

## Supplement 3

### White Oak Laboratory Oral History *The WW II Silver Spring Navy Plastics Laboratory Its Origins and Its People and Their Activities*

#### **Prologue by Frank Koubek.**

It is late 1942, our Country is at war---embroiled in that awesome global conflict known as World War II. If you were alive during that time, you realized that we were in a war that involved our very existence as a free nation. While at this point in time, there was greater optimism (than December 1941) that we would ultimately defeat our axis foes, there were still many more battles to win and a great many more sacrifices to be made.

It was at this time, people in high places in the U. S. Navy decided that the Navy needed an R&D Laboratory focusing on plastics technology and engineering (a relatively new materials technology area) to support the needs of the Fleet in the war effort. While most of the nitty-gritty details of the whys and hows of the above are lost to history, we do know a decision was made to located the Navy Plastics Laboratory in downtown Silver Spring, MD on Georgia Avenue, near the railroad station. A brick building just off Georgia Avenue was leased for this purpose.

The men and women called upon to staff the Navy Plastics Laboratory came from all walks of life, ranging from professional scientists and engineers to technicians, clerks and secretarial people. Their number swelled to some 85 people by war's end---a dozen Naval officers; two dozen enlisted personnel; and some four dozen civilians.

Very few, if any, of these people had any background in plastics technology. It was an area that was in its infancy. There were not many varieties of plastics in those days. There were no epoxies; no polycarbonates; no polyethylenes; no diallyl phthalates; etc. These and many more evolved after WW II. Lack of experience notwithstanding, this team of engineers, scientists, technicians, etc. came together in a magnificent effort to meet the needs of the WW II Navy, by putting together a laboratory having state-of-the-art equipment and becoming highly competent in this new technology area.

When I joined the NOL Non-metallic Materials Division (then known as the Chemistry Division) in 1956 at White Oak, I became acquainted with three of the Naval Officers (now civilians), who were at the Silver Spring Plastics Laboratory during WW II: Dr. A. Lightbody, who hired me and was our Division Chief (and formerly a Naval Commander and Executive Officer at the Plastics Laboratory); Harry Mathews (formerly a Navy Lt. at the Plastics Laboratory); and Bob Barnet (also a Navy Lt. At the Plastics Laboratory and later, Head of the Non-metallic Materials Division at NOL). I was associated with these three people throughout my career at White Oak—they all retired before I did and only one—Bob Barnet—is still alive.

The rest of this article that follows was written by Bob Barnet and is indeed a true oral history of the Silver Spring Plastics laboratory.

**Reminiscing the Navy Silver Spring Plastics Laboratory  
A True Oral History  
By  
Bob Barnet**

On 7 December 1941, I was a senior in chemical engineering at the University of Washington in Seattle. Shortly after Pearl Harbor, selective service draft numbers were issued and mine was #871. This meant that I could be in the U. S. Army in about 4 to 5 months!! Then, in January 1942 (or early February), the Navy offered an OVP (Officer volunteer probationary) program to junior and senior engineering students. I applied and was accepted; thus ending any danger of any Army career.

The Navy let me earn my engineering degree, and called me to active duty in September 1942. I was sent to Dartmouth College for indoctrination, and then to the General Ordnance School at the Naval Gun factory in Anacostia. I arrived in Washington, D. C. Thanksgiving evening 1942. There were several hundred in the class, all slated to become inspectors in plant ordnance or to be assigned armed guard duty aboard merchantman ships. This at the time of the Murmansk Russian runs when it was normal for fewer than 50% of the ships to get through.

Some time in February 1943, a LCDR R. O. Phillips came to the ordnance school and interviewed people for work in a Plastics Laboratory that he was setting up in Silver Spring, MD.

I was one of three selected; two went to BUORD and became part of LCDR Phillips office staff. I went to the Silver Spring Laboratory in early March 1943. There I was a Navy Ensign with no plastics experience. My initial job had to do with testing materials and ordnance components made from various plastics.

The Silver Spring Plastics Lab was located in a building formerly occupied by the American Instrument Co. It faced Georgia Avenue, immediately South of the B&O RR tracks. We were in the back and looked at the B&O RR Station. Crisfield Seafood Restaurant was on the Georgia Avenue side.

We had a very large open area in the building with a double decker area on one side; various laboratories (chemistry, etc.) were on the lower level, while offices, a library, and a drafting room were on the upper level. I don't know just when the Plastics Lab first began. Albert Lightbody, formerly of DuPont Co., was already there, and he was the Executive Officer. Many others were also already there. There was considerable equipment on hand: a large compression molding press; several small ones; and an injection molding machine. There was also a machine shop for making molds, etc. Thus, it was a self-sufficient operating outfit. Work came to the lab through LCDR (later Captain) R. O. Phillips office in BUORD.

At the peak of operations, there were about 80 to 85 people at the lab. The officers were mostly older men with industrial experience or who had been college professors and were engineers and chemists. The enlisted people came via BUPERS. Some of them had college degrees. Dr. Gustavus Watkins ran the mycology unit. Mort Beroza, who worked with me, got his PhD while in uniform and later went on to become one of the developers of insect sex attractants. The civilians were a mixed crowd: chemists, plastics molders, machinists, etc.

Work assignments were based on experience, and military status had little to do with how the work was carried out. People worked together with minimum consideration for military status. The three photographs included in this article show the officers, enlisted personnel, and civilians circa 1945. Do you recognize any of them? The officers are identified; I am in back

row on far left.

#### MAJOR PROJECTS:

The Cocoon Wrap. This was a plastics spray application. First, a web was sprayed over the equipment, then a continuous film was sprayed over the web to produce a moisture barrier. Of course, it was permeable, and so, a desiccant had to be used inside. This was the basis of the cocoon fleet after the war and served to protect our no longer needed ships for a number of years.

The above project was the root cause of the so called “Silver Spring Mutiny.” The cocoon system was developed by Dr. Howard Tanner (Lt.) and Russel Harsom, They filed for the U.S. patents through the BUORD Patent Office. At that point, Captain Phillips decide his name should also be included on the patents. Thus, a furor developed, and the BUORD patent people got good and mad at Captain Phillips and let higher authority know about it. So, the pot began to boil over, and was forever known as the “Silver Spring Mutiny.” Happily, this alteration of minds and egos was settled rather quickly one evening at 1730. At that hour, then Captain Arleigh Burke (later Admiral Burke of 33 knot fame) strode into the laboratory. He asked no names----just what was going on. He was told and in about an hour and one half later, he announced that the Plastics Lab would get a new captain—-independent of Captain Phillips, and that business would go on as usual—period!! A Captain Delaney was put in charge of the Laboratory. He was a combat navy aviator, and had the good sense to let the lab personnel alone in doing their work.

Editor Note by Frank Koubek. By reading between the above lines, you will realize there is much more detail about the mutiny and what led up to it. However, Bob Burnet and I felt that it would not serve a useful purpose to include it in this article.

Submarine Net Floats. The harbor at Gibraltar was protected by a series of Anti-submarine nets to keep out the U-boats. But, the Germans merely sent over a couple of planes and shot holed into the floats and thus sank the nets. To counter this, we developed a polystyrene foam system that would fill the inside of these 58 inch diameter floats with a closed cell foam. We then went down to Yorktown to the Navy Facility where we had space to operate and also a crew of Sea-bees to help. We were there about six weeks and produced a large number of foam filled floats for shipment to Gibraltar. Lt. Howard Tanner was in charge, and I was the ranking Ensign. (This is where I learned to operate a caterpillar!! The Sea-bees watched over me carefully, so I did not get into too much trouble.) Apparently, the Germans were much surprised on their next attempt to sink Gibraltar’s nets.

Deck Heave Protection. When an explosion from a torpedo or a mine strikes a ship, a shock wave passes through the ship’s structure. Anyone standing on a critical spot of the structure suffers this shock too. Results were fractured bones, being tossed upwards, and smashed against the overhead. Even being tossed over the ship’s superstructure and into the sea could happen. The medical problem of fractured ankles had no good solution, and so, victims of this injury were put into amputee wards until they saw how much better off the amputees were and often opted for amputation.

NAVMED Bethesda asked the Plastics Lab to work on the problem. We tested many ideas of plastic foams and metal constructions which mitigated the problem on a one time basis. The best solution finally came from a contractor in the form of a molded rubber “ice cube” tray

which could take multiple shocks.

Crash Helmets. The Plastics Lab's work on the above, however, paid off in another area—aircraft pilots crash helmets. One of the aircraft manufacturers filed for patents for such helmets. However, they were denied because the Navy Plastic Lab's work on deck heave was deemed as teachings for the crash helmets.

Mycology. Fungus and mold control was a big problem on equipment in the South Pacific Campaigns. The Plastics Lab set up a facility for working on this problem and work was done on optical equipment, leather, fabrics, etc.

Miscellaneous Projects. A good deal of the Plastics Lab efforts went into trouble shooting, designing, and molding plastic parts and helping in the selection of materials for various applications. Another interesting project was the development of a plastic artificial hand designed to hide the metal mechanism then used for amputees (NAVMED Bethesda)

EPILOGUE by Bob Barnet

The Move to NOL, White Oak, circa 1948. When NOL opened after WW II, the Plastics Lab became part there of and occupied space in the Main Building and at Building 70. Several of the Plastics Lab civilian employees and three of the former Naval officers—now civilians—formed the core of the NOL plastics operation. Thus, the future Non-metallic Material Division was born.

After Thoughts. Looking back over more than 60 year, it appears that the Plastics Lab was a highly successful venture. Captain Phillips and others had the foresight and courage to put together an effective group of people under wartime conditions, and in a new field of technology. After the war, the laboratory was deemed important enough for inclusion into NOL. At White Oak, its members won world-wide recognition for their work. The importance of their work seems to have guaranteed the survival of this group—at least in part—upon the closure of the WOL and the move to NSWC Carderock.