

Index to Series of Taped Interviews with Chief Machinist's Mate William Badders, USN (Ret.)

Asiatic Fleet: Lack of master divers in early 1930s, pp. 44-45; athletics, pp. 59-65; personnel anxious to get off Asiatic Station, p. 66

Athletics: At Great Lakes in 1919, p. 4; at Pensacola in early 1920s, pp. 4-5, 7; golf in Far East in 1930s, pp. 59, 61, 64; See: Football; Baseball; Crew Olympics Athletics—Naval Academy; Anecdotes about crew and coaches in the early 1920s, pp. 10-12; head football coach in the mid-1940s got coaching experience with submarine division team in mid-1930s, p. 69

Badders, Chief Machinist's Mate William, USN (Ret.): Awards and commendations, pp. 3, 26, 30, 49, 102-104; health, pp. 30, 65-66, 68; family, pp. 44, 106, 143, 155-156; enlists in 1918 and sent to Great Lakes, pp. 1-2; service in battleship Wisconsin (BB-9), 1918-1919, pp. 2-4; reports for duty at Great Lakes in 1919, p. 4; squadron maintenance work at Pensacola in early 1920s, pp. 4-7; engineer in battleship Kansas (BB-21), 1921, pp. 7-9; engineer in Reina Mercedes (IX-25) at Naval Academy, 1921-1924, pp. 10-13; joins engineering department of Falcon (ARS-2) and helps with S-51 (SS-162) rescue, 1924-1926, pp. 13-29; stationed in Reina Mercedes (IX-25) and plays semipro football, 1926-1927, pp. 29-30; returns to the Falcon (ARS-2), 1927-1928, pp. 30-36; student and instructor at new diving school at Naval Gun Factory, 1928-1930, pp. 36-37, 39-40; master diver in Falcon (ARS-2), 1930-1931, pp. 38-44; master diver in Pigeon (AM-47) in the early 1930s, pp. 44-66; master diver in Holland (AS-3) in the mid-1930s, pp. 66-71; joins experimental diving unit in Washington in late 1930s, pp. 71-73, 75-104; master diver- salvage master as civilian in the Panama Canal, 1940-1962, pp. 73-75, 98-99, 104-157

Balloons: Free and observation balloons at Pensacola in the early 1920s, pp. 5-6

Barracudas: Problem to Navy divers off Key West, pp. 51-52

Baseball: Pensacola Air Station baseball team among first transported to games by air in early 1920s, p. 5; Badders plays on professional team in Manila in early 1930s, pp. 59, 61-64; Badders plays with submarine division team in China that wins championship three years in a row, pp. 59-60, 65; popularity of game with naval personnel in Far East in 1930s, p. 60; quality of black league in 1930s, pp. 62-64; See: Gehrig, Lou; Paige, Leroy "Satchel"; Williams, Ted

Blimps: See: Lighter-than-air

Brooklyn Navy Yard: See: New York Navy Yard

Brumby, Rear Admiral Frank H., DSN (USNA, 1895): As Commander Submarine Divisions Control Force in late 1920s had to field outcry by media about S-4 (SS-108) crew members who were not able to be rescued, p. 34

City of Rome, MV: Rams S-51 (SS-162) off Block Island, New York, on 25 September 1925 and picks up survivors, pp. 18-19

Coal-burning Ships: Method of selecting enlisted personnel for during World War I, pp. 1-2; Badders fudges on form to get duty in engine room rather than fireroom, pp. 2-3

Coast Guard, U.S.: In charge of keeping boats out of the way when S-51 (SS-162) towed into New York Harbor in 1926, p. 25; cutter Paulding rams S-4 (SS-108) off Massachusetts in 1928, pp. 31-32; role in Squalus (SS-192) rescue in May 1939, p. 84; Coast Guard vessel attempts to rescue crew from victory ship grounded in Panama Canal during World War II and goes aground herself, pp. 125-126

Cole, Rear Admiral Cyrus W., DSN (DSNA, 1899): As commandant of the Portsmouth Navy Yard in May 1939 and officer in charge of Squalus (SS-192) rescue, sends chamber down again after obvious survivors saved to ensure there are no others, pp. 87-88; Squalus finally able to be lifted from ocean floor on 21 June 1939, Admiral Cole's birthday, pp. 99-100

Commissioned Officers: Badders regrets that his inactive status during World War II prevented him from being commissioned, as many of his friends were, pp. 153-156

Crew: U.S. Naval Academy crew that won 1920 Olympic gold medal brought back together in 1924 to try again, pp. 11-12; See: Glendon, Richard J.; Glendon, Richard J., Jr.

Disasters: Free balloon lost at Pensacola in early 1920s, p. 6; F-boat sunk off Honolulu in 1914, pp. 28-29; Japanese ship grounds and turns over with some loss of life in early 1930s, pp. 49-50, 53-55; American S-type submarine accidentally rammed by pilot ship at Panama Canal in World War II, p. 137; vessel loaded with soybeans catches fire and explodes at Panama in the mid-1940s, pp. 143-147; See: S-51 (SS-162); S-4 (SS-108); Squalus (SS-192)

Diving: Navy's program in the mid-1920s extremely weak, pp. 17, 21, 28-29, 34; hazard of cold weather diving, pp. 20-21; as part of S-51 (SS-162) salvage in 1925-1926, p. 22; push for more and better quality divers in 1926, p. 28; attempts to rescue crew members from S-4 (SS-108) in December 1927, p. 31; failure with S-4 brings about more money and interest in Navy's diving program, p. 34; pay bonuses for divers, p. 45; lack of master divers on Asiatic Station in 1930s, pp. 44-45; protocol for order of diving, p. 46; hazard of night diving in Far East, pp. 46-47; drills for rescuing submarine crews in early 1930s, pp. 38, 57; depths for diving qualifications, p. 58; helium and oxygen experimented with in late 1930s, pp. 76-81; developments in the early 1970s, pp. 91-95; dangers of deep depth diving, pp. 95-96; health factors, pp. 96-99; diver tenders, p. 112; Badders sent on odd diving jobs in Caribbean, pp. 152-153; See: Rescue Operations; Sharks; Barracudas; Humboldt Current; Experimental Diving Unit; Navy Diving School; Diving—Training

Diving—Training: Poor quality of training in Washington, D.C., in mid-1920s, p. 17; difficulty keeping divers qualified on Asiatic Station in early 1930s, pp. 45, 57; in Panama Canal

during World War II, pp. 108-116, 118; See: Navy Diving School

Eagle-class Patrol Boats: Used with lighter-than-air planes at Pensacola in early 1920s, p. 5

Edison, Charles: Secretary of the Navy Edison reenacts presenting Medal of Honor to Badders and three other Squalus (SS-192) rescuers in January 1940, pp. 103-104

Ellsberg, Lieutenant Commander Edward, USN (USNA, 1914): In charge of salvage work on S-51 (SS-162) in the mid-1920s, pp. 22-23; makes suggestions for improvements after S-51 salvage in 1926, p. 26; recommends Badders for promotion to chief in 1926, p. 30

Engineering Duty: Badders' duties as new recruit in Wisconsin (BB-9) in 1918, p. 3; engineering crew does half of overhaul to USS Falcon (ARS-2) in 1924, pp. 13-14

England: Poor quality of ships passing through Panama Canal during World War II, p. 121

Experimental Diving Unit: Divers used as guinea pigs to establish standards, pp. 75-76; divers return from Squalus (SS-192) salvage to do paperwork, pp. 101-102

Falcon. USS (ARS-2): Poor condition when Badders reported aboard in 1924 during overhaul and turnaround by 1925, pp. 13-15; another overhaul in 1925, p. 16; sent to aid sunken S-51 (SS-162) in September 1925, pp. 16-26; cruise to Panama with subs in early 1926, p. 21; part of rescue and salvage effort of S-4 (SS-108) in late 1927-early 1928, pp. 30-34; conducts submarine rescue drills in early 1930s, pp. 38-39; helium/oxygen mixture for divers tested in cold weather dives, pp. 77, 80-81; aids in Squalus rescue in May 1939, pp. 83-89

Fireman Rating: Method of choosing enlisted men during World War I, pp. 1-2

Football: Pensacola Air Station football team among first to be transported to games by air in early 1920s, pp. 4-5; officers and enlisted men on team in early 1920s, p. 7; Badders plays with Reina Mercedes semipro team in mid-1920s, p. 29; Badders plays with submarine division team while in Holland (AS-3) in mid-1930s, pp. 68-70

Frazer, Chief Torpedoman James W., USN: As one of the Navy's few divers in the 1920s, works on both S-51 and S-4, p. 33

Galapagos Islands: Fortified during World War II, p. 142

Gehrig, Lou: Brings American baseball players to Manila in the 1930s to play pro teams that included many American military personnel and businessmen, p. 62

Glendon, Richard J.: Coach of 1920 Naval Academy Olympic gold medal--winning crew team brought out of retirement in 1924 to try again, p. 12

Glendon, Richard J., Jr.: Anecdote concerning 1920s Naval Academy crew coach, pp. 10-11

Good, Lieutenant Roscoe F., USN (USNA, 1920): Coaches submarine division baseball team in China to championship three years in a row in the 1930s, pp. 59-60, 65

Great Lakes, Illinois: Boot training during World War II, pp. 1-2; athletics in 1919, p. 4

Hagberg, Lieutenant (j.g.) Oscar E., USN (USNA, 1931): Coaches successful submarine division

football team at San Diego in mid-1930s, p. 69

Hartley, Lieutenant Henry, USN: Encourages Badders to become involved in salvage duty in mid- 1920s, p. 13; shapes up Falcon (ARS-2) upon reporting as commanding officer in 1924, p. 14; proponent of expanding rescue and salvage capabilities in mid-1920s, pp. 17, 28; makes recommendations for improvements after S-51 salvage in 1926, p. 26; sets up diving school in Washington, D.C., in 1928, pp. 35-37

Holland. USS (AS-3): Equipped to lift ships from her bow, p. 67; baseball team in the mid-1930s, p. 68

Hollowell, Lieutenant Commander John A., Jr., USN (USNA, 1922): As head of the experimental diving unit at Washington, D.C., in mid-1930s, requests Badders join unit, pp. 70-71

Humboldt Current: Badders plunges into cold current while conducting experimental dives from Mallard (ASR-4) in late 1930s, pp. 78- 79

Japan: Passenger ship grounds and turns over with some loss of life in early 1930s, pp. 49-50, 53-55; Panama Canal not attacked in World War II because Japanese wanted to use it themselves, pp. 141-142; See: Kaku Maru

Kaku Maru: Pigeon (AM-374) goes to rescue of this Japanese merchant vessel, on fire in the China Sea in the early 1930s, and discovers later that she was hiding aviation fuel, pp. 48-49, 55-56

Kansas. USS (BB-21): Badders assigned as engineer for admiral's barge in 1921, p. 7; crew plays non-stop baseball for Norwegians during summer cruise in 1921, p. 89; decommissioned in December 1921, p. 9

King, Captain Ernest J., USN (USNA, 1901): As commander of the New London submarine base during 1926 S-51 (SS-162) salvage operation, tells Badders to wear heavy buoyant life jacket during dangerous maneuver that hinders his effort, p. 24; Badders flies with King from Annapolis to Boston to aid in rescue effort on S-4 (SS-108) in December 1927, p. 31; advises Badders to get into aviation in the late 1920s and later disapproves his request to do so, pp. 34-35

Lafayette, USS (AP-53): Salvage of this French liner at New York pier diverts Badders and equipment from Panama Canal, pp. 109-110

Liberty Ship: Poor quality of construction poses problems during World War II transits of Panama Canal, p. 21

Lighter-than-air: Aircraft at Pensacola in early 1920s, p. 5

Mallard. USS (ASR-4): Badders chilled by Humboldt current during experimental dives from this ship in late 1930s, pp. 78-79

Marine Corps, U.S.: Football team at San Diego in mid-1930s, pp. 69-70; Marines boarded all ships during World War II Panama Canal transits, pp. 127-128

Mariveles Bay: Badders has close call with coral snakes during night dive in early 1930s, pp. 46-

- McCann Chamber: Selected for further experimentation by divers in the 1930s, pp. 40, 43; used in Squalus (SS-192) rescue in May 1939, pp. 84-87
- McNamara, Robert S.: As Secretary of Defense, interested in obtaining commission for Badders in early 1960s, p. 155
- Medal of Honor: Badders and three others receive this award for 1939 Squalus (SS-192) rescue in January 1940, pp. 102-104
- Michels, Chief Torpedoman James W., USN: Sent from Newport Torpedo Station to aid in S-51 (SS-162) salvage effort in 1925-1926, p. 18; life endangered during S-4 rescue attempt in December 1927, p. 32
- Mihalowski, Torpedoman First Class John, USN: Role in Squalus (SS-192) rescue in May 1939, pp. 85, 103
- Mines: Czechoslovakian ship blown up in Panama Canal during World War II, p. 136; ship transitting Panama Canal fouls propeller on German mine, pp. 138-141
- Momsen, Lieutenant Commander Charles B., USN (USNA, 1920): As head of Navy experimental diving unit in May 1939, oversees Squalus (SS-192) rescue, pp. 82, 87; See: Momsen Lung
- Momsen Lung: Experimented with in the early 1930s and all submariners trained in its use, pp. 40-43
- Morale: Haphazard conditions during overhaul of Falcon (ARS-2) in 1924 improved with new commanding officer, pp. 13-15
- Naval Academy, U.S.: Midshipman cruise in Kansas (BB-21) in 1921, pp. 8-9
- Naval Gun Factory, Washington, D.C.: Navy diving school established in 1928, pp. 35-37
- Navy Diving School: Established at Naval Gun Factory in late 1920s, pp. 35-36; class sizes, p. 36; training, pp. 39-40
- NC-4: Lieutenant Commander Albert C. Read, USN, visits Pensacola in NC-4 in early 1920s, pp. 6-7
- Newport, Rhode Island: Site of Navy's diving program in mid-1920s, p. 17
- New York Navy Yard: Workmen race to bring Falcon (ARS-2) out of overhaul to rescue S-51 (SS-162) in September 1925, p. 16; S-51 (SS-162) brought to yard after being raised in 1926, p. 25; See: Plunkett, Rear Admiral Charles P., USN
- Nicaragua: See: Somoza, Anastasio; Somoza Debayle, General Anastasio
- Normandie. SS: See: Lafayette. USS (AP-53)
- Norway: USS Kansas (BB-21) crew entertains Norwegians in Christiania (Oslo) with non-stop baseball in summer of 1921, pp. 8-9

Olympics: 1920 gold medal winning crew from U.S. Naval Academy sets out to duplicate feat in 1924, but is thwarted by Yale, pp. 11-12

Ortolan, USS (ASR-5): Holland (AS-3) divers made re-qualifying dives from this ship in mid-1930s, p. 68

Paige, Leroy "Satchel": Badders gets hit of a lifetime off of pitcher Paige when the black baseball star brought an American team to play in Manila, pp. 62-63

Panama Canal: Underwater welding equipment and techniques employed during World War II, pp. 73-75; warm water diving experiments conducted here in late 1930s, pp. 78-79; Badders leaves active duty to take job as master diver-salvage master in 1940, pp. 104-106; living situation, pp. 106, 156; backward nature of diving before Badders' arrival, p. 107; Badders initiates plans to keep canal functioning during wartime that includes diving school, pp. 108-116, 118-119, 133-136; assessment of Panamanians, pp. 113-114, 133; dual role of divers, pp. 114- 115; pipelines, p. 116; grounded ships, pp. 117-118, 121-126; ship sizes and numbers passing through canal during World War II, pp. 119-120; post-war diving contingent, pp. 126, 153-154; security during war, pp. 127-131, 141; importance of Lake Gatun, pp. 131-133; mines, pp. 136-141; Japanese didn't attack canal because they wanted it for themselves, pp. 141-142; round-the-clock work on a burning ship full of soybeans, pp. 143-147; Ladder s's World War II setup made permanent after the war, pp. 153-154

Parachutes: Available but not used at Pensacola in early 1920s, p. 6

Paulding, USCGC: Rams S-4 (SS-108) off Provincetown, Massachusetts, in December 1927, pp. 31-32

Pensacola: Athletics in early 1920s, pp. 4-5, 7; aircraft at Pensacola in early 1920s discussed, pp. 5-6

Philippine Islands: Badders plays on pro baseball team in 1930s, pp. 59, 61-64; golf a popular pastime for naval personnel in 1930s, pp. 61, 64

Piccard, Auguste: French diver's role in development of pressurized diving vessels in 1940s, pp. 94-95

Pigeon. USS (AM-47): Operating schedule in Asiatic Fleet in early 1930s, pp. 44-45; puts out fire on Japanese merchant ship and learns later that she was hiding aviation fuel, pp. 48-49, 55-56; rescues passengers from a Japanese ship that runs aground in early 1930s, pp. 49-50, 53-55; practices sub rescues, p. 57; anecdote showing ship commanding officer and Badders' desire to get off Asiatic Station, pp. 65-66

Plunkett, Rear Admiral Charles P., USN (USNA, 1884): As commandant of the Brooklyn Navy Yard in September 1925 orders the Falcon (ARS-2), temporarily laid up for a minor overhaul, to make immediate repairs and go to the aid of the sunken S-51 (SS-162), p. 16; selects Lieutenant Commander Ellsberg to head S-51 salvage effort, pp. 19-20

Promotion: Procedure for making chief in mid-1920s, p. 30

Read, Lieutenant Commander Albert C., USN (USNA, 1907): Visits Pensacola in NC-4 after his

historic 1919 transatlantic flight, pp. 6-7

Reina Mercedes, USS (IX-25): Location at the Naval Academy in 1921, p. 10; officers aboard in 1921, pp. 12-13; Badders member of this ship's semipro football team in mid-1920s, pp. 29-30

Rescue Operations: Divers from Newport sent to sunken S-51 (SS-162) in September 1925 determined that no one was alive, p. 18; officers make suggestions for changes aboard submarines after S-51 (SS-162) salvage, p. 26; attempts to save crew members from S-4 (SS-108) in December 1927 futile, pp. 31-33; drills with submarines in early 1930s, pp. 38, 57; method of escape from a submarine in 1930s, p. 41; victory ship ran aground during World War II in Panama Canal, pp. 121-125; See: McCann Chamber; Momsen Lung

Royal Navy: Status of salvage operation in Hong Kong in early 1930s, p. 51

S-4. USS (SS-108): Rammed by Coast Guard cutter Paulding in December 1927, pp. 31-32; futile attempt to rescue six crew members, pp. 31-33; salvage job, pp. 33-34; put back to use for diving experiments in early 1930s, p. 40; rescue techniques developed during late 1930s could possibly have saved crew members' lives, pp. 74- 75, 90

S-51. USS (SS-162): Salvage efforts by USS Falcon (ARS-2) after sinking in September 1925, pp. 16, 26; underwater burning and welding tested during salvage, p. 71

Salvage Work: Badders encouraged to pursue salvage work in mid-1920s, p. 13; salvage ship sent to rescue of S-51 (SS-162) in September 1925 had no divers and little equipment, pp. 16-17; method of raising submarine, pp. 20-26; recommendations made for pontoon improvements after S-51 (SS-162) salvage, pp. 26-28; F-boat salvaged off Honolulu in 1914 by sweeping wires under it, pp. 28-29; S-4 (SS-108) salvage was repetition of S-51 job, pp. 33-34; See: Diving; Falcon

San Diego: Football widespread among military and colleges in mid-1930s, pp. 69-70

Saunders, Commander Harold G., USN (USNA, 1912): As officer in charge of S-4 salvage operation in 1928, p. 33

Sculpin. USS (SS-191): On scene during sister submarine Squalus¹ disaster in May 1939, p. 83

Sealab: Saturation pressure technique used to allow divers to stay at great depths for long periods of time, p. 93

Sharks: Though present, not a problem to Navy divers in Far East in early 1930s, pp. 51, 93

Sibitsky, Boatswain's Mate Second Class Martin C., USN: Role in Squalus (SS-192) rescue in May 1939, p. 84

Snakes: Badders has brush with poisonous coral snakes during night dive in Mariveles Bay in early 1930s, pp. 46-47

Somoza, Anastasio: Nicaraguan President rewards Badders for his part in raising his sunken yacht in the mid-1940s, pp. 148-150; Badders' assessment of Somoza, pp. 150-152

Somoza Debayle, General Anastasio (USMA, 1946): Unfavorable assessment of Nicaraguan President in the late 1960s, pp. 148, 151-152

Soybeans: Gas produced by these beans in hold of burning ship at Panama in the mid-1940s creates potentially explosive situation, pp. 145-146

Squalus. USS (SS-192): Use of pontoons in mid-1939 salvage operation, pp. 28, 89; rescue of 33 crew members using McCann chamber, pp. 43, 82-90; divers rush to scene of disaster, pp. 81-83; salvage operation, pp. 99-100; paperwork on operation, pp. 101-102

Submarine Duty: Reluctance of some submariners to cooperate with rescue drills in early 1930s, pp. 38-39

Submarine Rescue Vessels: After going for too long with just the Falcon (ARS-2) Navy converts other ships to this mission in late 1920s, p. 37

Sullivan, Commander William A., USN: As officer in charge of Lafayette (AP-53) salvage, diverts equipment to Panama after 1942 operation, pp. 109-110

Tibbals, Chief Gunner Clarence L., USN: Experiments with helium and oxygen mixtures for diving in mid- 1920s, p. 76

Uniforms: Slipshod apparel aboard Falcon (ARS-4) in 1924, pp. 14-15

Victory Ships: Poor quality of construction poses problems during World War II transits of Panama Canal, pp. 121-125

Welding—Underwater: Underwater burning and welding tried in S-51 (SS-162) salvage in mid-1920s, p. 71; explanation of, pp. 72-73; efficiency of welding in Panama Canal during World War II, pp. 73-74; equipment and technique developments in 1940s, pp. 74-75

Williams, Ted: Hoi land (AS-3) baseball team plays Williams's high school team in San Diego in the mid-1930s, p. 68

Wisconsin. USS (BB-9): Badders fudges on forms and is sent to engine room instead of shoveling coal in 1918, pp. 2-3; patrols Atlantic during World War I, pp. 3-4