USS SQUALUS (SS 192)
The World’s First Deep-Ocean Rescue
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Introduction
On 23 May 1939, the new Navy submarine SQUALUS began her 19th and final test dive off Portsmouth, New Hampshire. The “crash dive” was: “Go full speed on the surface, and then submerge to 50 feet – in 60 seconds!”

Upon submerging, something went quickly and terribly wrong! Seawater poured into the engine room. What happened? The sub’s main induction valve was still open. SQUALUS quickly sank to the ocean floor at 243 feet with 56 crew and 3 civilians aboard. Twenty-six died immediately but 33 survived, in other sub compartments, with increasingly appalling conditions of cold, increasingly bad air and darkness.

Never before had anyone been rescued alive from such depths! A grim outlook!

Figure 1: SQUALUS: Sub with open induction valve and escape hatches outlined in vintage photograph.

What was SQUALUS?
She was a brand new and advanced design for a group of “Fleet Subs” commissioned 1 March 1939 and built at the Portsmouth, New Hampshire Naval Shipyard.

Figure 2: SQUALUS: Launch cover, 14 September 1938, Gow Ng rare hand colored cachet. A Portsmouth resident, Gow Ng, USCS #190, was an outstanding cachet maker with 28 SQUALUS covers.

A big boat (311 feet long), she was 50% larger than the previous sub class. SQUALUS was built to operate offensively at long distances (11,000 mile range) to counter the looming Japanese threat in the Pacific.

Figure 3: SQUALUS: Commissioning cover, 1 March 1939, airmail cachet by Alex Hesse, Jr.

The Rescue Attempt Begins
Within 39 hours SQUALUS was located and all 33 survivors were rescued alive! This was historic: the world’s first-ever rescue of anyone from such depths. Amazing!

How did this Happen?
It is the unique story of one man, Lt. Commander Charles “Swede” Momsen, who played the critical role in the SQUALUS rescue, her recovery, and subsequent return to very successful World War II service.

Who was “Swede” Momsen?
Career Navy, Momsen was a veteran sub skipper, first commanding M-1 (SS 47), a novel double-hulled sub and 0-15 (SS 76) in the 1920s.

With M-1, Momsen’s unique problem-solving skills first emerged. He persuaded the Navy to house a small, disassembled Martin float plane in a crude hanger on M-1’s deck. Launched at sea, the plane could find and report enemy ships thus vastly extending the search range of the sub. Upon return, the plane was quickly disassembled and stored on board.

It worked! But Navy funding was slashed after World War I, so the project died. More on M-1 later.

On 25 September 1925, Momsen suffered a personal tragedy. Navy sub S-51 was rammed and sunk by the passenger ship CITY OF ROME off Block Island, Rhode Island.

Momsen was first on the scene in his sub. Some S-51 crew were still alive, including Jim Haselden, a Lieutenant and friend from their Naval Academy days. Nothing could be done. All died a slow death.

Momsen vowed to find ways to rescue submariners from the depths. Thus began his next 14 years of multiple efforts that all played a critical part in the successful SQUALUS crew rescue and subsequent sub recovery.
His initial efforts were not given priority by the Navy. Its attitude seemed to be “stuff happens”. Momsen’s persistence got him branded as “a rogue” or simple “a nut case”.

**Figure 4:** “Swede” Momsen: Holding a piece of “tunneling pipe” used in SQUALUS recovery, 7 June 1939, vintage photo.

**Onward**

**First:** Momsen designed and self-tested (as he always did) successive models of what became “The Momsen Lung”. It was the first-ever escape device a submariner had. Strapped on the chest, it purified and recycled the sailor’s breath – without a heavy, cumbersome oxygen tank on his back. Maximum operating depth was 200 feet. Another first! Eventually the Navy did adopt the “Momsen Lung” and supplied 7,000 units for all its submariners. But Momsen was not done.

**Figure 5:** “Swede” Momsen: Wearing his Momsen Lung, 24 March 1925, vintage photo.

**Next:** Momsen volunteered and took command of the Navy’s Experimental (“Hard Hat”) Diving Unit. This assignment was not one to aid Momsen’s promotion prospects!

To his horror, he found the Navy divers’ skills and efficiency were abysmal. Momsen immediately de-rated all of them! Again, he developed and first self-tested a highly rigorous scheme for rerating his divers. In addition he scrounged funds for “a training tank” for his divers to simulate depth pressures and develop safe procedures.

With these efforts, his divers became “the best in the world” and Momsen re-rated them as “Master Divers”. They played a key role in the SQUALUS rescue and recovery. Again, it worked!

**More:** Momsen next designed, always self-testing first, a “Diving Bell” that with a two-man crew could rescue up to 7 sailors at a time and avoid their direct exposure to the ocean. Again, funds were scarce. Momsen recalled the steel float plane hangar on his M-1 sub. The sub was decommissioned and waiting scrapping. Momsen scrounged that “hangar” steel to build the first prototype of his “diving bell”.

On an early trial in the Potomac River, self-testing as always, Momsen got stuck in mud and almost died, but managed to rock the diving bell free. It worked!

An associate, Lt. Commander McCann, assisted Momsen in the final “diving bell” version – later used for the first time in the SQUALUS rescue. Perhaps Momsen was getting too much favorable publicity as the Navy named it the “McCann Diving Bell”. Hmmm.

**Figure 7:** “Rescue Chamber” (“Diving Bell”) diagram, Navy Department.

**Even More:** In the late 1930s, Momsen, with two Navy doctors, experimented with various gas mixtures to replace oxygen for his divers. He wanted divers to safely dive to 400’ depths, twice the 200’ maximum depth for pure oxygen. Again, self-testing all mixtures, he discovered a helium/oxygen mix that worked. Another first! The only side effect caused the divers voices to sound like Donald Duck when they were diving. Hello Walt Disney.
Success came too late to use in the SQUALUS crew rescue dives. Divers worked at their maximum depth, but only for 20-30 minutes. Momsen characteristically manned the phone for each of those dives. If he heard any confusion or loss of awareness, he immediately recalled the diver. No diver was lost.

However, the new helium/oxygen mixture was used for over 600 dives and was vital in the later recovery of SQUALUS from 243’ depth. Yet another world first!

The SQUALUS Rescue

When SQUALUS sank, and some crew were alive, the Navy knew there was only one who was uniquely qualified to even try an historic rescue. They put their “Rogue” in complete charge!

Momsen immediately flew to Portsmouth, New Hampshire, boarded USS FALCON (AM 28), a rescue ship, and ordered the Navy’s only “Diving Bell” (happily aboard USS WANDANK (ATO-26) at nearby Newport Rhode Island) to come north. His divers quickly arrived along with several other Navy support ships. Key assets were in place. But the task was daunting. Time was quickly running out.

SQUALUS’s location was quickly found and marked when sister sub USS SCULPIN (SS-191) spotted a surface buoy released by SQUALUS with a telephone inside. Voice contact was made and Captain Naquin of SQUALUS confirmed that 33 crew were alive. Then wave action quickly broke the phone wire connection. Work began.

Momsen chose veteran diver “Ski” Sibitzky to make the first dive, and affix a “down cable” for the dive bell at SQUALUS’s forward hatch. Ski got it done – just. It was only 26 hours after SQUALUS sank!

A second diver successfully attached the “up cable” to the same SQUALUS hatch.

The Rescue Dives

One hour later, the first dive bell descent started down to SQUALUS. The plan was to lift 7 men (“maximum”) on each dive for a total of 5 dives. A very big risk!

• Dive 1: the first dive was a test to see if 7 crew could be lifted. It began at 1:43 p.m. Safely arriving back at the surface, a “mistake” was discovered; 8 crew emerged! Not seven.

• Dive 2: Going down a “minor snag” as the cable clutch jammed. They had to re-surface for quick repairs and dove again. This time 8 survivors were planned. But 9 arrived! The good news was it would now only take four dives instead of five.

• Dive 3: 9 more were rescued.

• Dive 4: Began at 8:14 p.m. On the way up at 160’ the “up cable” jammed on its reel. Two divers failed to attach a new “up cable” due to the dreaded “bends” (nitrogen poisoning). The existing “up cable” was unraveling at a splice. A hurricane was approaching. Momsen decided to hand-haul the diving bell rather than to continue to winch it, to lessen pressure on the failing cable. That took 14 sailors on FALCON (AM 28). With each ocean swell they had to loosen cable, then quickly pull until the next ocean swell. It was back-breaking work, requiring split second reactions. Meanwhile, the diving bell crew had to periodically jettison weight to increase buoyancy. It all worked – another world record first – a rescue of all 33 living sailors. The last man out of the diving bell appropriately was the skipper, Oliver Naquin. And yes, at the end of the 4th dive, only one strand was left on the cable!
But There is More

SQUALUS was also recovered. Momsen’s divers did 628 dives. For the first time, the new helium/oxygen gas mix was used, and that allowed divers much more time on the bottom.

That earned SAILFISH nine World War II battle stars and a rare Presidential Unit Citation!

Figure 14: SAILFISH: Commissioning, vintage photo, 15 May 1940.

SQUALUS/SAILFISH survived the war and was decommissioned 27 October 1945. Her conning tower and bridge are preserved as a memorial at the Portsmouth, New Hampshire Naval Shipyard site.

Figure 15: SQUALUS/SAILFISH: Sub’s Conning Tower and Bridge Memorial at Portsmouth, New Hampshire Naval Shipyard site, 6 September 1955, vintage photo.

Philatelic Impact of SQUALUS

It was huge? SQUALUS sinking, rescue, and recovery were front page newspaper and magazine headlines for several months. Also, 3 books and numerous articles appeared describing this historic event.

A barrage of SQUALUS-related covers appeared. Most notable was GOW NG, a Portsmouth New Hampshire resident and cover dealer. NG produced at least 20 different printed and hand colored SQUALUS covers. Three examples are in this article.

Figure 16: SAILFISH: Commissioning cover, 15 May 1940, cachet by Gow Ng.

Even More

World War II was imminent. The Navy needed every sub. SQUALUS was overhauled and recommissioned as USS SAILFISH (SS 192) on 1 May 1940. She went to the Pacific, did 11 war patrols and sank many Japanese ships, including the first Japanese aircraft carrier (CHOYO) sunk by U.S. subs. Another first!
At least 7 Navy ships participating in the rescue also produced multiple covers, by such leading cachet makers as Crosby, Hesse, Buchwald, Nace and Hutnick.

SQUALUS is a wonderful and interesting cover collecting opportunity. NG covers are a bit expensive but many others are not.

So, why not join in the fun of collecting SQUALUS-related covers?

Conclusions

It is a remarkable story of Charles B. “Swede” Momsen and his critical part of SQUALUS, the historic saving of all 33 living survivors from 243’ below, and for his recovery of the sunken SQUALUS, which as SAILFISH was so successful in World War II.

Momsen is a genuine American hero and leader of men. Three resounding cheers, in memoriam, for Swede Momsen, who showed what a feat one person can help accomplish!

Attribution: My interest in SQUALUS and Momsen was triggered in my earlier article “Escape from the Ocean Floor” published in the 2012 American Congress Society’s annual “Congress Yearbook”. This current article is a complete re-write with new exhibits. My thanks to the Congress Yearbook and Editor Ken Trettin for its permission.

Bibliography

N.A. Barrows, “Blow All Ballast”, published Dodd, Mead and Company 1940 208 pages
“Yankee Magazine”, “Trapped in a Dead Submarine” May 1979 edition
“Men, Moment, and Machines: The Great Sub Rescue” DVD A and E Television 2005
“Boston Advertiser” newspaper 28 May 1939, “Submarine Tragedy”
“Boston Daily Record” newspaper 26 May 1939, “Fear 12 Men Dead in Sunk Sub”
Life Magazine 13 June 1939, Squalus article
Momsen, C.B., Lecture to Harvard Engineering Society on SQUALUS Rescue and Salvage, 1939
Preble, H.C., Statement by This Naval Architect and SQUALUS Survivor to Naval Hospital Center, 1939

Universal Ship Cancellation Society
http://www.uscs.org/