

January 2021

Volume 43 Issue 1



# *The Binnacle*

Victoria Model Shipbuilding Society  
Victoria, B.C.



## HAPPY NEW YEAR!

Russ Cozens' Cottonwood II  
(Picture is Sister Ship. Ed)



Ken Lockley on his new build Tusker.  
(Pic before she came to Canada and cleaned up.)

Plus

Arnold's Airway

Edward White on Sternwheelers

Good news about the Master

Dues Diligence

<http://www.vmss.ca>



**From  
The Bridge**

Best Wishes for a Happy and Healthy New Year! I hope Santa was good to everyone and you all got something to help with your model shipbuilding.

Provincial Health has restrictions continuing until February, so another month before we see if there is a prediction when this pandemic will end.

We will be having a Zoom meeting this Thursday Jan 14. Please bring something for show and tell. I am not a TV personality type, so I can use help in making this meeting informative. You can hold it up or display it on your screen depending on your level of Zoom expertise. This is our opportunity to socialize and share information. We have a new laptop, so we should be able to show a YouTube.

Hope to see you Thursday.

Ron



**2020 Executive Committee**

<i>President: Ron Hillsden</i>	<b>479-5760</b>
<i>Vice-Pres: Dave Nelson</i>	<b>812-1942</b>
<i>Secretary: Elgin Smith</i>	<b>384-0574</b>
<i>Treasurer: Mike Creasy</i>	<b>888-4860</b>
<i>Director @ Large: Ken Lockley</i>	<b>477-5830</b>
<i>Binnacle Editor: Edward White</i>	<b>385-6068</b>
<i>Quartermaster: Vacant</i>	
<i>City Liaison: Mike Claxton</i>	<b>479-6367</b>
<i>Membership: Bev Andrews</i>	<b>479-2761</b>
<i>All above area code (250)</i>	



**ON THE RADAR**

Upcoming Events



**Meetings: Second Thursday 7:30 on Zoom.**  
**Upcoming meeting: See Ron's e-mail.**



**Sundays 9-11**  
**Harrison Model Yacht Pond (HMYP)**  
**Dallas Road at Government Street**



**LANGFORD LAKE**  
**Wednesdays 9:30**  
**Langford Lake, Leigh Rd. at Trillium**



**Just a reminder, dues are \$25 this year. You can e-transfer to VMSS using the email [d\\_creasy@shaw.ca](mailto:d_creasy@shaw.ca) or mail to Bev Andrews , 4061 Cedar Hill Cross Rd, Victoria V8X 2J2 Thanks, Ron.**

## My Covid Build

### Russ Cozens and the Cottonwood II

This 'thing' which is ruling our lives did have a positive outcome for me. I completed my build of the RC model of the Forest Service launch that I worked on many many years ago (when I was VERY young!).

(This is White Birch, a sister boat. Ed.)



The Cottonwood II is 34' LOA and, when I worked on her, powered by a 'Screaming' Jimmy 371. She is presently moored at the Kanaka docks in Albion – looking a bit sad but not beyond restoring. Cottonwood is one of several Series II Blimps whose original plans were draughted at the Forest Service Operations Division in 1949. Cottonwood was built at the Forest Service Marine Depot on Celtic Avenue - on the north arm of the Fraser River - in 1952. She was sold in 1978 when the 'Forest Service Navy' became an inefficient way to conduct field inspections in the remote areas of the coast (it became more efficient to use float equipped aircraft). I was fortunate to work on her in the summers of 1967 and 1968 – we used her like a pickup truck, visiting logging camps throughout our Ranger District (between Stuart Island and Port Neville) while on board mostly for a week at a time. It was a great life!



A colleague who is dedicated to preserving BC forest history and, particularly, BC Forest Service history located electronic copies of the original plans from which I built the model at 1/12th scale. The hull is built in a similar manner as my strip-built kayaks . . . . no ribs. So, not 'authentic'! A layer of ½ ounce fiberglass on the inside for strength and a few coats of epoxy on the outside for waterproofing and a paint base. Still not 'authentic'. Upperworks are of aircraft plywood. She even floats on her design waterline with some carefully placed ballast.



The one monthly VMSS meeting that I attended – the last one before this ‘thing’ came to rule our lives - was invaluable! Although being a member for several years – so that I could register my IOM sailboats with a ‘home club’ – I hadn’t seen any reason to attend meetings. I was wrong!! The members, their enthusiasm, knowledge and willingness to help gave me the push to finish the boat and, also, suggested as to where I could source the ‘fancy bits’ needed to finish her off (Cornwall Model Boats is fantastic!).

Russ Cozens

**NEXT BUILD #40**

by Ken Lockley

January 2021

**MV TUSKER:**

My 2021 build is under way after several different vessel contemplations. Almost a false start in another direction. Here it is, construction and cutting wood has started.

“Tusker“ started it’s life in Scotland in 1954 and was one of the early vessels to be built by Hall and Co. with a very large 12 ft. Kort Nozzle. A very robust hull of riveted steel over a rigid set of frames. Actually she was one of the last vessels built in Britain to be riveted. Because of labour disputes it wasn't till 1958 that she was finished and headed to her owners, “Rich and Smith Inc.”, Port Adelaide, Australia.

After some 22 years of service to Port Adelaide she came under Canadian ownership.

The picture below and others to follow are from the TUGFAX Blog by Mac MacKay based in Halifax. Tusker spent fourteen years in Canadian waters towing gravel and construction material barges from Halifax to the Great Lakes and some tows to Florida. The 1980 picture below is off the Halifax Harbour, having just completed refit and paint job. New owners were MacAshpalt Industries. It’s my intention to follow this colouring, as this was the start of her Canadian life.

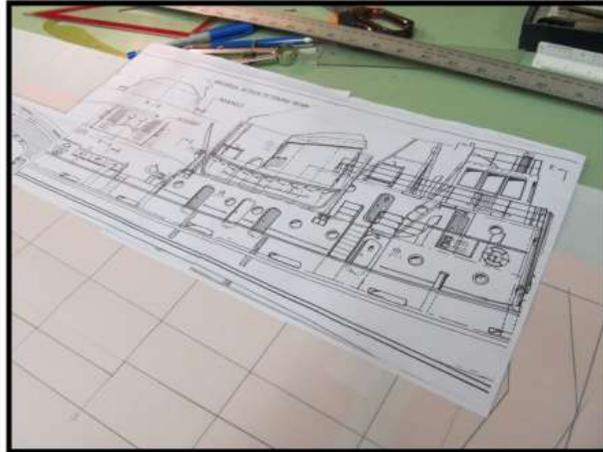


M.V. TUSKER specs: Length 120', Beam 33' and Draft 14'  
My model will be 1/4" to the foot or 30 inches in length.

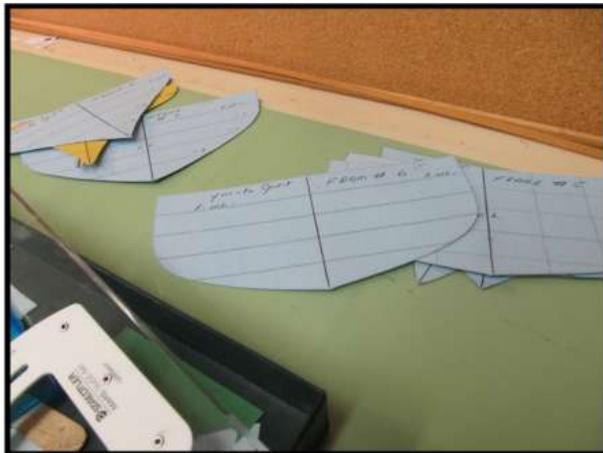
**IN THE WORKSHOP:**

Starting a new project is always great, but nothing beats starting a new boat. I have had a couple of false starts this time. This is tug is number five for me and is now under way.

Having built a number of hulls over the years I find I am working on the drafting board for a few hours before we actually starting cutting wood. In the top picture is part of the plan I am using, prepared by Jim Pottinger back about 25 years ago. I had the plan reduced at Island Blueprint so the scale now works out at 1/4 inch to the foot. This gives us a 30 inch model which is my favorite length to carry around .



Pictures in the middle and bottom show my frame patterns scaled to the desired size. Ten frames in all, over the length of the hull. For the frames I use Windsor Plywood's Nordic Birch 3 ml. ply. A half sheet costs about \$13.00 which measures out at 30"x 60". This is more than ample for the boat.



Also at this time I draw up a pattern for the stem, keelson, and the stern post.

This time I had some high quality 1/4" fir plywood. You see in the next pictures how this becomes the backbone or spine of the vessel. I love, this framing up process, it's a question of piecing together the 10 frames and the stem- keelson piece until it starts to look like a boat.



The top picture shows the frames trimmed and sanded to plan lines. As you can see I play around for a bit, getting the feel of how it's all going to go together.

The second picture we are now placing the frames on the building board, making sure that the designated frame is in the proper position.

This is really important because the whole hull depends on the correct distance between frame stations.

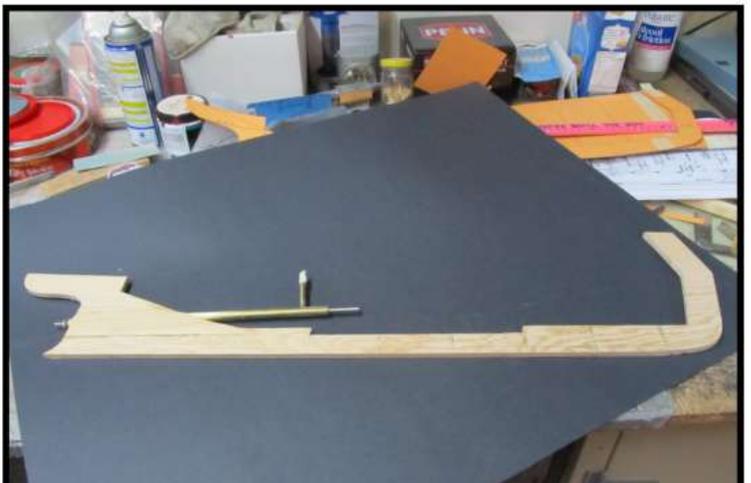
The third picture shows the keelson - stem and stern, all cut out of 1/4" plywood. The propeller tube is epoxy in position, before placing the keelsons to the building board.

Note my stuffing tube already mounted in the keelson. I find this is the easy way to get the shaft angle correct.

Pictures on the next page show the length wise stringers in place. Once the stringers are in place on both sides, it's ready for my diagonal planking process.

The stringers are 3/16" squared and 36" in length with some waste.

Yes I end up with a messy work-bench!!!



Top picture shows planking in progress. The first layer I start about midships at a 30 degree angle to the keel. The forward section always goes easy and it can be quickly done. The stern is always a challenge as the angles get more difficult to bend the wood around. My planks are 1/16th x 3/8ths and I usually end up soaking the planks in wine bottles filled with just tap water. My adhesive is Tightbond Green label, a waterproof glue available at KMS and Lumber World.



Center Picture shows the stern section and the balsa filler. This is the first time I have used this process for the counter stern and I do believe it makes it easier. The second layer of planking will go right over the top of the Balsa. I'll be making a point of showing how that works next month.



Bottom picture looks a little different. I started to realize, looking at pictures of the vessel, and a closer look at the plans, that I didn't have enough flair in the bow section. I needed to build out the gunwale to give a bit more flair. Then I could see that I needed to make the repair before the second layer of planking is installed. Two choices; fill it out with "Bondo" or use a lighter weight product like "Balsa".

As you can see, the first layer of "balsa" is drying and that will be faired in before going any further.





## SEASPAN COMMODORE



<https://www.dvidshub.net/video/758148/tug-seaspan-commodore>

Readers: if you have a moment, take a look at the above video taken off the Northern end of Vancouver Island. It sure makes you realize the working conditions for some jobs. The epic tow in the video is the vessel in the picture above.

We were really happy with the feed back that the editor received on last issue regarding tug boat winches and propellers. Thanks John Callin

Request: Do any of you readers have the plans for the Seaspan Commodore suitable for a one off construction. It would make a great project down the road. Also any pictures of an existing Seaspan Commodore model would be appreciated. Ken: contact lockleys@shaw.ca

If you need some browsing, take a look at the VMSS web site. Edward has done a great job of getting large portions of past "Binnacles" onto the site. The "Binnacle", as a publication, goes back to the early 1980's. Take a look, you'll like what you see.

**The Video Link above did not survive the process of getting it into the Binnacle.**

**It is:- <https://www.dvidshub.net/video/758148/tug-seaspan-commodore>  
but I think you'll have to copy and paste it into your browser's top line. Ed.**

## Arnold on his Airway boat.

Having described the above boat at the Zoom meeting last night, I realize some words should go along with the photo I sent you. You may already know that my wife and I have moved from an 1900 sq ft town house to an 800 sq ft condo. Big boats have had to yield way to little ones; including bathtub models that are safe for little sailors. Thus "Airway" came into being:



The hull consists of two 5.5 x 8.5" Styrofoam meat trays from the grocery store plus a glued on solid Styrofoam bow. The second meat tray is cut out and inverted to create a streamlined cockpit. Propulsion is from the tail rotor and motor from an RC helicopter and is powered by 4 AA regular batteries. Safety shield around the prop to protect little fingers, is made from a basket from the dollar store. A small piece of lead at the bow trims it level. There is no radio equipment; just an on-off switch. There is no rudder to keep it simple and it often noses its way around a curved tub. Being extremely light it cruises nicely in as little as 1 inch of water.

Hope I've covered the essentials; Arnold

## Sternwheelers of B.C.

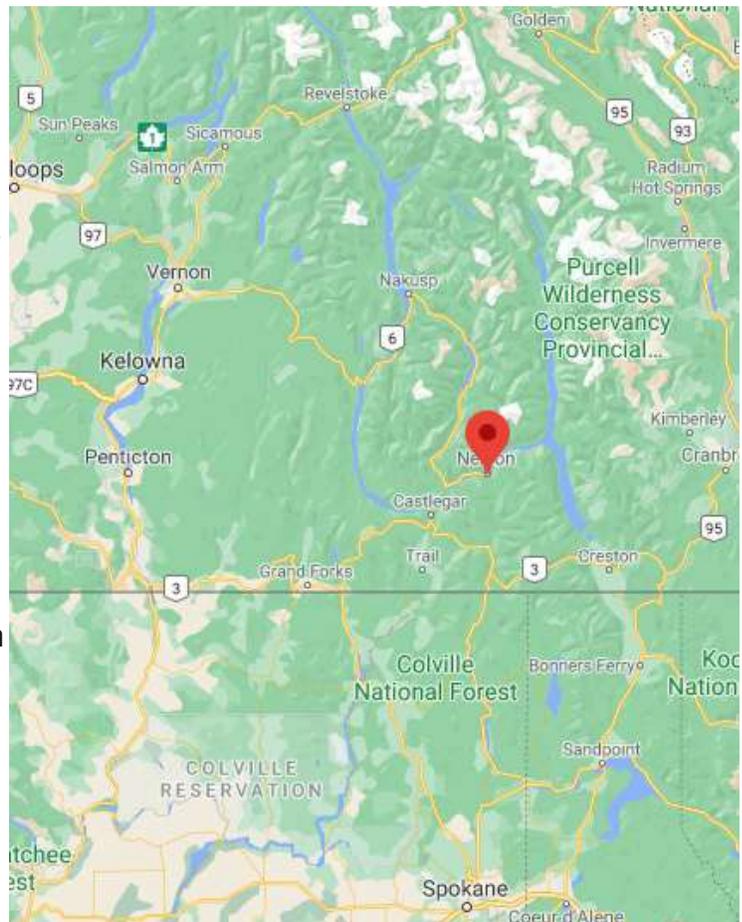
The last spike was driven on the Canadian Pacific Railway on 7th November 1885. But there were actually snowsheds yet to be completed at points subject to avalanche, so the first through trains didn't run until June 1886.

Two previous similar ceremonies had been held, at Brigham City, Utah, on May 10th. 1869, the Union Pacific route to California, and at Gold Creek, Montana, on September 8th. 1883, the Northern Pacific route.

Between the CPR and the Northern Pacific was the huge area of south-eastern British Columbia, previously made inaccessible by the north/south mountain ranges that dominate the area. But the Columbia River flows through Revelstoke, on the CPR, all the way to Portland in the States. About 330 km from Revelstoke by water, Little Dalles, WA, had a branch line link to Spokane, on the Northern Pacific. The majority of the route is through the Arrow lakes.

To the east, Kootenay lake runs 140 km north/south and has a western arm which drains into the southern end of lower Arrow lake through the Kootenay river.

To the west Okanagan lake is another north/south lake, 135 km long, in the middle of the fertile farmland of the Okanagan valley. But in 1886, none of the roads existed at all.



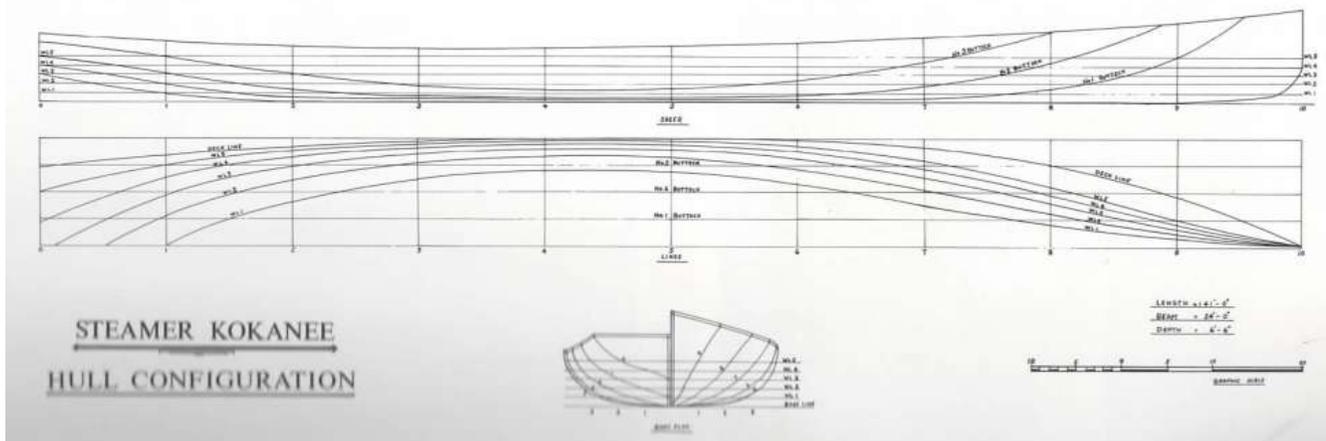
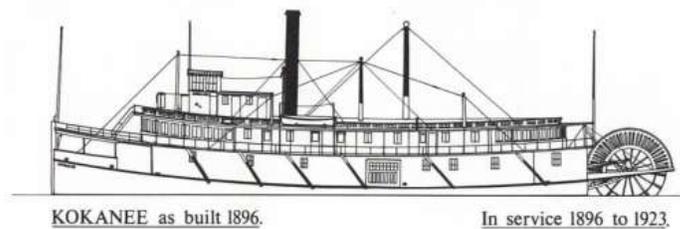
For both railways, these lakes were potential sources of traffic to support the mainline operations. Canadian Pacific determined to use the waters to get the major share. This is the story of the beautiful craft that it built and used to do that. But I don't want to focus on the business history, that is complex and not a little dull, but rather on the boats themselves.

As I have got into the story, I have come to realize how special these craft were, why they seem to have been always called boats rather than ships, and the special conditions that led to their use and design.

The first special condition is that the lakes are, essentially, just a part of a river system. So a crucial part of the boats' effectiveness is how much of the river they can navigate. And they must be able to go upriver as well as down. So they are dealing with currents, shallows, falls, rocks, bends and even tree trunks. Generally, though, they are not facing heavy waves, or tides. Although the winds can get strong, the lakes are part sheltered by the mountains, and the "fetch" needed to generate big waves is not there.

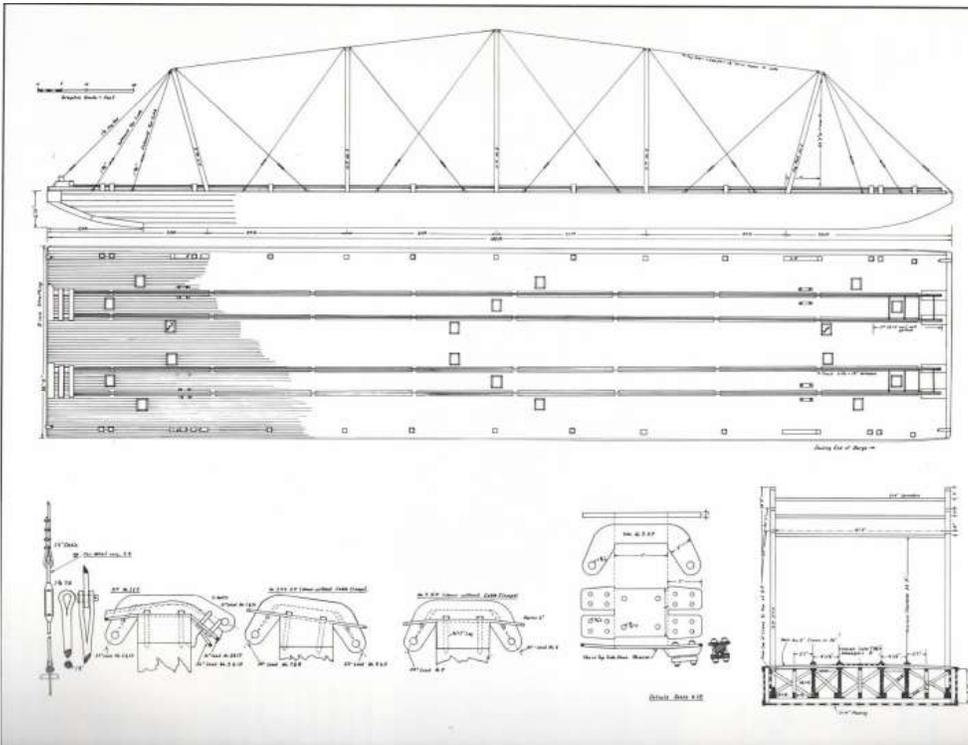
So the major priorities in the design are the need for a shallow draft in an easily driven hull, with speed to overcome the fast currents in the river stretches. Shallow draft and speed mean lightness and length.

Here are the lines of the Kokanee. They answer one question immediately. I defy anyone to look at these lines and think "Ship". They are much closer to those of a "Whitehall" rowing dinghy, though still finer and longer. Only when you look up at the profile that includes the superstructure and sternwheel does anything suggest the size and capacity of a ship.



Well, that wooden hull is 141 feet long, 24 feet wide, and 6 feet 6 inches in depth. It is simply not a shape that can hold itself rigid, especially in wood. There is less buoyancy at the fine shaped ends of the hull than there is in the centre. And the sternwheeler has a large weight cantilevered off the stern, with the heavy engines close to the stern. To float level, the boilers are moved forward of the centre to balance that weight. Left to itself, that hull will, over time, bend downward or "hog" and lose its structural integrity.

To counter this, the sternwheelers were equipped with vertical and diagonal posts and diagonal rods that ran down from the posts to strongpoints in the hull. The posts were called "hog posts" and the rods "hog chains" although in fact they were solid rods with screwed connections like turnbuckles so that their tension could be adjusted to different loading patterns. The arrangement could get quite elaborate and was mostly concealed by the superstructure. The easiest way to explain it is this drawing of a rail car barge from the same time and area. Here it is simple and unconcealed.



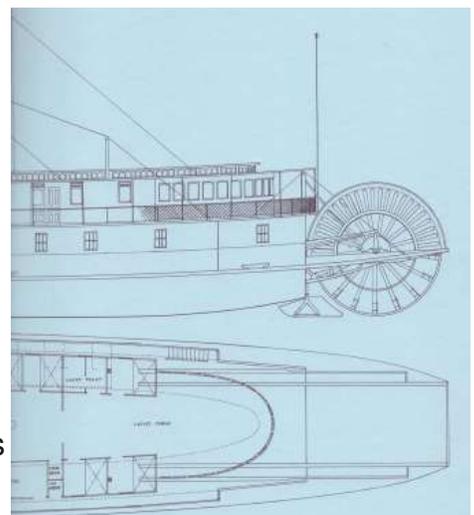
It would be really interesting to me to see the calculations that the designers of the sternwheelers used to design these, but obviously thoroughly boring for almost everyone else, because I can't find anything on the internet about it.

This problem is non-existent in the sidewheeler, because the weight of both the paddles and the engines is near the centre of the hull and thus over the centre of buoyancy. The boiler can similarly be pushed towards the centre.

I have also been puzzled in researching this article by seeing no signs of feathering paddlewheels on sternwheelers, but of course the feathering would add considerable weight to the wheels and the emphasis on shallow draft for the sternwheelers means that their paddles operate in shallower water where the feathering would be less of an advantage.

There's a bit of the design I haven't addressed. Why sternwheels? This profile drawing of the stern of the Kokanee shows the underwater profile. You can see that both the bottom of the wheel and the bottom of the rudders are slightly above the bottom of the keel. So a sternwheeler can ground itself on a sandbank or shoal without a lot of damage and, as the bow rises a little in the process, it is likely that the wheel will remain submerged and she can pull herself off with no harm done.

The sternwheel is also much less vulnerable to floating debris than a sidewheeler would be. There's every chance that the hull





would deflect a floating log out away from the wheel whereas a sidewheel would pull it in.

On the Kokanee the rudders are ahead of the wheel, which would make her quite unresponsive to steering until she built up some speed going forwards, but very manouverable in reverse as the paddle wash impinged on the rudders to swing the stern. Her low speed close handling would be just about the opposite of a single screw, single rudder, boat. You would use short bursts of reverse with full rudder to get the stern swinging and then a touch of forward to check the way. Other boats used rudders astern of the wheel, or even both ahead and astern. But with their shallow hulls and high, slabby, superstructure, they can never have been much fun in a side wind.



I've mentioned speed but not given you any figures. Well the Kokanee long boasted of being the fastest sternwheeler on Kootenay lake. Flat out under ideal conditions it claimed to reach 18 miles an hour. That's 1.32 times the waterline length in the old formula, very close to the theoretical maximum hull speed. 15 miles an hour would be a realistic figure for a fast run.

The power available to these boats was also massively affected by the fuel available. They were designed as wood burners, so their boiler pressure was dependent on the quality of the wood and especially on its moisture content. The first voyage of the Lytton down the Arrow lakes on July 2nd. 1890 was a prime example. Her boiler pressure started at 90 lbs, but was down to 60 lbs by the time she was five miles downriver from Revelstoke. She took on more wood on the stretch between the Upper and Lower lake, but this was particularly wet and her pressure dropped right down to 40 lbs. The wood took up a significant proportion of the cargo space and wood loading was a hard chore for the crews.

When coal became available later in the steamboat era, it was very welcome.

I should really write about the brevity of that era. That voyage of the Lytton was really the start of regular commercial service on the lakes. The Lytton was purpose built for that run at Revelstoke, and she was joined by the Kootenay, which was originally an American boat that had been sitting, unused, at Little Dalles, for lack of trade on the Columbia. They provided the first regular service on that route for both cargo and passengers.

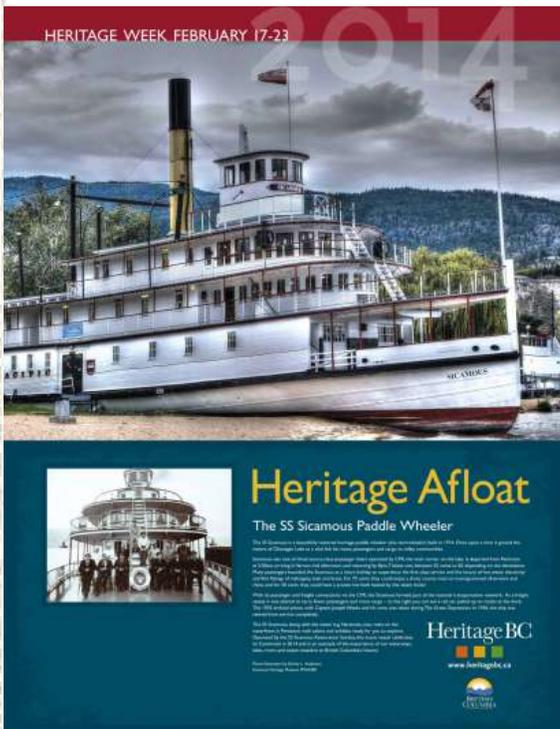


(Early days, Kootenay, Columbia, Lytton.)

In a sense, the sternwheelers carried the seeds of their own destruction. Because as they enabled the growth and settlement of the area, and expanded the trade, they developed the traffic to finance the building of railways both to the north and south to feed that traffic to the mainlines. Because every winter brought ice, the sternwheelers could never provide a reliable service year round, so for a short time they prospered partly on bringing in supplies for building railways, as well as for mining, forestry, farming, and building, only to lose almost all of it to the railways that they helped build. It was really all over by the 1930's, after that a couple of boats carried on with tourism and service to a few remote communities that the railways didn't reach, but nostalgia won't build new steamboats and anything that really had to travel by water would do so by barge.

Still, it was an exciting, busy, and optimistic 40 years. The book, *Sternwheelers and Steam Tugs*, by Robert D Turner, has been the main source for this article, and has hugely more information than I can cover. If you should decide to build a model of one of these craft, I got mine at Bastion Books, they are readily available and buying a copy should be your first step.

Next should be a holiday trip to the B.C. interior. There are two complete sternwheelers surviving as museums, the Sicamous at Penticton, and the Moyie at Kaslow. Each is worth a full day, you can put off the wine tasting till the evening.



(Moyie at Kaslo.)

Then pick your passion. Any of these will make a beautiful, practical R/C model in 1:48 scale. They'll be finicky but possible at HO to match into a railway layout. And they'll be a showstopper on any model boat pond at 1:24. The passenger deck, and the wheelhouse will give you all the scope you could wish for to model a luxurious and detailed interior while there's plenty of room for the drive train and radio gear below. There are more than fifty originals to choose from.



This month's links.

The Master: [www.ssmaster.org](http://www.ssmaster.org)

Nauticapedia: <https://www.nauticapedia.ca>

North West RC Ship Modelers: <https://www.shipmodelers.com/index.html>

**The Victoria Model Shipbuilding Society is a  
non-profit club, open to all, established in  
1978 under the Societies Act of B.C.**