

EDINA MODEL YACHT CLUB

SAIL & SCALE NEWSLETTER

MAY 2013

VOLUME 22, NUMBER 5

Arleigh Burke Destroyers

Compiled By Todd Moen

The role of the Arleigh Burke class guided missile destroyers, United States Navy ships named for the famed

World War II admiral of the same name, is to defend other ships, whether they be convoys or carrier battle groups. The Arleigh Burke class is capable of defending against airborne threats (aircraft and missiles), other surface ships, and submarines in



USS Forrest Sherman - An Arleigh Burke class destroyer

support of whatever group they are attached to. Though its primary mission is one of defense, the Arleigh Burke class was also designed to support land-based and amphibious operations with their 5"/54 caliber guns, and with their arsenal of Tomahawk cruise missiles, and perform strike missions on many different types of targets.

They are more than four times heavier than a WWII destroyer with the latest version displacing over nine thousand tons.

These destroyers rep-

(Continued on Page 4)

SCHEDULE OF EVENTS:

Open Boating every Tuesday and Thursday 5:00 - 9:00 p.m. & every Sunday 4:30 - 9:00 p.m.

May 21, Tuesday	7:00 p.m- 9:00 p.m.	Membership Meeting
June 9, Sunday	9:00 a.m.-5:00 p.m	Parade Of Boats Event
June 18, Tuesday	7:00 p.m- 9:00 p.m.	Membership Meeting

COMMODORE'S CORNER



By Wayne Snyder

Tra La! Its May! The lusty month of May! That lovely month when ev'ryone goes--- not blissfully astray--- but to Centennial Lakes! Sorry Julie and Lerner and Loewe, couldn't resist that! The pond is open and its time to hit the water with anything that floats.

Time to show off any new boats or just have the fun of getting your favorite in the water again, setting back and relaxing while the sails and motors do their magic on the water. This month the program will consist of getting ready for the Parade of Boats in June. What are your thoughts of having an announcer with PA doing interviews and giving a running commentary on what's going to happen and what is happening on the water? Also I have been wondering about holding short business meetings during the boating season so we can get back on the water that night. Please give input here as I have heard that it used to be the practice. Lets take lots of pictures and movies this year so Todd will have tons of material for the slide show in November, if he is willing to do it again! As I see and hear about other clubs of R/C boating and hobby type clubs I realize how excep-

tional our Edina Model Yacht Club is because of the involvement of members helping and the activities we do. Its great to be a member of such an organization and we all owe a thanks to those who started the club and maintained it during these years. - Wayne Snyder , EMYC Commodore

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OPEN...MON-FRI, 10:00-9:00...SAT, 9:30-5:30..SUN, 12:00-5:00

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Wanna know what's going on?

Subscribe to our newsletter and get a weekly update on all the RC events in the Twin Cities.

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NAUTICAL KNOW-IT-ALL - IT'S A BOAT, IT'S A PLANE, PART 2

By Aaron Water



For May, name the boat and former familiar owner of this airplane-boat. Hint: It is not John Bishop

ANSWERS TO APRIL'S KNOW-IT-ALL QUESTIONS

1. After a flood, when a river may change its form, meander cut-offs are left full of water. Over time, these lakes are filled with sediment leaving scars on the land surface and know as oxbows.

2. A yazoo stream flows parallel to another, unable to join due to the natural levees caused by the larger river. The Mississippi River has many yazoo streams running alongside it. The yazoo stream flows along the larger river for some distance before a 'weakness' can be found in the levees along the river.

3. The pool-riffle sequence was the correct answer. Depth, width, velocity and sediment type are just a few of the properties which change between pools and riffles. The pool-riffle sequence slowly migrates down-stream over time.

4. A wadi is an intermittent Stream, also known as an ephemeral stream. Wadis are generally found in desert areas, where they flow occasionally and sometimes discontinuously along their course. Only after rain-storms will a wadi flow as a river. Minnehaha creek is a wadi, since its flow is regulated at Lake Minnetonka.

5. An anastomosing channel is another name for a braided channel. They are rivers where the flow passes through a number of interlaced branches that divide and rejoin.

6. The Mississippi delta, when seen on maps and satellite images, appears roughly the same shape as a birds foot. This type of delta is caused by the large amounts of sediment carried by the river, which are deposited at the foot of the delta, causing it to grow out wards, in odd directions - "**a sedimental journey**".

7. The great rivers flowing beneath the ice caps during the last ice age are known as eskers.

8. Lateral accretion was the correct answer. As bed sediments accumulate on the sides of rivers, usually on the inside of meanders, the river is forced further outward and cuts into the outside bank. This causes the river to migrate.

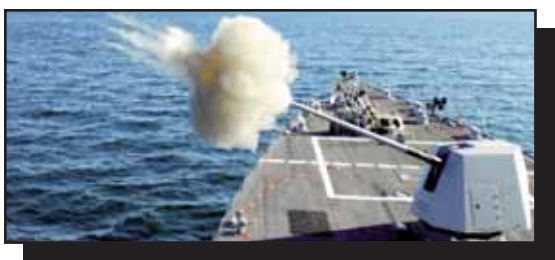
9. Overbank deposits are fine particles can be deposited a great distance from the river itself, depending on the size of the flood. During large floods, it is possible for large sediments, such as pebbles or cobbles to be deposited on the floodplain.

10. A weir is a dam-like structure built across a river. However, it allows water to flow over it and its shape is very specific so as to allow only a certain amount of water over at any given time..

Arleigh Burke Destroyers (cont.)



The AN/SPY-1D phased array radar



The Mk / Mod. 4 -5 in./62 cal. Automatic Naval Gun System



Two helicopter hangars at landing pad

resent many new approaches in naval ship design even compared to destroyers from a decade earlier. One of the most obvious changes from earlier destroyer designs is its wider hull shape. Operational experiences of the Burke class confirm the advantages of this new design. Besides its unique hull shape the Burke class also incorporates other significant changes in naval architecture, one being a return to steel construction. Destroyers of WWII were made of steel. By the 1960's & 1970's, steel was being replaced by aluminum. A collision off the coast of Sicily in a November 1975 storm between the *USS Belknap* and the *USS John F. Kennedy* caused a major fire on the *USS Belknap* and melted the aluminum superstructure to the deck level. This pushed the Navy to pursue an all-steel construction once again.

Many techniques are used to reduce the radar signature of the Arleigh Burke class. Some of those techniques were the tried and true use of RADAR absorbing materials and paint to cover parts of the ship, as well some new ideas. For instance, where the square deck railings and posts of the older Spruance class destroyer were all square with the front of the ship, those same railings on the Arleigh Burke class are rotated forty-five degrees. Also, the mast and 'island' of the ship are constructed with non-perpendicular angles, giving the Arleigh Burke class a completely different 'look' than that of ships past. The purpose of these design techniques is to reduce the number of surfaces perpendicular to an active radar system, reducing amount of signal that the destroyers will return (the same idea behind the UFO-ish F-117 Stealth Fighter (which isn't actually a fighter).

The *Forrest Sherman* includes the Aegis phased array radar, Unlike traditional radars which rotate to look for targets, the Aegis is electronically steered. These four flat panels give the Burke class destroyer 360 degree coverage every second, The speed and accuracy of Aegis allow for a high degree of automation. A destroyer in WWII was usually on its own in collecting data on enemy positions. Today the Burke class destroyers receives data from many sources including satellites, surveillance aircraft and other ships in the battle group. Critical data can be beamed around the world, over digital data channels linking surface warships operating anywhere in the vast expanses of the ocean.

The Mk / Mod. 4 -5 in./62 cal. Automatic Naval Gun System is operated by a crew of 6 below deck, and can fire a 70 to 110 lb. projectile, with a standard maximum range of 16.88 miles. It's

Arleigh Burke Destroyers (cont.)

new shield design minimizes the already low radar signature of the destroyer.

The *Forrest Sherman* includes two helicopter hangars that each accommodate a Seahawk (SH-60B/R) helicopter at the landing pad not found on the earlier Arleigh Burke destroyers.

The primary weapon of the Arleigh Burke class guided missile destroyer is the ninety cell Mk 41 Vertical Launch System (VLS).

The VLS is a vital part of the Arleigh Burke destroyers offensive capability, including Tomahawk and Standard missiles for attacking land targets, and ASROC Anti-submarine rockets. The VLS is split between the bow area and the stern area of the ship, with a 29-cell unit at the bow, and a 61-cell unit towards the stern. The VLS cannot really be seen on a profile (side) view of the ship, since it rises only a few inches above the deck. Missile launch chambers are beneath the deck, in a vertical position (hence the name), and are arrayed in a large grid. The forward grid is really thirty-two squares large and the aft sixty-four, but three cells both forward and aft are taken up by cranes, which facilitates reloading of the Vertical Launch System.

AGM-84 Harpoon anti ship missiles are carried in two 'quad' canisters towards the aft of the ship. The two quad launchers form a kind of 'x' when viewing the ship from the stern. They are angled in this way so that the powerful exhaust from a missile launch will be directed into the water and away from the ship. The Harpoon guided missile gives the Arleigh Burke her primary means of dealing with hostile ships. The Arleigh Burke's complement of Harpoons is not limited to the eight on the launch rack; more can be loaded from storage should the first eight be expended.

The Arleigh Burke destroyers are also armed with a pair of torpedo launcher mounts, each carrying three torpedoes for going after submarines (and potentially other surface ships).

The Arleigh Burke destroyers also continues the use of the four General Electric LW2500 Gas Turbine engine that was so successful on the Spruance class destroyer.

The LW2500 is a nautical version of the jet engine used DC-10, MD-11, A300, 747 and 767 aircraft. The gas turbine engine allows ships equipped with it a much higher range of flexibility in operations; it only takes a few minutes to go from having the four engines off, to be ready to get underway, a significant improvement over older engine systems, which took a much longer period of time to 'warm up'. There are two pairs of



AGM-84 Harpoon missile canisters



Torpedo launchers

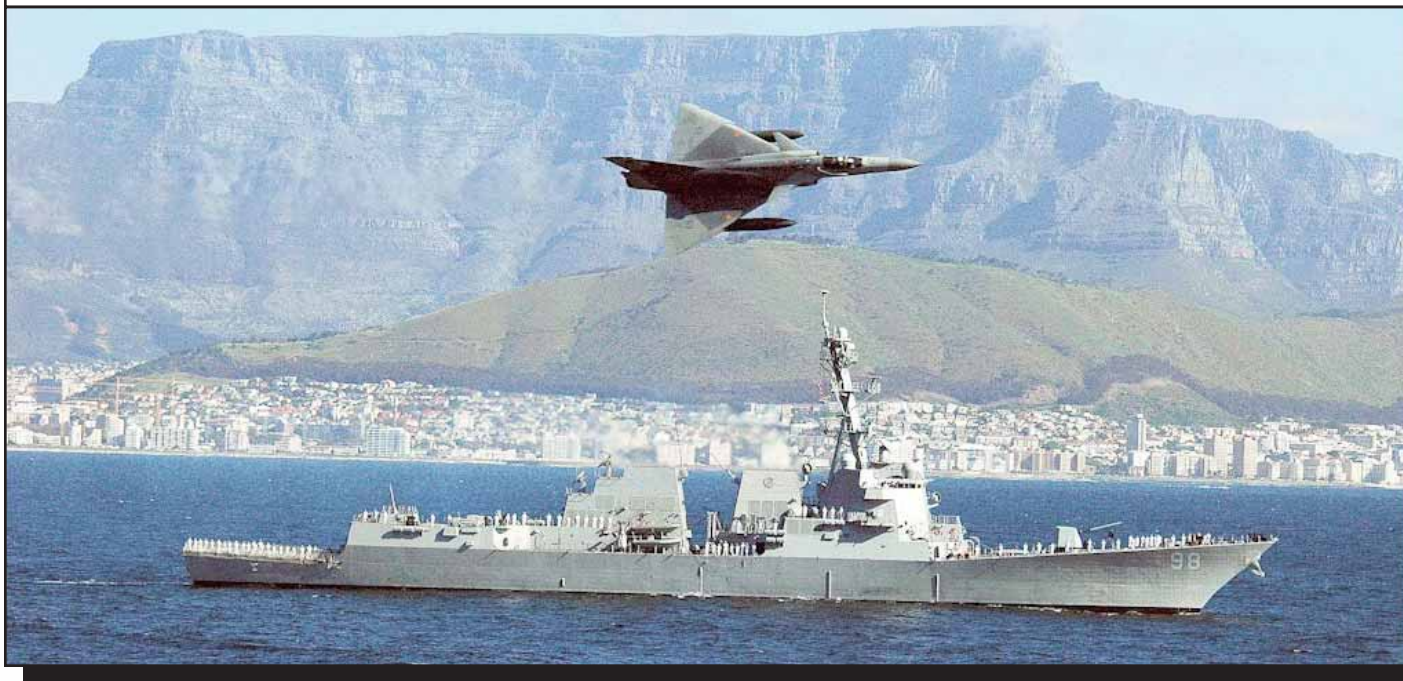
engines aboard the Arleigh Burke destroyers, each pair drives a separate shaft. Only two engines need to be activated at any one time, allowing engine crews to service two of the engines, even while underway.

These destroyers are the most balanced surface warships ever built, with the weapons, electronics, helicopter support facilities, and propulsion, auxiliary and survivability systems to carry out the Navy's missions today.

In the 2009 science fiction movie *Transformers: Revenge of the Fallen* the *USS Kidd*, an Arleigh Burke destroyer, fires at and destroys a Decepticon named Devastator with a railgun (mounted in place of the standard cannon) during the movie's climactic battle in Egypt.

-Article Compiled By Todd Moen

Arleigh Burke Destroyers (cont.)



A South African Air Force Cheetah fighter jet flies over guided-missile destroyer USS Forrest Sherman

**PLEASE WELCOME
EMYC'S NEWEST
MEMBER**



Dave Brustad, our newest member

CALLING ALL BOATS!

At last years Parade of Boats we had an incredible showing of EMYC members boats! Let's do it again!

Please consider dusting of your boats once again and have them part of the event. If they are unfinished, we can always use them at the Builder's Corner table.

If you have issues of transporting the larger boats, arrangements could be made for transporting them by others in the club. -Todd Moen

**2013 MODEL SHIPS & BOATS
CONTEST & DISPLAY MAY 17-19**

Enjoy the 37th Annual Midwestern Model Ships & Boats Display at the longest running contest in the nation.

This event is located at the Wisconsin Maritime Museum in Manitowoc, Wisconsin. For more information or contest registration, contact Wendy Lutzke at 1-866-724-2356 ext. 115

BUILDERS CORNER

BUILDING THE FORREST
SHERMAN by Curt Peterson



Special Thanks...To members that contributed their time & talents to this issue: Curt Peterson, John Bertelsen, Dale Johnson & Wayne Snyder.

Thank You to David S. Holman's law office for free newsletter printing.. David specializes in Estate planning, Business, Real Estate & Creditor Representation, located in Burnsville, Minnesota.



EDINA MODEL YACHT CLUB

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Hughes Pavilion
7499 France Avenue South
Edina, Minnesota 55435
www.emyc.org



MAY MEETING

TUESDAY, MAY 21, 2013 7:00 P.M.
CENTENNIAL LAKES GARAGE BAND ROOM

AGENDA:

- Parade Of Boats Planning Meeting
- Pond Boating - Weather Permitting

Special Interest Contacts:

Scale Boating:

To Be Determined (Anybody Interested?)

Sail Boating:

Tony Johnson (952) 470-8818 tjohnson@emyc.org

Fast Electric:

Dan Proulx (763) 551-4953 dproulx@emyc.org

2013 Board Members

Commodore: Wayne Snyder (952) 831-7434
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Secretary: To Be Determined
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Please send articles by email to:
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Deadline for articles to be considered for the
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