

### The Pioneer Steamer on the Pacific.

Over three score years have passed since the Hudson's Bay Co. steamer *Beaver* floated down the Thames. She was the first European steamer to round Cape Horn, & was the pioneer steamer of the Pacific ocean, the passage from London, Eng., to Astoria, Ore., consuming 163 days. The *Beaver* was 101 ft. long, 20 ft. broad, & 11½ ft. deep, the tonnage being 109½. The boiler & the 2 side lever engines of 35 h.p. each were made by Boulton & Watts, at Birmingham. The engines cost £4,500, & weighed 52 tons. The vessel was built in the most substantial manner, of live oak & greenheart, the timbers being held together by copper bolts. The *Beaver* reached Vancouver Island in 1835, was used as a fur-trading vessel by the Co., & on one of these trips coal was discovered on Vancouver Island. In 1849, during the gold excitement, many miners took passage on this little black steamer. In steaming out of Burrard Inlet in the fall of 1888, she struck a rock, & wrapped in a sheet of troubled waters, with head resting on a huge, barnacle-clad boulder, the pioneer Pacific steamer passed into history. Unsuccessful efforts were made to float her & she remained on the rocks nearly 4 years. An attempt was made to take her to the Chicago World's Fair, but was abandoned, owing to her damaged condition & cost of transportation.

The illustration on this page, reproduced from a photograph taken some 4 or 5 years ago, & copyrighted by Bailey Bros., Vancouver, shows an interesting feature of the early and later navigation of the Pacific. To the left is the magnificent *Royal Mail* steamship, *Empress of India*, of the C. P. R. line from Vancouver to China & Japan. To the right is the steamer *Beaver* on the rocks as described above.

### Capacity of the Welland Canal.

The departure of the fleet of vessels chartered by the Atlantic Transportation Co. for coast service, & the frequent discussion of the opportunities for trade that will be opened by the enlargement of the locks of the St. Lawrence canals to Welland size, has induced much inquiry on the part of men identified with shipping interests as to the extreme dimensions of vessels that may be passed through the Welland. This inquiry has, of course, been increased in view of the agitation for abolition of Welland canal tolls, & in view also of the fact that the locks of all canals under construction in the St. Lawrence will be when completed of similar size to those in the Welland. It is understood, of course, that when the work of enlarging the locks of St. Lawrence canals to dimensions of the Welland is completed there will be none of the difficulties now encountered in having vessels destined for the seaboard run the rapids of the St. Lawrence river.

The Welland locks are 270 ft. long from mitres of the gates, & 45 ft. wide, but this does not convey an adequate idea of the largest size of vessel that may lock through, as that is dependent on the model of the bow

& stern of the vessel. A vessel that is sharp forward at the deck line & narrow at the stern can lock several feet longer than one that is full forward or has a broad stern. Moreover, a vessel with a narrow beam can lock longer than one that is nearly full beam of the locks. The lock gates mitre at an angle of 90 degrees, & any designer or builder of vessels can, of course, upon inspection of a drawing of the ship, tell at once whether she will or will not lock through.

According to information furnished by Carter Bros., tug & vessel owners, of Port Colborne, Ont., the steamer *Aragon*, now on her way down the St. Lawrence, is about the largest vessel that can pass through the Welland. The *Aragon* is 247 ft. 7 in. keel, & 42 ft. 6 in. beam, the various registers not giving her length over all. The steamer *Colonial* is about as large a vessel of that kind of model as can pass the locks. Her dimensions are 244 ft. 5 in. keel, & 36 ft. 3 in. beam, the length over all, as nearly as could be measured at the canal, being 258 ft. 9 in. The overhang aft on the *Colonial* is probably longer than

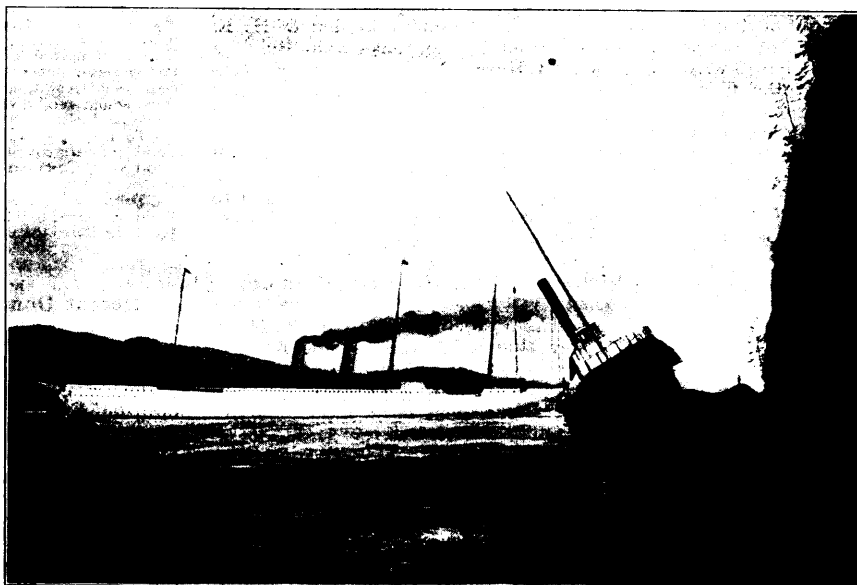
up through the canal, the stern may be swung one way & then the other in order to permit of the gates being closed. As an illustration it may be stated that whereas a boat might lock 260 ft. over all if only 33 ft. beam, a vessel with the same type of hull could not lock over 255 ft. if of 43 ft. beam.

A wooden vessel that is of very nearly maximum lock dimensions is the *Black Rock*. She is of exactly the dimensions referred to above—255 ft. over all & 43 ft. beam. Her Captain states, however, that if his vessel was not so full forward & was narrower on the quarters aft she could lock a little longer, as in locking through now the gates strike the bluff of her bows in opening & strike her quarters aft in closing. The *Black Rock* carries 68,000 bus. of wheat on a draught of 14 ft. of water.

In this connection interest attaches to the dimensions of the steel steamers belonging to R. R. Rhodes, of Cleveland. The *Minneapolis* & *St. Paul*, which are sister ships & 238 ft. keel by 42 ft. beam, were built with especial reference to the dimensions of the Welland

locks, it being the intention of their owner to place them in the Montreal grain trade as soon as the St. Lawrence canals are completed. Mr. Rhodes recently sent his steamer, the *R. R. Rhodes*, to the Welland canal for purposes of measurement, & it was found that, although the vessel is 246 ft. keel by 40 ft. beam, she can be locked through. A comparison of dimensions will show that the greater length is offset by the narrower beam in accordance with the theory above outlined.

It will be understood, of course, that vessels passing through the Welland cannot all go on down to the seaboard. Only those of very light draft, not more than 7½ ft. can run the rapids of the St. Lawrence.—Marine



EMPRESS OF INDIA.

THE OLD AND THE NEW.  
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BEAVER.

that of the *Aragon*, which enables the *Aragon* to lock with a longer keel & more beam. In addition, the *Aragon* being a steel boat, has a narrow stem & stern & is not bluff forward.

Another vessel that just about reaches the limit of the Welland locks is the *W. A. Haskell*, owned by the Ogdensburg Transportation Co. Her keel measurement is 242 ft. 5 ins., & her beam 37 ft. The Ogdensburg Co. built the *Haskell* first, with the idea of taking full advantage of the Welland locks, but when their other vessels, the *Governor Smith*, *A. McVittie*, *J. R. Langdon* & *Henry R. James* were built, they were made only 240 ft. keel & 42 ft. beam. It will thus be seen that whereas the beam was increased 5 ft., the keel length was shortened 2 ft. 7 ins. The overhang aft of the last mentioned vessel is practically the same as that of the *W. A. Haskell*.

When a vessel is a close fit in length more or less delay is encountered in the operation of locking. It will thus be readily understood that the reason why a steamer of narrow beam can lock longer than one of greater beam, or nearly full width of the locks, is found in the fact that the vessel of less beam may be swung to one side of the lock & one gate opened, & then to the other side while the other gate is being opened. In a similar manner, coming

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### Through the Lachine Rapids.

The steamer was entering the most dangerous part of the far-famed Lachine Rapids of the St. Lawrence. The forward deck was crowded with passengers, & all eyes were fixed on the famous Indian pilot, on whose skill & nerve their lives depended. Immovable at his post on the high pilot tower he stood, his sinewy brown hands firmly grasping the spokes of the wheel, while his piercing eyes darted glances now here, now there, over the surface of the river, as though seeking the most advantageous point from which to commence the descent. Now & then one could catch a glimpse of a plain Hibernian countenance in a window below where the Indian stood.

The steamer plunged into roaring waves, which shook her from stem to stern. Great black & glistening rocks grinned at the staunch vessel from the boiling waters. Strong men shuddered as they looked at the ragged rocks & raging river, & in their hearts thanked God that they were safe in the hands of the famous pilot. Women stared fascinated at the water, & then turned their eyes on the Indian, clasping their hands together with all their strength, as though