



0. MIXED-GAS DIVING - Story Preface

1. HUMBLE BEGINNINGS

2. RACIAL PREJUDICE IN THE NAVY

3. AN IMPOSSIBLE DREAM

4. DEEP SEA DIVING LEGENDS

5. MYSTERIES OF THE DEEP

6. MIXED-GAS DIVING

7. MID-AIR COLLISION

8. U.S. NAVY SALVAGE

9. OUT OF BLOOD AND GAS

10. BREAKING THE RULES

11. AMPUTEE DIVER

12. MASTER DIVER

13. REMINISCENCES OF CARL BRASHEAR

During World War II, submariners on German U-boats were able to leave disabled vessels if the boats were sinking in relatively shallow water. To help them breathe, U-boat crew members wore a Dräger Lung (similar to a Momsen Lung which was used on U.S. boats). This U.S. Coast Guard picture shows a German U-boat survivor who had escaped from U-175. He is wearing a Dräger Lung.

As scientists and divers began to [learn more](#) about the mysterious effects of deep-water diving on human beings, they developed a different mixture of gases for people to breathe under water.

Instead of using the same gases, in the same percentages, that divers breathe above water, Navy diving pioneers like Charles "Swede" [Momsen](#) (who invented the "[Momsen Lung](#)") began to experiment with other types of gases - like helium.

Momsen, and others, discovered that helium mixed with oxygen was a much [safer combination](#) for divers than nitrogen mixed with oxygen. They also found that [diving bells](#) were good places for submerged divers to rest and communicate with the surface.

When divers are underwater, gases (including oxygen/helium mixtures) compress in their body. When they return to the surface, divers have to *decompress*. They do that by making [periodic stops](#) on their ascent to the surface or by [using](#) a diving bell.

If there isn't enough time for a slow return - or if a diver develops some kind of diving-related illness - treatment is in a [hyperbaric](#) chamber.

Carl Brashear mastered all of these mysteries of the deep. It took him more than one attempt, however. His first effort - in 1960 - was over quickly.

The stay was short. I flunked out of first class. Blew it...First-class school was a hard school, very hard.

Carl had to study sophisticated subjects:

Physics. Medicine. Decompression. Treatments. Ratio proportion, mixing gases to the proper ratio.

When he flunked out, he did not leave as a second-class diver. He left as a non-diver. Carl was devastated.

Man, I hit rock bottom. I said, "I've got to get off of this ship." [He had been assigned to the USS *Nereus* - AS-17.]

Undaunted, Carl applied extraordinary effort to graduate as a First-Class Diver. He ultimately completed 26 weeks at the diving school in Washington, D.C. where he qualified in a Navy "wet chamber" similar to the one in Panama City, Florida.

Before he even started the program, he tried to improve in the areas where he had failed before:

I studied math from 1961 to 1963, day and night.

Carl finished third in a graduating class of seventeen. About fifty percent of his class had washed-out. Only three years later, while aboard the USS *Hoist* (ARS-40), Carl faced tragedy head-on. While helping to avert the damage potential caused by one of the worst nuclear weapons-related incidents in the history of atomic weapons, First-Class Navy Diver Carl Brashear became an amputee.

See Alignments to State and Common Core standards for this story online at:

<http://www.awesomestories.com/asset/AcademicAlignment/MIXED-GAS-DIVING-Men-of-Honor-Story-of-Carl-Brashear>

See Learning Tasks for this story online at:

<http://www.awesomestories.com/asset/AcademicActivities/MIXED-GAS-DIVING-Men-of-Honor-Story-of-Carl-Brashear>

Questions 2 Ponder

What Is Mixed-Gas Diving?

As deep-sea diving became more intriguing for people, scientists and inventors began to explore what types of gases would be safe for people to use below water. The investigations led to mixed-gas diving.

Charles Momsen - who developed the “Momsen Lung” - and others who studied the needs of deep-sea divers, discovered that helium mixed with oxygen was a much safer combination for divers than nitrogen mixed with oxygen.

Deep-sea divers, therefore, need to study many different subjects in order to be safe underwater. Carl Brashear, who had a limited education before joining the Navy, had to learn all of those subjects. Even when he fell back, in his test scores, he did his best to move forward.

What kind of dedication would it take to set-aside failures in order to achieve a dream?

What does Carl's achievement of 3rd in class—when half the class members couldn't even make it through the program—tell you about dedication, perseverance and overcoming obstacles?

Media Stream



Diving Experiments

Image online, courtesy the NOAA website.

View this asset at: <http://www.awesomestories.com/asset/view/Diving-Experiments>



Momson Lung

United States Navy photo, #NH 45641.

View this asset at: <http://www.awesomestories.com/asset/view/Momson-Lung>



Periodic Stops Enroute to the Surface

Image online, courtesy Wikimedia Commons.

View this asset at:

<http://www.awesomestories.com/asset/view/Periodic-Stops-Enroute-to-the-Surface>



Diving Bell

Image online, courtesy OAR/National Undersea Research Program (NURP) via NOAA.

View this asset at: <http://www.awesomestories.com/asset/view/Diving-Bell>



Hyperbaric Chamber

Image online, courtesy Wikimedia Commons. License: CC BY 2.0.

View this asset at:

<http://www.awesomestories.com/asset/view/Hyperbaric-Chamber>



USS Hoist

Image online, courtesy [NavSource](#) Naval History website.

View this asset at: <http://www.awesomestories.com/asset/view/USS-Hoist>



MIXED-GAS DIVING

View this asset at:

<http://www.awesomestories.com/asset/view/MIXED-GAS-DIVING-Illustration->