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Narrative by: Captain Donald C. Bingham, USN (Ret.)  
Early Submarines

The trials and tribulations of the early submariners are recalled in this recording by one of the Navy's veteran submarine officers. In retrospect, the interesting incidents here recalled are quite amusing. They serve to emphasize the progress that has been made in a comparatively few years.

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Captain Wright:

This afternoon in Room 1412 of the Main Navy Building we have with us Captain Donald C. Bingham, an old submariner, who will tell us something of the early history and the early doings of submarines. The next voice that you hear will be that of Captain Bingham:

Captain Bingham:

I entered the Naval Academy in September 1898. At that time there was considerable discussion of the submarine development which was being undertaken in this country by the well-known submariner, Simon Lake, and by another company known as the Electric Boat Company. This Electric Boat Company was headed by Mr. Lawrence Spear, a graduate of the Naval Academy and a former member of the Naval Construction Corps. This company was developing the submarine known as the "Holland Type".

Sometime about 1901, the Navy took possession of a submarine of the Holland Type known as the HOLLAND. This submarine was commissioned in command of Lieutenant John C. Colwell and was brought to the Naval Academy. As a part of our course of instruction, the naval cadets, as we were known at that time, were given a dive in the HOLLAND. My class was marched down to the old Santee dock and told off for dives. Lieutenant Colwell placed us in the HOLLAND in one position and we were instructed not to move. As I recall, there was nothing unusual in the dive and we accepted the dive as a matter of course.

Submarines did not come to my attention again until several years thereafter, about 1907. My class was ordered to Washington for examination for promotion in the spring of 1907. While we were taking the examinations, Lieutenant Marquart and I were approached by an officer of the Bureau of Navigation to arouse our interest in the new submarines which were about to be commissioned. Lieutenant Marquart and I had been shipmates on the battleship ILLINOIS, and were due for a change of duty. I became interested because I thought I should have torpedo experience and torpedo boats and destroyers did not appeal to me.

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After discussing the subject with Lieutenant Hussey, later Rear Admiral Hussey, I indicated a willingness to join the submarine service, which was then in the process of formation at the torpedo station, Newport, Rhode Island.

The detail officer did not approve of my decision and ordered me to the new armored cruiser, the USS TENNESSEE. I reported aboard the TENNESSEE and made a trip to Europe.

Upon arrival in New York after the trip, I found that my orders to the USS VIPER had been issued and were published in the New York Herald the day the USS TENNESSEE anchored in New York harbor. By that time, I was very well pleased with my new duties on the USS TENNESSEE and proceeded to Washington to have my orders changed. However, I had no success and had to report at the Torpedo Station, Newport, Rhode Island, for duty in command of the USS VIPER when she was commissioned.

#### LOCKED UP SUBS AT NIGHT

The VIPER and CUTLEFISH, two of the three B-boats, were commissioned in August 1907. At that time it was customary to lock up the submarines at night after the day's work was finished, leaving no one in the submarine to be on the lookout for flooding or any other events which might occur. As a matter of fact, one of the A-class of submarines had recently sunk at the dock owing to failure to properly close the valves and vents when the submarine was locked up for the night.

This accident prompted me, on the commissioning of the VIPER, to require one member of the crew to be on the VIPER day and night. This order on my part met with very great opposition, both on the part of the old submarine officers and crews and on the part of the builders who were required by the contract to train the officers and crew of the VIPER. In fact, I was charged with being responsible for pneumonia among the crew who would be required to sleep at night in the submarine. However, I insisted that I was in charge of considerable government property and we would just have to do the best we could. One of the immediate results of that order was the development of very crude electrical heating arrangements to keep the inside of the submarine comfortable, and obviate the dampness which was inherent in them at that time.

Our training on the part of the Electric Boat Company, the contractors, had continued for some months prior to my arrival and, within a few weeks after my arrival, we were declared ready for independent operations.

When I reported at the torpedo station, the B-class of submarines were undergoing their official trials under the jurisdiction of the Board of Inspection and Survey. Three of the officers, whom I remember very well on the board, were Commander Southerland, later Rear Admiral Southerland, Commander C. C. Marsh and Commander Reeves, an Engineer.

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When I arrived two or more of these officers were going out on each one of the trial trips. The first trip that I went on was a test of the VIPER while lying on the bottom in Coddington Cove, as I recall in about 60 feet of water. When it came to blow the tanks to come up, there was some mistake and the submarine would not come up. After some hesitancy on the part of the submarine boat commanding officer, an employee of the Electric Boat Company, it was found that a vent was open and no pressure was being exerted in the main ballast tank.

The vent was tended by a Seaman named Lindemann who had been on the DeLong Arctic Expedition. As I recall, he had been recommended for the submarine service by Rear Admiral Melville who was also on that expedition. On account of Lindemann's experience as a seaman, there was some hesitancy in checking his work in the submarine. However, he had made a mistake and the air, that he thought was going in the tank, was escaping into the boat. Of course, it was only a few minutes before everything was in correct order but, it must be admitted that the effect on the trial board endured somewhat longer and we did not have so many members of the trial board on future trips.

The other trials of that test was supposed to be very interesting at the time. One was spending the night on the bottom; in fact, 24 hours. Lieutenant Marquart was the observer for this test. He was appealed to write up his experiences but I do not recall that he ever made an exciting story of them. This test was followed by a week in Menemsha Bight without any contact with tenders. The government tender was anchored near and I, as the government representative, went aboard every morning for breakfast to report to the trial board. The only contact that the crew had with the outside world was the lobster fisherman who frequented that part of the coast. There was a feeling that we were blazing a new trail in managing to live on a submarine for a week. Of course, it was largely a holiday. This submarine was 85 feet long and displaced, as I recall it, about 185 tons.

#### EQUIPMENT CALLED CRUDE

After the acceptance of the CUTTLEFISH and VIPER, we constituted a unit, I think it was called a division, under Lieutenant C.E. Courtney, now Vice Admiral Courtney, who was an experienced torpedo and destroyer officer. His pennant was hoisted on the gunboat HIST which was the new tender that was assigned to our unit.

A sister ship to the CUTTLEFISH and VIPER was the TARANTULA. She had a broken bed plate which had to be replaced before she could join the division. Lieutenant Daniels was her commanding officer. The OCTOPUS, the first of the C-class of submarines, was also to be in this unit. There was some difficulty in her machinery and it was not for several months that she was commissioned. Her commanding officer was Lieutenant Courtney, who commanded the HIST while waiting for the OCTOPUS.

Our initial exercises were basically running the vessels and doing

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what we could do in the way of submerging. Everything was very crude, naturally. The periscopes turned the images upside down as we revolved them. For instance, the only time the object appeared in its upright position was when the periscope was pointed dead ahead. When the periscope was pointed dead astern the image was upside down. One can readily imagine what an inexperienced young officer felt when he saw his image going from the upright position to the upside down position. Very shortly we discovered that this was not a practical proposition and we used what we call a walk-around periscope, that is that the eye piece and the object glass moved at the same time.

Another rather crude part of equipment was the storage battery. The cells were covered with a light tarpaulin and wood which had been impregnated with an insulating material. There were no individual insulation of the cells and the result was that condensation on top of the cells, plates, etc., made short circuits, and battery fires, as we called them at that time, were quite frequent. It was not unusual for a commanding officer to come down to his submarine and find smoke coming out of the ventilating pipe. These matters, of course, were given constant attention but it took time to correct them.

The compass was a very crude affair but I remember distinctly two or three years later when Lieutenant Nimitz, now Fleet Admiral Nimitz, insisted that submarines must have gyroscopic compasses.

The engine was a very large gasoline engine which had many "bugs" in it. In fact, our first two or three years were what as might be known as a fight against material.

The battery of the B-boats consisted of two torpedo tubes. The torpedoes furnished us were old Whitehead torpedoes which had been in use for many years. In experiments, which I conducted about two years later, I found that these Whitehead torpedoes were not tested to stand the pressure which they were subjected to the instant the tubes were flooded. Of course, the chances of getting a successful torpedo run were very small.

After this unit was really commissioned, Lieutenant Courtney planned a trip for us from Newport, Rhode Island to Philadelphia. At that time it was a very ambitious trip. The commander of the torpedo station, later Admiral Gleaves, told us that we would do a wonderful thing if we could go to New York from Newport under our own power. To plan to go to Philadelphia as well as New York, of course, kept us busy for some time. I do not recall whether it was this year or a later but as we reached New York one winter in this division, the Hudson and East Rivers were frozen and in attempting to leave Annapolis, we dented some propellers and had to return to the Navy Yard for repairs. Submarines being very new at the time no one knew exactly how to go about repairing propellers. A large crane was brought into use and, when all was ready, power was put on the crane with the idea of lifting up one end of the submarine. Later we found that by simply putting water in the bow tanks and hooking a small purchase to the stern, we could pull the stern out of the water and repair propellers without any trouble.

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## HAD HARD TRIP DOWN COAST

Eventually we got out of New York in this heavy ice and made our way to Annapolis, Maryland. It was really a hard trip down the coast. In fact, it was three or four days before we reached Lynnhaven Roads. On the way up from Lynnhaven Roads to Annapolis, a snow storm set in. The HIST took the CUTTLEFISH in tow and later on grounded off Cedar Point. Prior to her grounding at Cedar Point, I had touched a shoal there in the VIPER but remained only a few minutes and continued up to the bay. I think the HIST was aground for about a week.

When we reached what I thought was Annapolis, I stopped and drifted, and eventually drifted ashore at Thomas' Point. The reason I did not anchor was that on the week's trial trip in Menemsha Bight the anchor would not hold and I thought there would be no difficulty in getting off the beach in case I drifted on without an anchor.

Among other reasons that this didn't turn out the right way was that the wind shifted and blew about three feet of water out of the bay leaving me high and dry on Thomas Point.

The Coast Guard sent the cutter, APACHE, to my rescue and as soon as the water came back in the bay, they pulled me off. We spent that spring at Annapolis training our crews, trying to fire torpedoes and make more surface runs. I do not recall what became of the HIST but eventually, the USS CASTINE, a gunboat, was commissioned as our tender and was placed in command of Commander John D. MacDonald, later Rear Admiral, with Lieutenant MacCauley as his Executive Officer.

The division or flotilla, I forgot what its designation was at the time, then consisted of the USS CASTINE, submarines, OCTOPUS, CUTTLEFISH, VIPER and TARANTULA, Lieutenant Courtney being the submarine commander.

There was much dissatisfaction with the organization. The commander of the tender being senior to the submarine commander made it almost impossible to have a logical working organization. The entire torpedo submarine organization was under consideration by the department and those afloat at the time.

A few months later Commander MacDonald was relieved and Commander Kline took his place. Lieutenant Courtney, Lieutenant Marquart and Lieutenant Daniels were detached, leaving me in command of the submarine unit. Ensigns replaced Lieutenants. It was shortly after this change was made that the first officers were ordered to submarines who had not volunteered for that service. Lieutenant C.R. Hyatt and Lieutenant W.R. Carter, who may have been ensigns at the time, were among those ordered. They were on the USS MINNESOTA and the detail officer knew them very well. He stated that he knew they would make good submarine officers. This was quite a departure from the volunteer basis on which officers had been ordered to the service previously.

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New submarines were being built, three of the D-class, the GRAYLING, NARWHAL and SALMON and four of the C-class. Naturally, the officers of my unit desired to take command of the new submarines. Under the new organization we reported to Admiral Osterhaus, Commander-in-Chief of the Atlantic Fleet, for our work during the summer of 1909. Commander Eberle, later Admiral Eberle, commanded both the submarines and the destroyers. We participated in the exercises in Cape Cod Bay and around Newport, both as night torpedo boats and as submarines in the daytime.

We made considerable progress. Feeling that our torpedoes were totally inadequate for submarine work, later that year I carried on extensive experiments in the OCTOPUS in Narragansett Bay to find out the troubles. Basically, they were due to torpedoes not being strong enough for the pressures due to depth under water of the submarine vessel.

Our plan that year was to winter at Charleston, South Carolina, which was being built up as a base for small craft such as torpedo boats, submarines, and destroyers. Such a long trip was not made without many difficulties. In fact, the submarines were towed most of the way, and there were many incidents which occurred which would take too long to tell at this time.

#### NIMITZ COMMANDED SUB

While at Charleston, South Carolina, a new organization was put into effect and the experienced officers of my unit were sent to the Navy Yard, Boston, to take command of the three D-boats and the four C-boats. This unit became known as the 3rd Submarine Division and included Lieutenant Nimitz, now Fleet Admiral Nimitz, as one of the commanding officers.

We carried on many experiments, mostly torpedoes, submerged work and developing methods of attack, singly and in conjunction with other submarines. One of the special exercises Lieutenant Nimitz and I conducted off Gloucester was an attack in which Lieutenant Nimitz cruised 70 feet directly under my submarine and I led him into the attack. I often smile now at what the shipping along the coast would do if they knew what two new submarines were doing at that time. Nothing happened but that form of attack was never carried very far. I still think it has possibilities.

One of the cruises we made was from Newport to Gloucester which included running submerged all day, anchoring at night, charging batteries and proceeding to the next destination. This cruise lasted about four days. And in entering Provincetown Harbor we entered submerged and the first that the other ships of the fleet knew of our presence, was when we came to the surface and blew tanks.

This trip was very well publicized and was written up in an article entitled "The Modern Submarine" which appeared in a special Navy addition of the Scientific American about December 1911.

This reminds me that a comprehensive report on submarine activities,

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which I submitted in the fall of 1909 or the spring of 1910, appeared in one of the annual publications of the target practice office. Anyone wishing to find some of the other developments, some record of them, can find them in that report.

Two or three outstanding material developments resulted from our torpedo experiments. It was early determined that the curved fire attachment of torpedoes would mean quite a bit to the submarine and its attack, also the necessity of having what was then known as outside setting devices so that the curved fire could be set from the outside of the torpedo tube.

So far as I know, this development has been carried to a very effective form. Of course, the periscopes were being developed very rapidly at that time. We ordered different types from different parts of the world and, by the end of my service in November 1911, we felt we knew what was wanted.

Shortly after I became the senior submarine officer in the spring of 1919, we began studying rules and regulations for placing the submarines in competition in the same way that competition had been developed for battleships, destroyers and other vessels. The director of target practice, Lieutenant Palmer, came to Newport, Rhode Island, and made a trip with me. It just happened that I was going out for torpedo practice and was to fire four torpedoes. Lieutenant Palmer had not had any submarine experience and was eager to go with me. I fired four torpedoes in succession but the last one circled and returned to the submarine and hit us near the propeller. When I blew the tanks and came to the surface, the torpedo, minus its exercise head, was snuggled alongside the submarine.

Lieutenant Palmer had actually participated in an experiment which showed that torpedoes could be fired at vessels without any great damage to such vessels, as he had been in a submarine with one hit. He returned to Washington and prevailed upon the Secretary of the Navy to order torpedo exercises in which torpedoes were fired at battleships. This was the first time that this had been done and I think it's safe to say met considerable opposition on the part of the Bureau of Ordnance who was responsible for torpedoes.

#### HAD ONE SET OF TOOLS FOR SEVEN SUBS

As an illustration of how crude we were in those days--when the seven new submarines were put in commission in 1910, we were allowed one set of tools for the seven submarines. It took several months to correct this condition.

During this period we spent a month to six weeks at New London, engaged in what was then the usual submarine exercises but, of course, very crude as compared to present day standards. We finally had to go to New York for repairs.

The New York yard at that time was commanded by Admiral Leutze. Upon our arrival he promptly informed me that we had a very bad reputation and that if he ever got us out of the yard, he could consider himself fortunate.



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We took him at his word and left on the scheduled date, although it meant we had to go to Sandy Hook to complete our repairs. He tried to make peace with us by saying it was not our fault but we insisted on leaving his jurisdiction. If you wish any details about our experience at Sandy Hook, I hope you will call on Captain R.A. Koch to tell about them. He was in command of the submarine tender, the CASTINE.

All this period was filled with many incidents, some of which were quite thrilling. For instance, while engaged in making submarine attacks on the CASTINE in Provincetown Harbor, Lieutenant Dannenhower rammed the tender and she began to fill with water. Lieutenant Koch, her commanding officer, got underway at once and headed for the beach across the bay. Shortly before he struck the beach he asked them where the water was in the fire rooms, and the reply was, "Over the lower furnaces." The CASTINE struck the beach in time to save going down in 70 feet of water.

The reason for the submarine striking the tender was a rather natural one. On the previous day I made the first attack and came up to watch the other submarines deliver their attack. After the exercises were over, the commanding officers came into my cabin for a discussion. I remarked to Lieutenant Dannenhower that I thought he had fired his torpedoes at too great a distance. The next day he rammed the tender, the target. When I got a chance to talk to him about it, he said, "Well, Commodore, you told me the day before I was too far away." This incident, of course, was investigated in the usual manner. Lieutenant Koch was held responsible because although he was not actually on the bridge of the tender the court thought that if he had been on the bridge, he might have devised some way of warning the submarine. We did have the danger flag hoisted but that meant very little to Lieutenant Dannenhower. Lieutenant Dannenhower was the son of the Lieutenant Dannenhower of the DeLong Arctic Expedition and had the explorer's frame of mind. He resigned from the Navy and later joined in building submarines. You may recall that some years ago some explorers attempted to reach the North Pole in a submarine. Well, Lieutenant Dannenhower was the commanding officer of that submarine. As previously stated the entire four years that I was in submarine were filled with experiences which were very thrilling.

One other and I will not mention this phase of our work any further. In going to Charleston in 1909, we were being towed by the tug, NINA. As we approached Diamond Shoal light vessel, it was very evident that the tow line was going to part so we prepared to get underway on our own power. Two gunner's mates and I lashed ourselves to the periscope, cut away the end of the tow line and started our engine. For about two hours we were swept continuously by the seas. It was December but the weather was warm and we did not think much of our difficulties as soon as we anchored in the lee after rounding Diamond Shoal light vessel.

#### TENDER LOST IN STORM

Just prior to breaking adrift from the tug, I had the bridge cleared

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which included a tactical signal book which we kept as a safety precaution to comply with the law in view of the previous experience, not that it would do us very much good in communicating with the tug. That had very serious consequences for me.

After we got into Charleston Harbor, I went to Washington on special duty. And while I was away, the man who had charge of the signal book went on leave. When it came to locating the signal book, he was away and so was I and I was charged with the loss of the signal book and eventually given a General Court Martial although the book was found before the court met. I was given a public reprimand which was rather amusing. It stated briefly that the sentence imposed by the court was totally inadequate for the offense committed, but in view of the hazardous nature of the duty, the Department refrained from expressing, as it otherwise would, that the sentence was inadequate. This, of course, is a matter of official record.

There was a sad ending to this tender, NINA. She had been in service for a long time as a tender for submarines. She was an old tug dating back probably to the Civil War. Her commanding officer's home was in New England. He had orders to leave Charleston and return to Boston via Norfolk. I went home on a month's leave.

On my return north I stopped in at the Navy Department and was informed that the NINA had left Norfolk in the face of a storm and that they had heard nothing further from her. Her actual fate is still unknown. I doubt if any part of her wreck was ever located.

Upon my arrival in Boston, I found letters awaiting me from her commanding officer who had stated that he was very glad that I was not on the trip with him from Charleston to Norfolk as he had taken a great deal of water in the bow of the vessel.

So far as operations is concerned there is one part which I would like to leave as a matter of record. All this time the officers and men were anxious to join in the operations of the fleet, which consisted primarily of the battleships, and we put every effort into getting ready for that. By the time it came for me to leave the submarine service, every one senior to Lieutenant Nimitz had been detached. I may say that that did not just happen. I had to make several trips to Washington to keep the Navy Department from putting someone in between me and Nimitz so that Nimitz might not succeed to the command of the submarine service. I made these trips to Washington from as far north as Newport at my own expense to keep the organization on the right track. Eventually, in November 1911, Lieutenant Nimitz succeeded me and I think it was at that time he was given an independent command, that is not the command of a submarine as well as the command of a flotilla. I had had command of one of the boats as well as command of the flotilla. I could not get the change of organization during my time but succeeded in doing this for Nimitz. The following spring Nimitz was able to take the flotilla to join in the maneuvers which were conducted annually off Guantanamo, although this had been our objective the year before. Naturally, I took some pride in this operation.

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I have not said anything about the officers who proceeded Lieutenant Courtney and ourselves. When we reported in Newport in 1907, there was some of the old class A-boats there in command of Lieutenant Shapley, class of '99, Nelson '98. Lieutenant Castle was also there and later took command of submarines which were taken out to China.

In the records at Newport at that time considerable information was gained from reports which had been submitted by Lieutenant F.L. Pinney. Now retired, Captain Pinney is living in the vicinity of Washington. He might be able to add very much to the early submarine history. One of our interested friends at that time was a Lieutenant Commander Mark L. Bristol who repeatedly emphasized that we must figure on how many submarines we would need for any particular spot and his interests was very helpful to me when I became the senior submarine officer at that time.

WANTED SUBS KEPT MOBILE

In the above narrative I may not have gotten the incidents in their regular chronological order but on the whole, I think I've given you some idea of the early days in submarines.

Tenders were very new at that time and the Navy Department neither had suitable vessels for tenders nor were the torpedo boat and submarine services imbued with the necessity of tenders. There were many people who felt that submarines and torpedo boats as well as destroyers should be based on shore. Frankly, I never subscribed to that idea. I'm not sure who put the idea into my head but it was that the submarines must be kept mobile and that this could be done only by having submarine tenders. Whatever tenders we had were always available for something else, going out to look for wrecks, to do towing duty, even to transport Marines to the West Indies. In fact, for practically the entire time I was in the submarine service, we submariners were known as wharf rats.

We would often come in, instead of finding a nice warm tender, would have to search the dock to see where we would have to hang out until our tender returned, sometimes as much as three or four days later. People who now have such comfortable tenders really can't visualize what it was along these lines.

One of our units, which was working the Chesapeake Bay not directly under me but a part of our organization in 1911, lived in box cars around the Norfolk Navy Yard and in tents when working up the bay. You may ask why we did not live on the submarines. I ask you to visualize a submarine 85 feet long with gasoline engines, storage batteries, four torpedoes and 13 or 14 members of the crew. It was a tight squeeze to get all of that inside of one vessel, and normally when not working the crew sought some relaxation in a more comfortable spot. One of my recommendations ~~was~~ to give us comfort money to pay our hotel bills and other expenses when we were being wharf rats.

Another submarine incident, which created quite a bit of discussion and which was daring to say the least, was when Lieutenant Whiting escaped

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through the torpedo tube from a submerged submarine. Lieutenant Whiting, who afterwards became a well-known aviator and a pioneer in Naval Aviation, naturally took to the sea. His brother is now a Rear Admiral in the Navy. They were all sailors. While attached to a submarine in Manila Bay, Lieutenant Whiting tested the means of escape from a submarine by entering the submarine tube through the rear door, having that door closed, flooding the tube, opening the outer door to the tube and pulling himself out through the water pressure and swimming to the top. It was thrilling to think of it and in those days was considered quite a feat. I dare say very few people would care to undertake it even now.

Captain Wright:

Thank you very much Captain Bingham for this splendid account of the early history of our submarines.

END