1) The bag, made of leather, was lined with flannel that had been soaked in sea-salt and tartar to absorb the exhaled carbon dioxide. Because oxygen was unknown at the time, there was no way to replenish this without the diver surfacing and refilling the bag with air or succumbing to hypoxia. Another early attempt at a rebreather was by Wehrle in Germany in 1835. This system used chloride of lime as a carbon dioxide absorbent, but no details are available. Another system using carbon dioxide absorbent was designed by Schwann of Belgium in 1853. Both of these are mentioned in Reference 1. Davis(2) states that another suggestion for a rebreather was made by Sandala, a Frenchman, in 1842, but no design was ever published. In none of the latter cited cases was using oxygen to replenish the depleted gas mentioned. It was left to Fleuss to come up with a usable system, which he began experimenting with in the mid-1870s.

His design for the breathing system was the same for use at atmospheric pressure



Note: Details like the baffling "E" in the absorbent canister (Fig. 7), one-way mushroom valves (Fig. 42) and corrugated hoses (Fig. 44) show advanced thinking in the late 1800s.

or underwater except for the use of a full-face mask and breathing bag when at one atmosphere as opposed to a diving helmet when underwater; when the diving dress was used as the "breathing bag." Figures 1 and 2 show the mask used when the system was configured for breathing at one atmosphere. It is a mask we are all familiar with and was made of "vulcanite" with soft India rubber edges to provide a tight seal around the face. Straps were used to keep it mounted securely on the head. From the mask there were two short corrugated tubes, one for inhalation and one for exhalation. These tubes were supplied with appropriate one-way valves (Fig. 12). The reoxygenated air was led from the absorbent canister to the breathing bag and the user inhaled from the bag. The exhalation tube from the mask was fitted with a one-way valve to prevent rebreathing the exhaled gases. A mask (Figs. 17 and 18) was also supplied when the unit was used with a helmet. This covered only the mouth and nose as the eyes did not need to be protected in this mode. The purified air was inhaled from the helmet through a valve on the mask (Fig. 19). This was presumably a one-way valve, but it is not so stated in the patent. The exhaled air was exhausted

through a tube in the helmet and a one-way valve (Fig. 20) to the absorbent canister. The carbon dioxide absorbent container (B), and oxygen cylinder (C) are shown in Figures 3 through 9.

The absorbent canister was a simple oblong metal box. Inside this box was fitted another box made of "vulcanite" or some other material which would not react with the caustic potash solution. Connectors for the breathing tubes were molded into this box. The interior box had a false bottom which was perforated to permit gases to flow through the three interior compartments made by vertical separators. The compartments were filled with small particles of spongy India-rubber saturated in caustic potash solution. Fleuss states; "By using numerous pellets or lumps saturated or coated with caustic potash solution for absorbing carbonic acid from the vitiated air the vitiated air is able to pass freely through the numerous interstices between the lumps or pellets, so that no difficulty is experienced in breathing, and the air may be brought into contact with a very extended potash-surface without much space being occupied..." These two considerations are still very important in the design of closed-circuit breathing apparatus. A metal

cover with a soft gasket sealed the inner box in the outer box by means of thumbscrews to make the assembly airtight.

Oxygen was supplied from a cylinder that was attached to the bottom of the absorbent canister. This was designed to hold a pressure of 30 atmospheres (450 psi). When used underwater, pipe (H) led oxygen directly to the helmet. When employed at one atmosphere, oxygen flowed from the cylinder to the tube supplying the purified air to the breathing bag. The flow of oxygen was controlled by the diver by use of a valve (Fig. 13). There is no information to explain how the diver decided to increase or decrease the flow of oxygen, so presumably it was done simply on whether he had symptoms of hypoxia or not, or was learned by experience with the rig. The entire canister-oxygen cylinder combination was carried as a backpack with leather shoulder straps and waist belt. An early design used

a double helmet, with the space between them as the oxygen reservoir(2). I suspect this design was not continued because the volume of oxygen that could be carried was not sufficient for long dives.

Any modern diver will easily recognize this rig as a closed-circuit oxygen apparatus. It certainly was the first practical one and was used extensively. Fleuss proved its practicality when on 4th of November, 1880, the Severn River tunnel flooded and could not be pumped dry because a watertight door had been fouled open. Fleuss, with Alexander Lambert in heavy gear as standby diver, made three descents into the tunnel to explore the operations. The next day Lambert continued the clearing process using the apparatus. His first dive lasted one hour and 30 minutes at a depth of 40 feet, showing that the oxygen supply was very adequate. After a second dive Lambert completed the job(3).


#### REFERENCES

1. Larson, Howard E., *A History of Self-Contained Diving and Underwater Swimming*; National Academy of Sciences-National Research Council, Publication 469, Washington, DC, 1959
2. Davis, Robert H., *Deep Diving and Submarine Operations*, 7th Edition, Siebe, Gorman and CO., p. 570-573, and Fig. 494, Chessington, England, 1962.
3. *Ibid.*, pp. 529-530.

The ninth edition of Sir Robert H. Davis' *Deep Diving and Submarine Operations* is available from the Society. Contact [hds@hds.org](mailto:hds@hds.org) or log on to [www.hds.org](http://www.hds.org) for information.

— Editor

Please see "O<sub>2</sub> and H<sub>2</sub>O The Fleuss Apparatus," by Peter Jackson in *Historical Diver Vol. 10 Issue 2 Spring 2002*, No. 31.



# SILVER SEAS

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# Fathomeering, An Amphibian's Tale

By Ivor Howitt

## BOOK REVIEW BY BOB RAMSAY

*Fathomeering, An Amphibian's Tale*, is the engaging story of Ivor Howitt's pioneering days in sport diving. The word "Fathomeering," a derivation of "mountaineering," was coined by Ivor Howitt to differentiate between springboard diving and the underwater swimming that he and his group of young adventurer "amphibians" were pioneering at the end of World War II. Although the term didn't catch-on with the diving community it would survive to add a measure of uniqueness to Ivor's literary work ... some 60 years later.

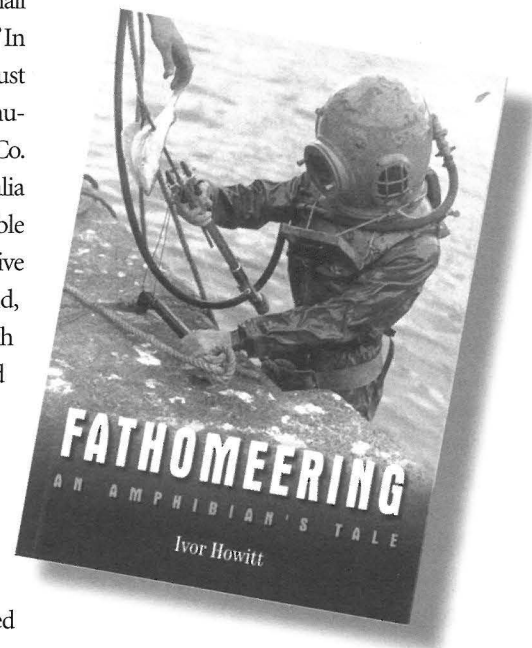
Ivor's 10-year odyssey under the sea gives a first-hand account of some of the first recreational diving in the United Kingdom. Ivor was also among the very earliest scuba divers in Australia.

Ivor grew up in Aberdeen, Scotland. He hiked and climbed in the nearby Cairngorm Mountains and his early diving exploits attracted the notice of the navy, who allowed him to try their dated diving gear off the Island of Mull off Scotland's West Coast. A chance meeting with the famous British frogman Commander Lionel Crabb brought Ivor's group the gift of used drysuits, which they needed badly. In fact, it was this lack of available equipment that best illustrates the inventive spirit of Ivor and his amphibian friends. With sport diving non-existent in Scotland in the mid 1940s, Ivor's industrious nature spurred him to construct and test his own crude diving equipment and camera gear. His underwater photographs where some of the earliest taken by a recreational scuba diver.

In 1948, Ivor and his friends formed a small dive club and named it "The Amphibians." In December of 1948, he purchased what must have been one of the first Aqua-Lungs manufactured under license by Siebe-Gorman & Co. Ltd. Two years later he emigrated to Australia taking his regulator with him. It is possible that it was the first scuba regulator to arrive in the country. As he had done in Scotland, Ivor charged the open-circuit scuba with pure oxygen for shallow water diving and his underwater adventures continued.

The 155-page book is profoundly illustrated with historical photographs, many in color, of these early events taken by Ivor and his Amphibians. The text is enhanced with a treasure trove of reproduced letters and receipts from the 1940s. These documents include the purchase of the 1948 Self Contained Compressed Air Diving Apparatus from Siebe Gorman & Co. Ltd., and a reply from Dunlop Rubber Company about the frogman's "swim fins" stating that, "We do not foresee a need to put these on the market again."

Although *Fathomeering's* gestation period has been a somewhat long one, HDS SEAP and others have been willing supporters of Ivor Howitt's project. Ever the gentleman, Ivor generously acknowledges this support in print. *Fathomeering* achieves the very essence of the Societies aims ... preserving the history of diving. During the time this book was evolving, the project received a great deal of support from diving historians hailing from Australia, Canada, New Zealand, the U.K. and the U.S.A. Ivor and his family appreciate this support from manuscript to published book.



Please see "Memories of an Aberdeen Amphibian, Personal Recollections of Early Sport Diving" by Ivor Howitt in *Historical Diver* issue number 20, Summer of 1999.

The Society expects to have this book available as an inventory item in the near future. Check availability at [www.hds.org](http://www.hds.org)



## Internet Auctions

The HDS-USA and HDM are not responsible for any errors in descriptions, listings or prices. Items that Failed To Meet their Reserve (FTMR) have their highest bids listed.

Internet auctions and sales during recent months. Prices are rounded to the next highest dollar. The content of this column is provided in good faith by members for general interest and is not a definitive guide. Vendors' opinions of what items are, and what condition is, are not consistent.

# Helmets in Auction

*A trio of incomplete Heinke Pearlers made a rare appearance during this auction period. All were missing their straps, which is common among the helmets used in the Australian pearling industry. The helmets were originally designed to be used with the standard closed dress, but as traditional hand-cranked pumps gave way to engine-driven compressors, the pearling industry converted many helmets to an open-style dress. The straps were discarded in favor of molding lead weights over the breastplate studs to add weight to the helmet, which was then used in a manner similar to American shallow-water helmets. Historically it replicated what the Deanes had developed in the 1830s prior to the ascent of the successful closed-dress system.*

— Leslie Leaney

### AMERICA

DESCO USN Mark V, serial # 277, dated 11/99. Bonnet crown signed "Men of Honor, Best Wishes, Carl Breashear, 7-17-01." In unused condition. With photo of Breashear and others, helmet stand and T wrench. Sold \$5,211.

Homemade shallow water hood. Stated as being made of iron with a face port styled after the design of a Miller Dunn 2 Divinhood. Sold \$2,151.

Miller Dunn Style 3 Divinhood. Missing top port guard with all port glasses. Sold \$3,225.

Miller Dunn USN Mark V, serial # 89, date August 1, 1943. All matching numbers with replaced spit cock and comms elbow. Listed for "Buy It Now" at \$13,500 and withdrawn, "because the item is no longer available."

Morse 3 light Commercial, serial # 4057, on breast plate # 3261. No tin and buffed finish. Mark V banana style exhaust tube with 8 point control wheel. Sold \$6,000 with probably an additional 20% buyers premium.

Morse Shallow Water helmet with original weights. Wired for comms. Appeared to be in excellent condition. Sold \$4,250.

Morse USN Mark V, serial # 1045, dated 11/8/43.



Left: American helmet, homemade; right: Pommec helmet, Holland.

Heavy patina, with one rear elbow pushed into the bonnet. Missing some wing nuts but otherwise appeared complete. Sold \$6,500.

Morse USN Mark V, serial # 153, dated 4/44 (matching). Appeared to have most of its tinning and to be in good condition. FTMR at \$5,420.

Morse USN Mark XII, dated January 1985. Complete with diving harness. Appeared to be unused. Sold \$3,567.

Snead, third style of manufacture. Appeared to be in very good original condition, minus the port glass. Sold \$1,225.

U.S. Divers Com Hat 1. No neck seal. Appeared to be in very good condition. Sold \$1,875.

### HOLLAND

Pommec Air Helmet, Model PAH7. For use with air or mixed gas. Stated as only one of 25 manufactured. Appeared in very good condition. Part of the collection of the late Carlos Dominguez. Sold \$4,340.

### JAPAN

TOA or Yokohama bonnet only with diamond style port guards. Non-factory comms elbow fitted. No tinning. Good condition. The description included an opinion that the bonnet was "a rare 1881 or 1883 Siebe Gorman." Sold \$2,500.

Yokohama Kirby style Helium Recirculator. Early model with separate elbows on either side of the canister. In very good condition with most of original nickel plating intact. Part of the collection of the late Carlos Dominguez. Sold \$8,005.

Yokohama Kirby style air hat, last style of bonnet. A working helmet with some wear. Included an un-punched #4 AJ dress. Sold \$7,050.

### RUSSIA

12 bolt, 3 light, tag stamped No. 897 and 1967. Appeared to be in good complete condition. Part of the collection of the late Carlos Dominguez. Sold \$1,272.

### UK

Heinke Pearler, serial #2289. Missing straps, nuts, inlet elbow, and exhaust control, with a cracked face plate and a large hole behind the exhaust valve area. A lot of wear on the bonnet. Stated as being owned by a well-known ex-Thursdays Islander. Located in Australia. Sold \$4,725.

Heinke Pearler, serial #6364. Missing face plate, straps, nuts exhaust control handle, some studs and the inlet elbow. Worn condition. Sold \$3,000.

Heinke Pearler, serial #7029. Missing straps, nuts, exhaust control, and showing a lot of wear. Had a tag stating that it had patented new air channels, 1909. No bids on a starting bid of \$7,024.

Siebe Gorman & Co. Ltd. 12 bolt, 3 light, serial # 3,721 (matching). Buffed finish, with lashing eyes instead of weight stud hangers on the breastplate. Located in Spain. FTMR at \$14,100.

Siebe Gorman & Co. Ltd. 12 bolt, 3 light, serial # 6185 (matching). Face plate # 4850. Appeared to be in good used condition. Located in Spain FTMR at \$8,600.

Siebe Gorman & Co. Ltd. 12 bolt, 4 light, serial # 17,740, which was probably the breastplate number as the bonnet did not detach. No tinning, missing straps and nuts, and not fitted with comms. Located in UK. Sold \$5,007.

Siebe Gorman & Co. Ltd. 12 bolt, 3 light, serial # 18959 (matching). Most of the tinning removed but appeared in very good complete condition. FTMR on opening bid of \$4,098.

# Scuba Auction



## VINTAGE SCUBA

Dacor model R-2 double hose regulator. \$103.  
DESCO model B rebreather, complete. \$335.  
La Spirotechnique CG-45 modified. \$1475.  
Northill Air-Lung pre-production model for U.S. Navy. \$391.  
Rose Pro black plastic single hose regulator. \$230.  
Scott Hydro-Pak mask and first stage. \$350.  
Scott Hydro-Pak mask and first stage, w/tank. \$380.  
US Divers black label Broxton two hose reg., s/n 3671. No hoses or mouthpiece. \$666.  
US Divers black label, badly corroded cover only. \$321.  
US Divers DW Stream-Air two hose reg. w/ no hoses. \$233.  
US Divers DW over pressure breathing regulator. \$510.  
Voit 50 Fathom Blue (plastic), very nice. \$688.  
Voit VR-1 single stage, two hose reg. w/ no hoses. \$700.  
Voit VR-1 complete two hose w/ box. \$1803.  
Voit VR-2 nice. \$844.

## SCUBA ACCESSORIES

Brass full-face mask for abalone diving. \$473.  
Hurricane compounding roller speargun, very neat piece, 1950s. \$428.  
US Divers Sea Hunter speargun. \$770.  
Voit 71.2 cu.ft. galvanized tank and harness w/ R Valve. \$215.  
Voit 007 James Bond Swim Fins in box. \$175.  
WWII Landing craft life-belt. \$247.



Clockwise from left: Voit blue regulator; Scott Hydro-Pak; Giddings 8mm housing; Sea Hunt comic; Movie poster, The Frogmen.

## UNDERWATER CAMERAS

Aqua-Cam, \$96.  
Calypso, serial #2930. \$512.  
Calypso, body only, serial #3232. \$211.  
Calypso body only, serial #546. \$305.  
Calypso body only, serial #5517. \$219.  
Calypso serial #4770. \$631.  
Healthways Mako Shark camera and flash in original box. \$134.  
Homebuilt camera housing with 8mm Kodak Brownie movie camera. \$284.  
Nemrod Siluro camera and accessories. \$138.  
Nikonos I (3) cameras \$97., \$123., \$150.  
Nikonos II. (4) cameras \$46.-\$249.  
Siluro Camera in original box with literature and exploded view listing part numbers. Unused condition. \$138.

## UNDERWATER CAMERA HOUSINGS

1960s flexible plastic bag-type housing. \$28.  
Borex 16mm camera housing and wooden box. Appeared to be in excellent condition. \$521.  
Borex 16mm camera housing and wooden box. A few tools. \$710.  
Borex B-8 8mm camera in plexiglass housing \$171.  
Giddings Bamboo Reef 8mm housing, excellent cond. \$251.  
Giddings Cinemar I motion picture housing. \$63.

Homemade housing (similar to Mart Toggweiler's design). \$67.

1950 Mako Lucite housing including Brownie Holiday camera. \$124.

Oceanic Hydrostrobe IV with Strobo Eye Sensor. \$12.

Oceanic Hydro 35 housing for Canon F1 with 28mm lens, included Oceanic Hydrostrobe and Ikelite housings for Pentax Stroboblar electronic flash. \$445.

Rolleimarin housing, manual and bag. \$785.

Seahawk housing with Argus C-44 camera. \$306.

## CAMERA ACCESSORIES

Seacor 21mm lens for Nikonos. Missing O-rings and not operational. \$112.

Two - Sekonic Auto Lumi light meters and housings, \$36.-\$88.

## BOOKS & EPHEMERA

B&W photo *Creature from the Black Lagoon*. \$135.

*Frogmen* movie poster very clean w/ no damage. \$375.

*Phantom From 10,000 Leagues*, 1956 movie poster (never folded). \$611.

*Sea Hunt* comic, #994, in excellent condition. \$400.

SEALAB III 1969 model kit by Aurora. \$104.

*Report on Deep Diving Tests 1915*, by Gunner G.D. Stillson, U.S. Navy. Presented by Adm. W.D. Taylor U.S.N. Chief of Staff. Excellent original condition. \$611.

*Underwater Photography and Television*, by E.R. Cross. Ni DJ. \$10.



## Classic Diving Equipment Groups

who are members of the HDS-USA. The activities of these groups are not official HDS-USA functions and the HDS-USA is not involved in any of the activities of these groups. This column is produced solely for the interest of our readers. Please consult the HDS-USA disclaimer at the front of this issue.

Due to the prevailing liability laws in America the HDS USA does not conduct any in-water activities. Some American-based divers have formed groups to restore, operate and preserve the classic equipment of America's rich diving heritage. These groups often contain divers



## Brass Hat Diver

Brass Hat Diver was invited to the National Marina Day held at Harbor Town Marina on Saturday, Aug. 11, 2007 in Dania, Florida. Our display and demonstrations included U.S. Navy MK V, Russian 3 bolt, and Chinese TF-12 helmets, along with an assortment of homemade and shallow-water gear.

Our dives were made in front of two very special groups of children this year. The first group was "Kids in Distress" and the second was "Hollywood Memorial Hospital organ transplant recipients." The genuine interest, motivation, and courage of these young adults made the dressing in of heavy gear at close to 100 degrees and 90 percent relative humidity an honor. Their well-thought-out questions and desires to learn more motivated us all and we look forward to the next event.

On Sunday HDS member Mike Russo invited all of the Brass Hat Diver volunteers out on the charter boat *Blue Runner* for a relaxing two-tank dive in the gear of their choice. A lot of fun was had by all, and we give a big thanks to all those involved to make this weekend such a success. We hold many impromptu events and dives; for information on how to become involved check out our web page [www.brasshatdiver.com](http://www.brasshatdiver.com) or email [info@brasshatdiver.com](mailto:info@brasshatdiver.com). If you're in the area, stop by and say "hi." We're located at, HYB Diving 5851 SW 21st Street, West Park, FL. 33023. 954-989-1377.

— Capt. John Gallagan



*U.S. Navy Mark V  
Diving Helmet*

## DESCO CORPORATION

has a long and proud history in the commercial diving industry. We are proud to sponsor the Historical Diving Society in their efforts to preserve and share the inventions, and stories of the events and people who made the diving industry what it is today.



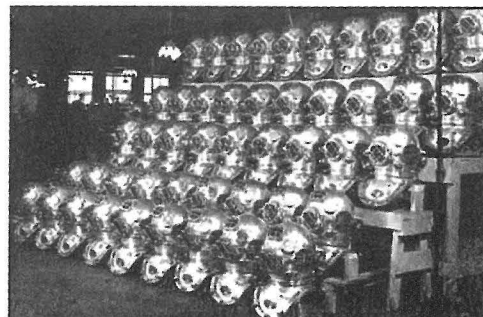
*DESCO Fisheries  
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*The Soldering Line*



*The Assembly Line*



*Ready to Ship*

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240 N. Milwaukee Street  
Milwaukee, WI 53202

**Phone:** 414-272-2371  
**FAX:** 414-272-2373  
**E-Mail:** [diveq@execpc.com](mailto:diveq@execpc.com)  
**[www.divedesco.com](http://www.divedesco.com)**

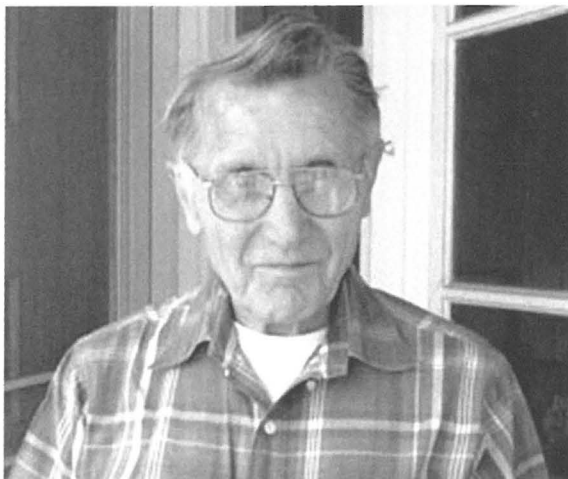
## In Memory Harold E. 'Bud' Froehlich July 13, 1922 - May 19, 2007

Harold E. "Bud" Froehlich, 84, the chief engineer of the *Alvin* deep-sea research vessel, died May 19, 2007, at St. John's Hospital in Maplewood, Minn. He had multiple myeloma.

Mr. Froehlich was an aerospace and mechanical engineer at General Mills when he was named project manager of the *Alvin* in the early 1960s. Better known as a food company, Minnesota-based General Mills also made precision military equipment and high-altitude balloons. The latter was Mr. Froehlich's specialty, and his knowledge of creating small spheres able to endure hostile environments was crucial to his work on *Alvin*. He told a reporter that "the same basic engineering principle is used to control both — ballast."

Although submersibles existed before *Alvin*, they were limited because of their mechanics. While at General Mills, Mr. Froehlich helped build a mechanical arm for the U.S. Navy-owned bathyscaph *Trieste* in 1960, which descended more than 35,000 feet with explorer Jacques Piccard at the helm. *Alvin* took advantage of a new buoyant material called syntactic foam to attain broader movement underwater and reach reasonable depths. Mr. Froehlich and his collaborators combined syntactic foam with large, hollow aluminum spheres to build the vessel.

The result was a smaller vehicle better suited to the needs of the Navy's Office of Naval Research and its scientific collaborators at Woods Hole Oceanographic Institution, a nonprofit research organization in Massachusetts that had an oversight role on *Alvin*. Mr. Froehlich participated in one of the first test dives made in 1964 near Woods Hole, Mass. "to the great depth of 27 feet," he later said. Refinements to *Alvin* followed, and by



the next year, the vessel was able to take two passengers 6,000 feet underwater. In later years, with a stronger titanium shell replacing the original stainless steel, *Alvin* could reach depths of more than 14,000 feet.

Now operated by Woods Hole, *Alvin* has made more than 4,000 dives. The vessel is scheduled to be replaced about 2010 with a vehicle that can reach more than 21,000 feet and cover 99 percent of the ocean floor, said *Alvin* project manager Bob Brown.

Harold Edward Froehlich, whose father was a cabinetmaker, was born in Minneapolis on July 13, 1922. After service in the Navy during World War II, he graduated from the University of Washington with bachelor's degrees in aeronautical and mechanical engineering. He received a master's degree in aeronautical engineering from the University of Illinois at Urbana-Champaign. After early work in aeronautical engineering for Boeing and other companies, Mr. Froehlich began working on high-altitude balloons for the General Mills aeronautical research labs in the early 1950s.

Mr. Froehlich led the team that created a workable prototype *Alvin* with several large portholes and claw-like hydraulic arms. His earlier design for a self-propelled,

two-man deep-sea vessel called the *Seapup* was instrumental in General Mills beating out such competitors as Lockheed and North American Aviation for the 1962 Navy contract

Mr. Froehlich told Minnesota Public Radio years later that winning the bid was an astonishing feat, because the Navy initially "was skeptical about a Wheaties company designing a submarine." The *Alvin* overseen by Mr. Froehlich could hold three people, including a driver. It measured 22 feet in length and was 8 feet at its widest.

According to "Water Baby," an *Alvin* history, he chose the width "because it was the legal width limit of any object that could be transported on a highway without special permits or an escort." Mr. Froehlich moved on to other work in 1964, soon after the *Alvin* was completed, but his basic design survived the decades as the vessel undertook a series of important missions. In 1966, *Alvin* was used to find a hydrogen bomb that had dropped after a U.S. military plane crashed off the Spanish coast.

Despite Mr. Froehlich's role, *Alvin* was named for Allyn Vine, a Woods Hole scientist who had been an early vocal proponent of federal funding of manned undersea missions. With Vine and Navy official Charles B. Momsen Jr., Mr. Froehlich received the 1989 Elmer A. Sperry Award for "the invention, development and deployment of the deep diving submarine, *Alvin*." The award is sponsored by prominent engineering societies.

Mr. Froehlich retired from Minnesota-based 3M in 1989, where he designed surgical equipment, including skin staplers. He lived in St. Anthony, Minn., a Minneapolis suburb.

*Sourced from Adam Bernstein, Washington Post staff. May 23, 2007. All rights reserved.*

## In Memory O.H. 'Ike' Bingham 1937 - 2007

In 1959, a young Ike Bingham was looking to fill the empty storefront of his furniture repair and refinishing company. He purchased the inventory and name of a small dive shop being run out of a garage in Indianapolis, Ind. The shop was named "Divers Supply Company."

After a wreck dive where all of the diving lights had either leaked or imploded, Ike saw the need for a reliable dive light.

He worked in off-hours to develop his prototype light, hand-poured and then cured in an old kitchen oven. The result was the first o-ring-sealed underwater light to incorporate a sealed-beam bulb. Lights were molded and assembled in the back of the dive shop and marketed through Dacor. In response to the increasing demand for "Ike's light," he formed Ikelite Underwater Systems in 1962.

Over the next 40-some years, Ike fervently drove innovation and provided quality products to the dive industry. Ikelite offered the first dive compass with a rotating bezel and direct reading degrees, which has since become the accepted standard. Lid-snap closures on housings, aiming lights for underwater strobes, interchangeable sync cords, wireless TTL slave sensors, and flashlight switch locks are only a handful of the now-common features Ikelite introduced to the diving world.

Ike was personally recognized for his achievements in 2001 with the DEMA "Reaching Out" award. Ike responded: "There are those who thought a roast or a lynching might have been more appropriate. The award is flattering and also embarrassing, considering the accomplishments of industry super stars like Bob Hollis, Allen Uke and Dave Parker.

"The irony goes back to when Archimedes and I were in school together. I've always been



bitter because Archimedes got all the credit for the buoyancy experiments we conducted together. Archimedes may have his buoyancy principle, but he does not have one of these awards.

"The industry must recognize that underwater photography remains the easiest vehicle to promote diving. This media sells the sport, sells diving trips, and it keeps people diving. People will move on to new sports if diving does not provide rewarding and exciting challenges."

Ike always conducted business in a manner that was completely "legal, ethical and moral." His commitment to quality and customer service was unparalleled. Most importantly, he realized that Ikelite would be nothing without its (now) 80-plus dedicated employees, many of whom have worked at the company for over 25 years.

Ike was the first corporate sponsor of this site (Digital Diver Network), and remained an active contributor until just weeks before his passing. I had the pleasure of meeting him in person at the DEMA show in Miami in 2003, and we enjoyed a lengthy conversation. At the time I was surprised that he would take

so much time to talk to a guy with one little web site, but I shouldn't have been surprised. After speaking with Ike, one could not help but be impressed with his humility, generosity and humanity. Our telephone conversations always began "Hi, it's crazy Ike ..."

There is no doubt that Ike had a greater impact on underwater photography than anyone. His "clearly superior" housings made underwater photography affordable and accessible for countless divers over the years, and never more than in the "digital age." The Ikelite family is working together to keep Ike's spirit and tradition alive. Daughter Jean Bingham says:

"We are still developing prototypes in the 'back of the dive shop' (sold in 1990). Look for the introduction of new and exciting products."

Ike's presence in the dive community was often subtle, but it made a profound impact. Truly "one-of-a-kind," Ike is irreplaceable. I am proud to have called him my friend.

Stephen Frink wrote: "Ike was indeed a great supporter of the the art and science of underwater photography. He and his associates at Ikelite set a standard for innovation and customer service that any company, in any industry, would be proud to emulate. It is ironic that as I was reading the tributes you all set forth this morning, the Ikelite banner resided on the top of the page. One more indication of his dedication to the UW photo community."

Farewell Ike, we will miss you.

*Text sourced from Digitaldiver.net; photo from Ikelite Underwater Systems.*



## In Memory Wallace 'Wally' Taylor Jenkins Tuesday, June 19, 2007

Wallace "Wally" Taylor Jenkins passed away Thursday, June 14, 2007, from acute leukemia.

Wally was well known to many throughout the diving world as one of the early pioneers of diving. He was involved in one way or another in virtually every aspect of military, scientific, commercial, sport and technical diving. He was one of the first divers to explore many of Florida's underwater cave systems.

Wally's diving career started in 1954 while he attended Florida State University. During this time, he worked part-time at Wakulla Springs, logging more than 500 dives in Wakulla alone. On many of these dives, Wally provided technical support for the movie *Airport 77*. These early days of diving would turn into a relationship with Wakulla Springs that would span more than 40 years.

During his college years, Wally explored shipwrecks on the U.S. East Coast from Florida to Massachusetts. After college, he entered the U.S. Navy, working as an intelligence officer.

During his active service, he had many unique diving opportunities all over the world. Wally left active duty and became a member of the U.S. Naval Reserve in 1962 and returned to the University of Washington to further his oceanography studies. Upon graduation, he was hired at the Coastal Systems Center in the Swimmer Diver Division and became one of the Aquanauts on both Sea Lab 2 and 3 projects — the very beginning of saturation diving as it is known today.



Other exploits included three Arctic expeditions studying and practicing under-the-ice diving techniques and procedures, after which he authored the *U.S. Navy Guide to Polar Diving*, as well as numerous other publications and articles.

Throughout his 28-year civil service career, he remained involved in virtually all aspects of diving. He attained the rank of Captain USNR and retired from government service as the diving systems branch head at the Coastal Systems Station in 1992.

Wally was deeply devoted to his family and friends, and was an active member of the Optimists Club, Coast Guard Auxil-

iary, Panama City Dive Club, St. Andrew Bay Resource Management Association and the U.S. Fish and Wildlife Service as well as many other volunteer programs.

He is survived by his wife, Laura Jenkins, of Panama City Beach; his daughter, Jennifer Taylor, of Loganville, Ga.; his sons, Mark and Greg Jenkins, of Ramona, Calif.; his brothers, Robert Jenkins, of St. Petersburg, Fla., Richard and Bill Jenkins, of Tampa, Fla.; and his grandchildren, Tiffany and A.J. Taylor, of Loganville, Ga., and Wyatt and Courtney Jenkins, of Ramona, Calif. He was predeceased by his parents, John and Daisy Mae Jenkins and his first wife, Sandra Sackman Jenkins.

The family of Wally Jenkins received friends from on June 20, 2007, in Panama City Beach, Florida. The memorial service was planned for Thursday, June 21, 2007, at Grace Episcopal Church. In lieu of flowers, donations may be made to Grace Episcopal Church, 9101 Panama City Beach Parkway, Panama City Beach, FL 32407.

We were unable to find if these services for Wally were carried out. We hope everything went well and his many friends were able to attend. Our best wishes for this remarkable man's family.

*Sourced from Divers Alert Network website, Steve Bullock and Bernie Campoli. Official U.S. Navy photographs from SEALAB II Project.*

## CLASSIFIEDS

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#### FOR SALE

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#### BOOKS: HISTORICAL DIVERS OF BRITISH COLUMBIA BY A.C. RODGERS

Reviewed in HDS Vol. 14, issue 3. This 230-page book documents the hardhat divers of the British Columbia waters. Richly illustrated with many period pictures. Priced at \$25 with US postage. Call Bruce Lanham at #650-898-9663 or e-mail [boblanham1@comcast.net](mailto:boblanham1@comcast.net)

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#### INFORMATION WANTED

Any information on diver CHARLES CONDERT Brooklyn, NY, ca. 1825-1832. Contact Mike Gray. Email: [omgray@worldnet.att.net](mailto:omgray@worldnet.att.net) 19522 Hampton Drive, Boca Raton, FL 33434

### WANTED

#### TRADE

Have three perfect condition Korean helmets, need bonnet (top) for 1942 DESCO MkV. Will trade Korean helmet for MkV bonnet or for any Russian, Asian, or cool helmet that will diversify my massive three-hat collection. Call: Eric, 1-808-627-1102. Email: [eric.macdonald@navy.mil](mailto:eric.macdonald@navy.mil)

#### WANTED:

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Need all 1952-62 & 1965, Sep. 1964, Jan., Feb., May, June, July, Sep. 1963. I have Oct., Dec. 1963, Feb., April 1969, June 1975 and all *Southern, Western, Shark Diver* magazines published by SDM to trade or sell. Email: [melrosemark@hotmail.com](mailto:melrosemark@hotmail.com) Call toll-free: 1-877-233-1947. Ask for Mark.

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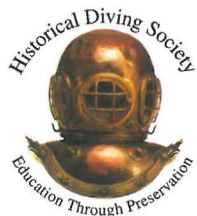
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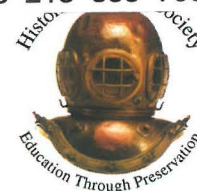
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# 19th-Century Diving Bell Discovered in Georgia



The above photos from Rick Pagels show a diving bell / caisson that was discovered in a river in Dahlonega, Georgia. According to Rick, Dahlonega was the site of the first major U.S. gold rush in 1836, and local folklore refers to an article in a long-defunct newspaper, which estimates the bell's arrival in the 1870s. At that period in history, helmet diving had been under way for several years, but it is probable that bells were still being used in some areas. Rick notes that although diving bells certainly weren't cutting-edge technology in 1870, this specimen is fairly advanced, especially for the Appalachian Mountains at a period shortly after the Indians were forcibly vacated.

According to Rick, "Apparently, the airlock was attached to the top of the bell but was dislodged, when they dragged it out of the river. Some repair work was completed but it currently is sitting next to the maintenance building of the golf course that was built surrounding the river. The gear works were still connected to a barge that was also sunk in the river. The interior works are a sand ballast system that ring

the interior to weight the bell. The interior space could easily hold six men. While diving bells were common by 1870, I suspect this was a fairly advanced specimen for the time. It would certainly be hard to pull on a wagon over any distance because of the weight. The man who pulled it out of the river estimated its weight around 10 tons. There are several of us in the area that are rallying to get the bell / caisson proper historical recognition and public placement. It is a fairly gee-whiz discovery in any river but an even more remarkable find in the mountains of North Georgia. I am attaching photos to give an idea of the dimensions. By comparison, I am 6'1" tall. As we understand it, the airlock was originally attached to the top of the bell and the gear works were still attached to a sunken barge in the Chestatee River."

Should anyone have any further information on this bell, please contact the editor at [krseahunt@aol.com](mailto:krseahunt@aol.com) or Rick Pagels at [wpp5309@hotmail.com](mailto:wpp5309@hotmail.com).

Photos courtesy Rick Pagels.



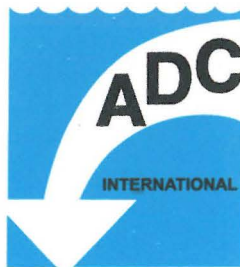
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