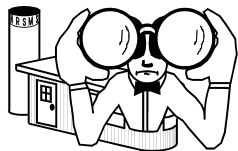


From The Bridge



Mystery Photo



Last month I mentioned that one of my New Year's resolutions was to spend more time ship modeling. Well, I have to say that I have not started on this resolution. Does this mean that I have broken the resolution? I hope not, as I am looking forward to getting back to work on my Armed Virginia Sloop. How are you doing on your New Year's resolutions? I hope that you have not broken yours. I have managed to keep one of my resolutions and that was to go to the fitness center more often to work out. I waited until the end of January to start this as I have always felt that January was a busy month in the fitness center with everyone making the same resolution to work out more often. Over the years, I have seen the number of people using the fitness center decrease after January. As they say, most people break their New Year's resolutions by the middle of February.

On one of the on-line ship modeling forums that I follow, one of the members is proposing to have a National Clean Up Your Work Area Day. The thought behind this is that on this day, every ship modeler will unclutter their work area and return their tools, paints, scrap wood and other modeling supplies to their proper storage area. I think this would be a good idea and that it may be the thing that gets me back working on my models. But for me, it would have to be a National Clean Up Your Work Area "Week". I have way too much clutter to clean up in one day.

What a difference a year makes. Last February, we were talking about all of the snow that this country was having. But this year, we are wondering where is winter. A well know weather forecaster in Richmond is predicting that winter will be over by February 15 and that we will have above normal temperatures for the next several months. Time will tell if he is correct.

The nice weather should be good for the Richmond IPMS Old Dominion Open show and contest that will be held on February 25 in Richmond. They have worked hard on this event in trying to make it one of the premier shows on the East Coast. The addition of the wooden ship model category is something new to their show and it should generate a lot of interest. I hope HRSMS will be well represented in the maritime categories. Being sponsors of several awards, it would be nice if some of our members show their skills by bringing home some of the awards.

Ron Lewis' presentation on the New England Maritime Museums was excellent. If you are ever up in that area,

(Continued on page 2)

Mystery Photo #307: What an interesting Mystery Photo; made even more interesting by the fact that it may lift our winter blues. In fact, the craft seems to be so light that it may take to the air. In fact, the image is so lofty that no replies were received. In fact, it's nice to see a relatively cheap technology demonstrator from time to time; they make great fodder for the Mystery Photo. In this column we've seen a few, first it was the underwater barn door on the pre-dreadnaught, then it was the tractor seat on a snorkel, and then it was the very ugly Schnellboot V5, now it's a UFO on stilts. Dang Bill, your trips to the archives are getting pretty weird—have you discovered the original Roswell files?

Speaking of UFOs, some of you may remember an unusual lifting body demonstrator, a Chance-Vought aircraft design from the early years of World War Two. What was officially designated V-173 the flying flapjack was more whimsically nicknamed the "Zimmer-skimmer" after her designer Charles H. Zimmerman. Zimmerman was an engineer with the National Advisory Committee for Aeronautics (NACA), the precursor of the National Aeronautics and Space Administration (NASA). In 1929 he joined the staff at the local NACA facility now colloquially known as NASA Langley. He spent most of his career there, in spite a few years at Chance-Vought, before moving to NASA headquarters in Houston, Texas in 1962. In 1967 he retired from NASA and spent the remainder of his life in the Hampton Roads area. Zimmerman was a leader in researching novel airfoil configurations. V-173, with a round lifting body shape and stubby wings, certainly emulates the object highlighted in our Mystery Photo.

One aeronautical development that is credited to NACA is their mathematical study of air foil shapes. "NACA airfoils are", obviously, "airfoil shapes for aircraft wings developed by the National Advisory Committee for Aeronautics. The shape of the NACA airfoils is described using a se-

(Continued on page 2)

MEETING NOTICE

Date: Saturday February 11, 2012

Place: Mariners' Museum

Time: 1000 Hours

(Continued from page 1)



ries of digits following the [acronym] "NACA." The parameters in the numerical code can be entered into equations to precisely generate the cross-section of the airfoil and calculate its properties." Sounds simple enough!

According to the definition in Wikipedia "the NACA four-digit wing sections define the profile by:

- One digit describing maximum camber as percentage of the chord.
- One digit describing the distance of maximum camber from the airfoil leading edge in tens of percent's of the chord.
- Two digits describing maximum thickness of the airfoil as percent of the chord.

For example, the NACA 2412 airfoil has a maximum camber of 2% located 40% (0.4 chords) from the leading edge with a maximum thickness of 12% of the chord. Four-digit series airfoils by default have maximum thickness at 30% of the chord (0.3 chords) from the leading edge.

The NACA 0015 airfoil is symmetrical, the 00 indicating that it has no camber. The 15 indicates that the airfoil has a 15% thickness to chord length ratio: it is 15% as thick as it is long."

Get this and all your rudder and submarine control surfaces will be a breeze to model.

Ok, you ask; what is the nautical connection here? Well outside of the aforementioned rudder design, there might be a slim one. As was usually the case in those days, there was a navalized version of the flapjack designated XF-5U—only one example was built and it never flew. So indirectly, Zimmerman was involved in product development for the US Navy. Other than a naval pancake and a handful of acronyms—with more to come—is there really a connection here? Read on and see.

Enter a gifted engineer named Dr. Vannevar Bush. The Grandson of two sea captains and son of a preacher, Dr.

(Continued from page 1)



do not miss going to these Museums. They hold a wealth of information.

We have a lot to discuss at this month's meeting. I look forward to seeing everyone.

Ryland

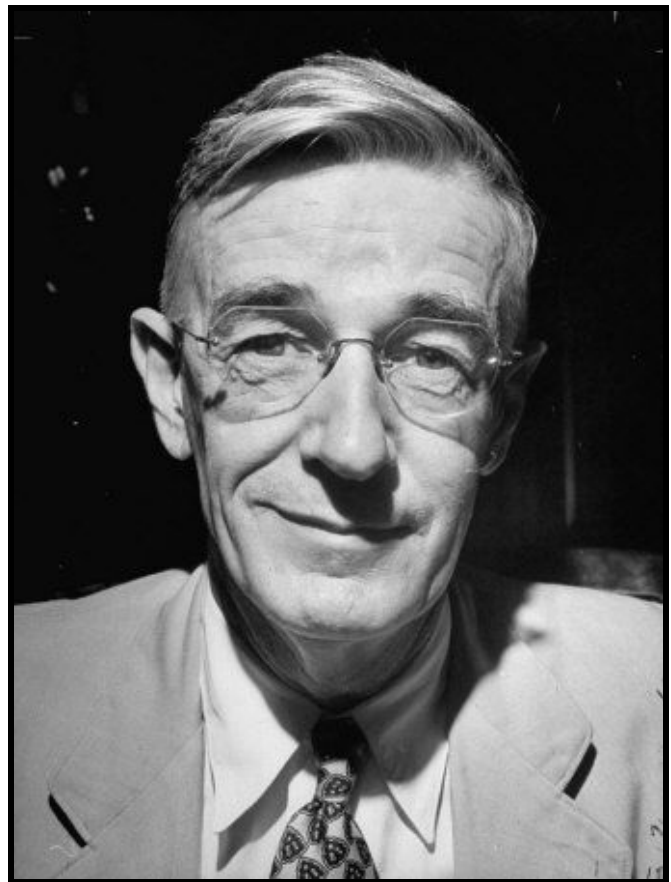
Hampton Roads Naval Museum

The Hampton Roads Naval Museum is looking for volunteers. The position would be similar to the model builder's stand at the Mariners Museum. This is a good opportunity for those living on the Southside. If you are interested, contact the museum's director, Becky Poulliot. She can be reached at 757-322-2990.

Bush was a brilliant man earning his doctorate in electrical engineering jointly from MIT and Harvard in one year. He is credited with many things in his career and, in many cases because he was also a very skilled administrator, he was the man behind the man in scientific development from the early 1930s to the late 1940s. In 1932 he was appointed vice-president and dean of engineering at MIT. In 1939 he accepted the presidency of the Carnegie Institute, largely for the opportunity to promote research and technology to the military. In 1940 he was appointed chairman of the newly created National Defense Resource Committee (NDRC), where he became Franklin Delano Roosevelt's (FDR) primary military research advisor. But more importantly, regarding the Mystery Photo, he was chairman of NACA from 1941 through 1948. There is every reason to believe that Bush knew Zimmerman well.

While Bush was a most accomplished man with many patents to his name, his biggest claim to fame might just be his political appointments which allowed him to lead America's scientific community to technological success during World War Two. You could say he was in the right place at the right time—something he no doubt engineered; the term self-made man comes to mind. The bulk of what follows about Dr. Bush was gleaned from his biographical memoir compiled by Jerome B. Weisner for the National Academy of Sciences. It's somewhat lengthy but it's important to profile

(Continued on page 3)



Dr. Vannevar Bush

(Continued from page 2)



Mystery Photo

Bush's career as it helps to explain the political and scientific environment surrounding the Mystery Photo:

Having earned his BS and MS degrees in electrical engineering from Tufts University by 1913 he "worked for a time in the test department of the General Electric Company at Schenectady, New York, and then as an inspector for the U.S. Navy. During World War I he worked with the National Research Council (NRC) with about six thousand leading American scientists in the application of science to warfare (such as developing submarines, trip hammers, and better microscopes). In 1922, he co-founded the American Appliance Company with Laurence K. Marshall to market a device called the S-tube. "This was a gaseous rectifier invented by C. G. Smith which made possible the operation of radios from the power line without batteries." Bush made much money from the venture and "the company, re-named Raytheon, became a large electronics company and defense contractor. Starting in 1927, Bush constructed a Differential Analyzer, an analog computer that could solve differential equations with as many as 18 independent variables. An offshoot of the work at MIT was the beginning of digital circuit design theory by one of Bush's graduate students, Claude Shannon." And he was involved in the Manhattan Project: "when Gen. Leslie Groves brought the a-bomb to completion, Vannevar Bush was the man behind the scenes there as well."

Though known as an innovator he was really a very gifted administrator. "During 1939 Bush accepted a prestigious appointment as president of the Carnegie Institution of Washington, which awarded large sums annually for research. As president, Bush was able to influence research in the U.S. towards military objectives and could informally advise the government on scientific matters. During 1939 he became fully involved with politics with his appointment as chairman of NACA. In June 1940 he convinced Franklin Delano Roosevelt to give him funding and political support to create a new kind of collaborative relationship between military, industry, and academic researchers—without congressional, or nearly any other, oversight."

Bush's reasoning for this was based on past experi-

ence. "During World War I, Bush had become aware of the poor cooperation in the U.S. among civilian scientists and the military. Concerned about the lack of coordination in scientific research and the requirements of defense mobilization, Bush in 1939 proposed a general directive agency in the federal government, which he often discussed with his colleagues at NACA, James B. Conant (President of Harvard University), Karl T. Compton (President of M.I.T.), and Frank B. Jewett, President of the National Academy of Sciences (NAS).

Bush continued to urge for the agency's creation. Early in 1940, at Bush's suggestion, the secretary of NACA began preparing a draft of the proposed National Defense Research Committee (NDRC) to be presented to Congress. But when the Germans invaded France, Bush decided speed was important and signaled President Roosevelt directly. He managed to get a meeting with the President on 12 June 1940 and took a single sheet of paper describing the proposed agency. Roosevelt approved it in ten minutes.

NDRC was functioning, with Bush as chairman, even before the agency was made official by order of the Council of National Defense (CND) on June 27, 1940. Bush quickly appointed four leading scientists to NRDC: NACA colleagues Conant, Compton, and Jewitt, and also Richard C. Tolman, dean of the graduate school at Caltech. Each was assigned an area of responsibility. Compton was in charge of radar, Conant of chemistry and explosives, Jewitt of armor and ordnance, and Tolman of patents and inventions. Government officials then complained that Bush was attempting to by-pass them and to acquire more authority for himself. Bush later agreed: 'That, in fact, is exactly what it was.' This coordination of scientific effort was instrumental for the Allies winning the Second World War. Alfred Loomis (attorney, investment banker, and the scientist/physicist who invented LORAN, among other things) said that 'Of the men whose death in the summer of 1940 would have been the greatest calamity for America, the President is first, and Dr. Bush would be second or third.'

During 1941 the NDRC was subsumed into the Office of Scientific Research and Development (OSRD) with Bush as director, which controlled the Manhattan Project until

(Continued on page 5)

**Hampton Roads
Ship Model Society**

Banquet

March 24, 2012

**Riverwalk Restaurant,
Yorktown**

Please Note

**The date of the March meeting
has been changed to,**

March 3, 2012

IPMS Old Dominion Open

Richmond, Va.

February 25, 2012

HAMPTON ROADS SHIP MODEL SOCIETY ANNUAL BANQUET

Saturday March 24, 2012
Riverwalk Restaurant
323 Water Street
Yorktown, VA

Cash Bar 6:30 pm Dinner 7:30 pm
Price \$40.00 per person, includes tax and gratuity

Dinner Menu

Lobster Bisque

House Salad
Warm Bread

~

Sliced Beef Tenderloin
Red Wine Sauce

or

Seared Maine Salmon Fillet
Dill Butter Sauce

~

New York Style Cheesecake
Fresh Berries

A Vegetarian Dinner is Available

HAMPTON ROADS SHIP MODEL SOCIETY ANNUAL BANQUET
Riverwalk Restaurant, Saturday March 24, 2012

NAME _____

Number in your party _____

Return this form and funds to Eric Harfst
not later than March 17, 2012.
Eric Harfst

X \$40.00

Total \$ _____

(Continued from page 3)



Mystery Photo

1943 (when administration was assumed by the Army) and which also coordinated scientific research during World War II. In all, OSRD directed 30,000 men and oversaw development of some 200 weapons and instrumentalities of war, including nuclear weapons, sonar, radar, the proximity fuse, amphibious



vehicles, and the Norden bomb sight, all considered critical in winning the war. At one time, two-thirds of all the nation's physicists were working under Bush's direction. In addition, OSRD contributed to many advances of the physical sciences and medicine, including the mass production of penicillin and sulfa drugs.

Bush's method of management at OSRD was to direct overall policy while delegating supervision of divisions to qualified colleagues and letting them do their jobs without interference. He attempted to interpret the mandate of OSRD as narrowly as possible to avoid overtaxing his office and to prevent duplicating the efforts of other agencies. Other problems were obtaining adequate funds from the President and Congress and determining apportionment of research among government, academic, and industrial facilities. However, his most difficult problems, and also greatest successes, were keeping the confidence of the military, which distrusted the ability of civilians to observe security regulations, and opposing conscription of young scientists into the armed forces. The New York Times in its obituary described him as 'a master craftsman at steering around obstacles, whether they were technical or political or bull-headed generals and admirals.' Dr. Conant commented, 'To see him in action with the generals was an exhibit.'

Bush and many others had hoped that with the disso-

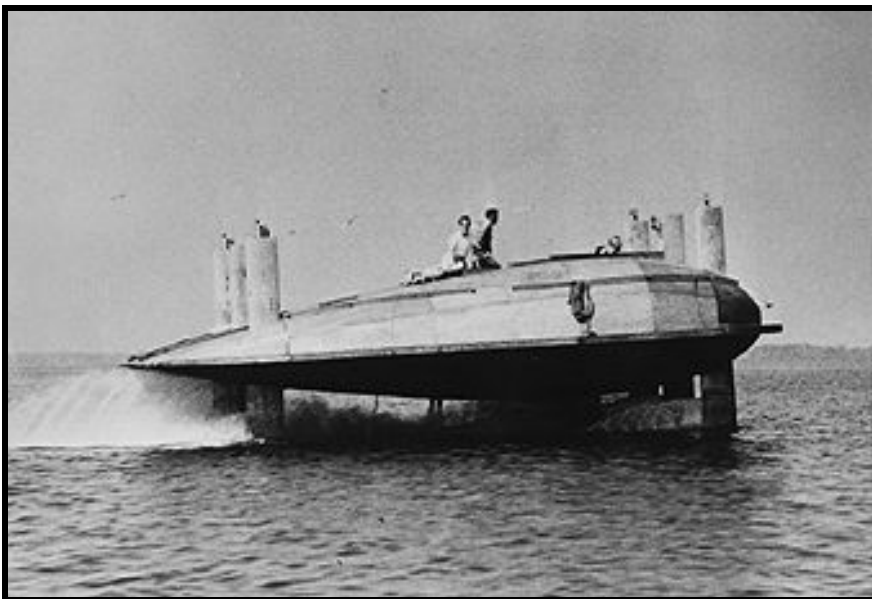
lution of OSRD, an equivalent peacetime government research and development agency would replace it. Bush felt that basic research was important to national survival for both military and commercial reasons, requiring continued government support for science and technology. Technical superiority could be a deterrent to future enemy aggression. During July 1945, in his report to the President, Science, The Endless Frontier, Bush wrote that basic research was:

'the pacemaker of technological progress' and 'New products and new processes do not appear full-grown. They are founded on new principles and new conceptions, which in turn are painstakingly developed by research in the purest realms of science!' He recommended the creation of what would eventually become in 1950 the National Science Foundation (NSF).

OSRD continued to function actively until some time after the end of hostilities, but by 1946 and 1947 it had been reduced to a minimal staff charged with finishing work remaining from the war period.

Bush's management style, the equivalent of running roughshod over congress, may have been ignored as an expedient in time of war, was about to be reigned in. "Bush and many others had hoped that with the dissolution of OSRD, an equivalent peacetime government

research and development agency would replace it. Simultaneously during July 1945, the Kilgore bill was introduced in Congress proposing a single science administrator appointed and removable by the President, with emphasis on applied research, and a patent clause favoring a government monopoly. In contrast, the competing Magnuson bill was similar to



Bush's proposal to vest control in a panel of top scientists and civilian administrators with the executive director appointed

(Continued on page 6)

by them, to emphasize basic research, and to protect private patent rights. A compromise Kilgore–Magnuson bill of February 1946 passed the Senate but expired in the House because Bush favored a competing bill that was a virtual duplicate of the original Magnuson bill.



Mystery Photo

During February 1947, a Senate bill was introduced to create the NSF to replace OSRD, favoring most of the features advocated by Bush, including the controversial administration by an autonomous scientific board. It passed the Senate on May 20 and the House on July 16, but was vetoed by Truman on August 6 on the grounds that the administrative officers were not properly responsible to either the President or Congress.

In the meantime Bush remained director of the remnants of OSRD and fulfilling his duties as president of the Carnegie Institution of Washington. In addition, Bush postwar had helped create the Joint Research and Development Board (JRDB) of the Army and Navy, of which he was chairman. With passage of the National Security Act, signed into law during late July 1947, the JRDB became the Research and Development Board (RDB). It was to promote research through the military until a bill creating the National Science Foundation finally became law.

It was assumed President Truman would naturally appoint Bush chairman of the new agency, and behind the scenes Bush was lobbying for the position. But Truman was displeased with the form of the just-vetoed NSF bill favored by Bush, considering it an attempt by Bush to acquire power. His misgivings about Bush were revealed publicly on September 3, 1947: He wanted more time to think about it and reportedly told his defense chiefs that if he did appoint Bush, he planned to keep a close eye on him. However, Truman finally relented. On September 24 Bush met with Truman and Secretary of Defense James Forrestal, where Truman offered the position to Bush.

Initially the Research Development Board (RDB) had a budget of \$465 million to be spent on "research and development for military purposes." Late in 1947, a directive issued by Forrestal further defined the duties of the board and assigned it the responsibility and authority to "resolve differences among the several departments and agencies of the military establishment."

However, the authority Bush had as chairman of the RDB was much different from the power and influence he enjoyed as director of OSRD and the agency he hoped to create postwar almost independent of the Executive branch and Congress. Bush was never happy with the position and resigned as chairman of the RDB after a year, but remained on the oversight committee. From 1947 to 1962 Bush was on the board of directors of American Telephone and Telegraph. During 1955 Bush retired as President of the Carnegie Institution and returned to Massachusetts. From 1957 to 1962 he was chairman of Merck & Co."

There, I know that was long but you can see how Bush took advantage of the opportunities of the time and became a very powerful man. Government allowed him this latitude as an expedient of war but severely cut Bush's au-

thority in the ensuing peace. Nevertheless he made good use of this time by keeping his fingers in almost every technological pot. One such avenue was in his study of captured German scientific and technological data following the war. One R&D effort that sprang from this study was his proposal to develop the means for high speed surface transit to Europe.

According to Robert Johnston in The Rise and Fall of Miami Shipbuilding Corporation, "it was during this time that Bush became interested in a US Navy R&D project to develop a hydrofoil for rapid transits to Europe and to avoid the growing menace of the submarine. The US Navy had never taken hydrofoils seriously in spite the German navy's achievements in World War II. Dr. Vannevar Bush, scientific advisor to President Truman, had a major input to the Navy's R & D budget."

Johnston continues: "Dr. Bush had obtained funds to build a destroyer-size hydrofoil, and had founded Hydrofoil Corp...to undertake the necessary hydrofoil R & D. Gibbs and Cox was the design activity, and Bath Iron Works was to be the builder. The Navy recognized that the project was not

(Continued on page 7)

MINUTES



HRSMS Minutes of January 14, 2012 Meeting

Guest: Gary Geithmann – 1st meeting

Called to order at 10:10 by Skipper

Guest Gary Geithmann recognized

No additions or corrections to minutes

Treasurer noted that dues were due March 1 and that membership had passed 50 active members.

Old Business:

Skipper passed around letter from Page Stooks from the Mariners Museum thanking the Society for their contributions designated for the Library and Education programs.

Skipper discussed the Society's participation in the Richmond Chapter of the IPMS Old Dominion Open Scale Model Show and Contest to be held on February 25.

Skipper confirmed the meeting dates changed to March 3 and April 21 due to scheduled activities at the Mariners Museum during our regular March and April meetings.

Skipper noted that Tom Saunders had secured the Annual Banquet date of March 24.

New Business:

Nomination of officers after discussion as follows:

Skipper – Ryland Craze

Mate – Tim Woods

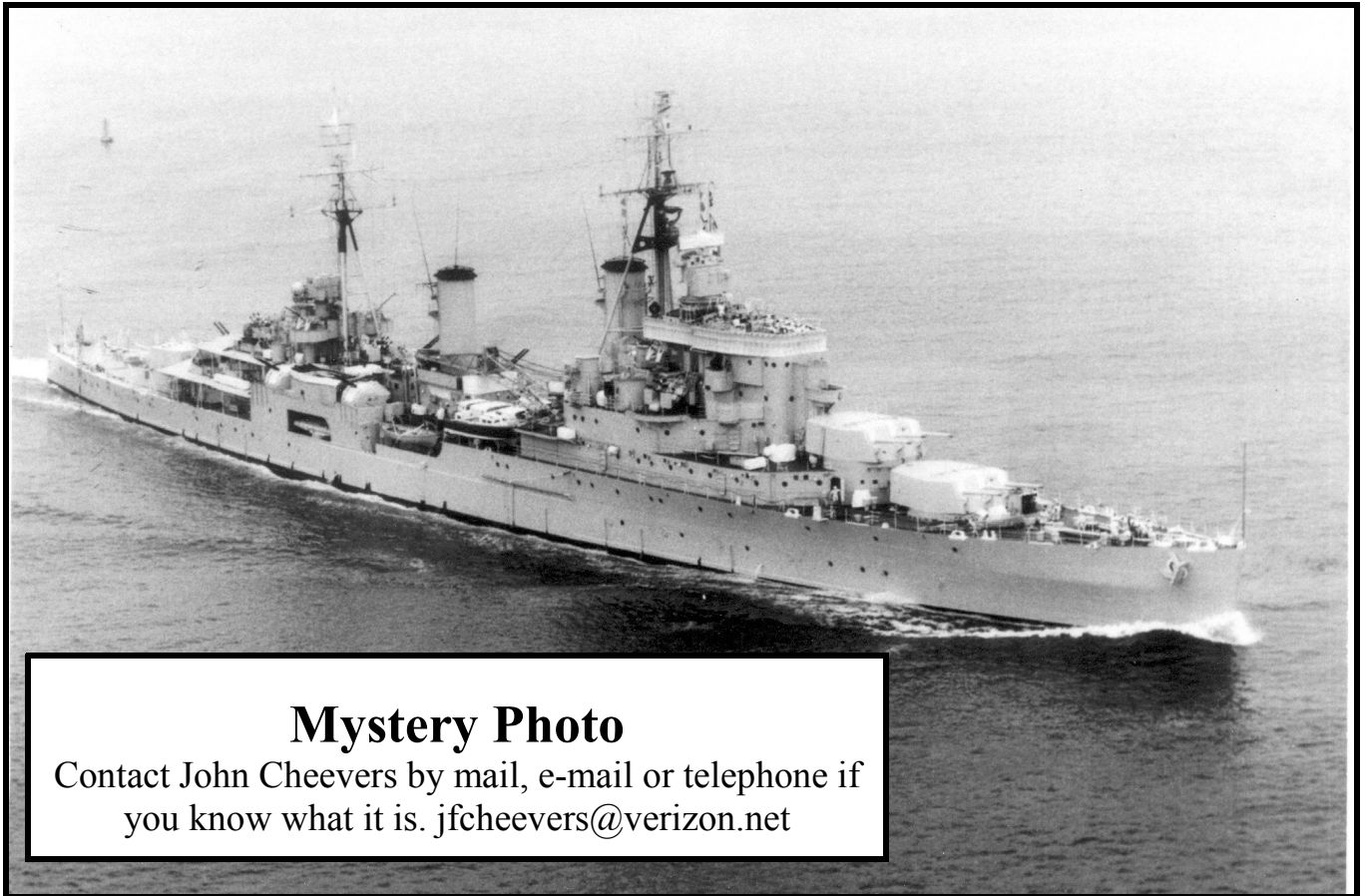
Clerk – Tom Saunders

Purser – Eric Harfst

Skipper appointed John Cheevers, Tim Wood and Tom Saunders to be members of the Founders Award Committee

Tony Clayton discussed need for members to do presentations at the monthly meeting. He passed around a list of open dates

(Continued on page 8)



Mystery Photo

Contact John Cheevers by mail, e-mail or telephone if you know what it is. jfcheevers@verizon.net

(Continued from page 6)



Mystery Photo

practical, creating a dilemma for the development team, who had to keep Bush in the Navy's corner and not upset the Navy's entire R & D budget. In fact, the Navy had classified the hydrofoil program to avoid divulging what many considered was a total waste of money. My orders were to report to Dr. Bush once a week and keep him informed of the Navy's hydrofoil activities."

This month's Mystery Photo showcases what we now readily recognize as a hydrofoil. The craft itself is not large; you can see a man half hidden by the starboard after skag, one of six skags visible. The fact that they penetrate the craft's body or hull suggests that they are capable of being raised and lowered as needed—probably to evaluate different angles of attack and ride heights of the hull. The craft seems to be built of wood but the upper part gives the impression that maybe the upper half is something as simple as a canvas covered frame. There is a wide ledge that separates the upper and lower halves of the hull and you can see the necessary hand grabs to aid in moving about while underway. There may be a cockpit for the pilot(?) located at the thickest part of the cord just behind the forward, center skag. The engine exhausts through the bottom of the hull, and in the Mystery Photo the smoke from the exhaust mixed with the sea mist gives the craft an eerie, spacecraft feel. The ride seems to be very smooth, the man seems to be at ease—of course the water is very calm which suggests the vessel is operating in shel-

tered water, an inlet or perhaps near the mouth of the Severn River. The far shore is just visible on the right.

Now why would I mention the Severn River in conjunction with this vessel? Well that's easy. According to my Google search, this craft can be found at The International Hydrofoil Society's (IHS) web site. Their entry reads: "LANTERN (HC-4) designed and built by the Hydrofoil Corporation, Annapolis, MD. This was one of the earliest hydrofoils to use electronic controls. LANTERN first flew in 1953, had tandem submerged foils, displaced about 10 tons, was 35 feet long with a beam of 22 feet. The control system was a straight adaptation of an aircraft automatic control system. The craft was unusual from another point of view: the foils, struts and hull were all the same shaped section, namely a symmetrical 24% thickness ratio NACA airfoil section. LANTERN was powered by a 200 hp Chrysler marine engine, had a takeoff speed of 14 knots, and a maximum speed in calm water of only 18 knots."

Johnston says that the automatic control system was developed "by Ted Rose, a strong technical innovator and well known by the Navy...He had been Dr. Bush's Chief Engineer at the Hydrofoil Corporation when a borrowed aircraft autopilot had been installed on their test craft LANTERN."

Wow, a hydrofoil with a body that just happens to be a true 24% NACA foil designed and built by a company founded by the head of the NACA, the place that employed the leader in foil research who just happened to design an air-

(Continued on page 8)

NOTABLE EVENTS

FEBRUARY

- 11 **HRSMS** Monthly Meeting: Mariners' Museum
Election of officers
Presentation: Drawing Ship Lines, John Cheevers
- 25 **IPMS** Old Dominion Open , Richmond, Va.

MARCH

- 3 **HRSMS** Monthly Meeting: Mariners' Museum
Presentation: Building the Oseberg Viking Ship model,
Tony Clayton
- 24 **HRSMS** Banquet, Riverwalk, Yorktown

APRIL

- 21 **HRSMS** Monthly Meeting: Mariners' Museum
Presentation: Charles W. Morgan--the continuing saga,
George Livingston

MAY

- 12 **HRSMS** Monthly Meeting: Mariners' Museum

JUNE

- 9 **HRSMS** Monthly Meeting: Mariners' Museum

JULY

- 14 **HRSMS** Monthly Meeting: Mariners' Museum

AUGUST

- 11 **HRSMS** Monthly Meeting: Mariners' Museum

SEPTEMBER

- 8 **HRSMS** Monthly Meeting, Picnic, NN Park

OCTOBER

- 13 **HRSMS** Monthly Meeting: Mariners' Museum

NOVEMBER

- 10 **HRSMS** Monthly Meeting: Mariners' Museum
-

(Continued from page 6)

and asked for volunteers for programs.



Tony Clayton said he had been contacted by John Busch about giving a presentation to the Society on the Steamship Savannah. After discussion, it was felt that his presentation should be handled through the Mariners Museum. Mr. Busch also referred Tony to his website, www.steamcoffin.com

Show and tell:

Stewart Winn handed out brochures on the Chesapeake Bay voyages of the Liberty Ship John W. Brown,

Bill Werling showed his antique scrimshaw whale tooth and inquired how to find its value,

Gene Berger showed his Monitor model that he is building for R/C operation,

Charles Landrum showed his plastic ship model of the USS Independence and a battery powered engraver from Harbor Freight,

Dave Baker showed his new Iwata air brush and two books from Squadron on the USS Arizona and USS North Carolina

(Continued from page 7)

plane with a suspiciously similar body shape. It's all too coincidental. I'm ready to link the dots.



Mystery Photo

Two additional photographs of *Lantern* accompany its short history at IHS, one of which shows a standing Dr. Bush along for the ride; that's him in discussion with another man (Rose or maybe Zimmerman?). Further reading concerning *Lantern* can be found at Google books/magazines. Specifically you want to search for the September 27, 1954 issue of Life magazine and the July, 1961 issue of Popular Science. The Life magazine article shows an image of *Lantern* suspended out of the water where you can really see her foil configuration. Her final disposition is unknown.

After using terms like craft, flew, NACA foil, aircraft control, pilot...are we sure about this nautical connection?

John Cheevers

WATCH, QUARTER AND STATION BILL



Skipper: Ryland Craze (804) 739-8804

Mate: Tim Wood (757) 934-1450

Purser: Eric Harfst (757) 221-8181

Clerk: Tom Saunders (757) 850-0580

Historian: Bill Dangler (757) 245-4142

Editors: John Cheevers (757) 591-8955

Bill Clarke (757) 868-6809

Tom Saunders (757) 850-0580

Webmaster: Greg Harrington (757) 930-4615

Chaplain: Alan Frazer (757) 867-7666

THE ANSWER

Mystery Photo 307

Hydrofoil

Photo No. 80-G-632843

25 January, 1954, Annapolis, Md

Tony Clayton passed around a framed felt picture of a sloop that was made by his granddaughter.

Presentation – Ron Lewis gave a presentation on the Museums in the New England area.

After adjournment, Charles Landrum gave a presentation at the Hampton Harbor Freight on how to shop for modeling supplies from Harbor Freight. Several members were seen purchasing engravers, compressors, airbrushes and other modeling supplies.

Thanks to Ryland Craze for taking the minutes. - Ed.