Quarterdeck Meeting 1/31/12

- Keystone Shipping
    - Presenter Mitch Koslow
    - 36 years experience
    - Vice President of Engineering and Purchasing
    - Graduated from Michigan NAME 1975
- Marine industry is very close. Half of my graduating class is still in the industry. Like family, there is strong competition, but everyone knows each other and can work together if help is needed.
- Main points
    - Owner/operator naval architect vs. shipyard/ship design
    - Role engineers play on ship-owner side.
- US flagged vessels moved 93,975,605 net tons between US ports.
- Major Great Lakes Cargo
    - Iron ore
        - From Minnesota; to Chicago, Detroit, Cleveland
    - Coal
        - From Montana; to Detroit
            - Low sulfur, good for power plants
        - From West Virginia; to Cleveland, Detroit
            - Metallurgical
    - Limestone
        - Northern Michigan has some of the largest limestone deposits in the world.
        - Used for road fill and taconite
    - Other bulk cargo (grain, crushed rock, etc.)
- Great Lakes Fleet
    - 56 US flagged vessels
    - Classed by length
        - 1000 ft. – Built in the mid to late 70's by Bay and American Shipbuilding
            - Keystone has 4
        - 800 ft.- "AAA"
        - 770 ft.-Built in mid to late 50's.
        - Smaller "River"
- Keystone has a 10 ship fleet.
- Great Lakes shipping season March 22 to January 15
- Keystone puts ships up for the winter in:
    - Duluth
    - Sturgeon
    - Toledo
- Freeze damage a huge problem in the Great Lakes

- Question: Is the 6 year maintenance affected by zebra mussels?
    - Zebra mussels are not a huge problem
    - Asian Carp are the big environmental issue now
- Ship owner and Coast Guard do struggle to agree on icebreaker placement.
    - Question: Feasibility of ship owner having personal icebreakers?
        - Some private icebreakers, industry works pretty well together to get things done.
- Keystone has an ITB (Integrated Tug/Barge)
    - Popular in the mid to late 70's.
    - Made to get around Coast Guard regulations of manning
    - Combined barge and tugboat
    - Causes problems due to connection.
    - ATB's can run better.
- No Keystone vessels are ice strengthened in the bow
    - They do allow pilots to push ice at their discretion
    - It can go too far
- All Keystone vessels are self unloaders
    - The tradeoff for self unloaders are cost for flexibility and complexity
    - Lighter cargos are 2-3 belts
    - Heavier cargos are 1 belt
    - Loop belts sandwich cargo up to boom
    - Booms are usually 250 to 270 ft.
    - 1000 ft. usually have around 80 gates
        - Usually hydraulic
- Question: Lifetime of belts?
    - Can get 10 years out of them, which varies with type of cargo. Belts are inspected annually.
- Great Lakes is a relatively small area
    - Ships are most efficient when it comes to:
        - Cost
        - Environment
        - Fuel
- Heavy fuel Is on its way out due to EPA and international regulations
- Role of Naval Architect for ship owner
    - Very different. Not a lot of design from scratch.
    - Getting a ship is a lot like getting a car
    - Can change systems, engines, generators, setup, and other minor things.
    - 3 things Naval Architects do working for a ship owner
        - Involved in new construction or conversion
            - Make sure shipyard follows drawings and specs
            - Makes sure details are in order.

        - Regulatory development
            - Want to influence regulations
            - Regulations need to be practical
        - Modify existing ships
            - Modifications can come from regulations, chief engineer, customer
    - More project management
    - Most ship owners outsource major engineering tasks
- Typical project done in 2010
    - 1000 ft. twin screw controllable pitch prop needed to be repowered
    - Existing engines 1979 Delaval Enterprise
        - 16 cyl. 9650 horsepower
        - Used in marine applications, nuclear backup, middle east
        - 177,000 hrs. of operation each, most of any Enterprise engine
        - In the years before, every 3-4 years required serious maitenece
    - Looked at four different options
        - Naval architect needs to tell designer what he wants
        - Ship owner should control design
        - EMD, diesel, 20 cyl.
        - Wartsila, which didn't meet emission standards
        - Strip down and rebuild current engine
        - MAK (German Caterpillar) heavy fuel, 6 cyl., fit nicely on footprint.
        - Chose 6 cyl. MAK
    - Timeline
        - June '09, Proposal presented
        - Oct '09, proposal approved
        - Dec '09, negotiate engine purchase
        - Mar 1, '10, negotiate design
            - Present design to detail phase
            - Design risk a big decision
        - Apr. 12, '10, Declared not a "major conversion" by USCG
            - Major conversion implies inspecting entire ship
        - Oct '10, Engine tests
        - Nov '10 Engines shipped
        - Nov '10 Gott arrives at drydock
        - Dec '10 Barge with engines loaded
        - Dec 18, '10 Engines installed in 7 hrs.
            - Needed to be installed by Dec 18., because Gott had to be off the drydock by Dec 19.
        - Dec 19, '10 Barge left
        - Dec 19, '10 Gott of drydock
        - Mar 7, '11 Engine light off

        - Mar 15, ’11 Seatrials
    - Drydock schedule caused a lot of problems
        - Cannot have backups
        - Planned on having engines in by Nov 28
    - They were able to put engines in in 7 hrs. because it was basically a straight shot down to where the engines were to be placed.
    - Also installed computerized control system for analog, along with wiring and another bearing.
    - Project managers facilitate working together to get the project done because individual parties only think about themselves.
- “Planning and preparation prevents piss poor performance”
    - Gott now:
        - Operating at designed and expected speed and power
        - Engine and prop matching good
        - Stays on heavy fuel continuously
        - Fuel and lube consumption as expected
        - Controls and automations went are working well
        - Engines are tier 2 EPA => very environmentally friendly
- What’s next?
    - No heavy fuel in 2015
    - Options: go to diesel, use technology (scrubbers)
- Another project Cape Rise, Race, Ray (MARAD ships)
    - RO-RO stern ramp replacement
    - Old ramp 53’x44’, went straight back
    - New ramp 135’x24’, can move 12 degrees each way.
- Question: Jones Act?
    - Keeps [Keystone] alive
    - [Keystone] may not exist
    - It won’t go away
- Q: What did you do with the old engines?
    - Tried to sell for parts
    - Eventually sold for scrap
- Q: Feelings on the Marine Highway Act?
    - Very involved, would love to be a part of it, and it has worked successfully in parts of Europe
    - Problem is the success depends on truckers, logistics are a problem
- Q: What were the fuel savings with the new engine
    - 2 knots more speed
    - Gained 2 more voyages a year
- Q: ATB for LNG distribution?
    - Discussed with gas providers
    - Very involved with LNG feasibility

    - Thinking movable gas station
- Q: Challenges of Great Lakes vs. ocean.
    - Big ones: Salt vs. Ice
    - Navigation on lakes is much more difficult because of rivers.
    - People are very talented.