

TALES OF THE RIVERMAN 95 November 2021

Looking to the future; water levels in the Clyde and risk of flooding

Half fill a large wide and deep glass tank with water.

Put the same amount of water into a narrow, shallow glass tank and the water level will be higher than in the wide deep tank.

If we add extra water, the level must surely rise.

I have many questions that I do not really know the answers to, but hopefully they make interesting reading and get people thinking. Perhaps the world will find answers to the rising water levels.

Of course, I can only talk about local waterways.



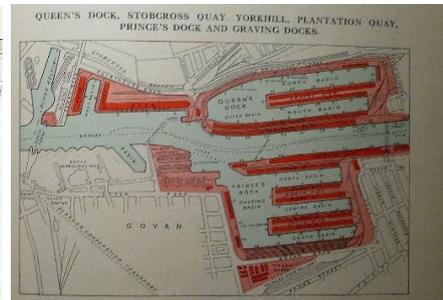
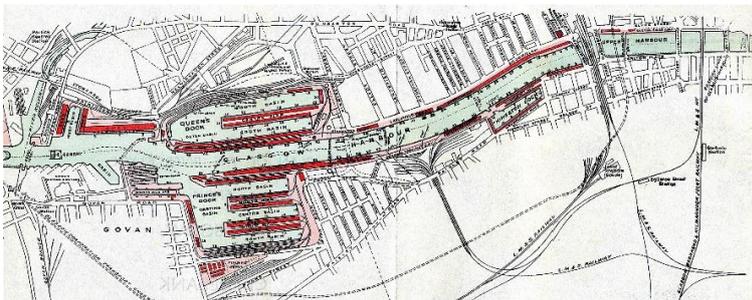
The Peoples Palace



Templeton's

The Molindinar Burn in Glasgow. can be 4m wide in places. It meets up with the Camlachie Burn, which is wider, and together they enter the Clyde through a 1m diameter pipe. When there is heavy rain, all the water cannot flow through such a narrow pipe and backs up. This pipe being under water at high tide, further prevents the Burn water flowing away, and people wonder why at high tide, there is flooding in the basement of our nearby Peoples Palace (lovely Museum and Winter Gardens) and on the north carriageway in front of the old Templeton's Carpet Factory. If tides do get higher, the back-up is likely to get worse.

How many Molindinar situations are there the world over?



Maps showing the various docks and basins.

Numerous Docks on the river Clyde have been filled in over the years. Queens Dock, most of Princes Dock, Kingston Dock and Yorkhill Basin. One wonders what effect this will have, on future water levels in the Clyde and if this ups the risk of flooding?



The mainstream of the river Clyde has been narrowed. It used to be mostly wooden jetties out into the river above a sloping bank that allowed overspill, a wider river, at times of high tide.



It is now mostly piled quay wall. The upper harbour of the Clyde has not been dredged for years and is now up to 6m shallower in places. Large mud flats show at low tide where the iron ore ships used to berth.



I have been told that the tide does not get any higher if the river is narrowed; I have also been told that the tide does not get any higher if the river is shallower, i.e., not dredged.

But what about the combination of high tide, high wind and floodwater?

What I see happening is that if we have a high rising tide in conjunction with an outside wind, it causes the river to flow upstream. When this tide meets with the rainwater coming downstream, the rainwater will have nowhere to go, and must surely the level will just rise? I find it difficult to put into words. If we have water flowing downriver at say 5 miles per hour at the same time as we have a rising tide of 4 mph with an outside wind blowing the tide up at 1mph, surely, there is stalemate and the only way the water can go is up. If it has less area, then it must go higher. I do wonder at what optimum speed a stalemate would occur, as that is when real flooding will happen.

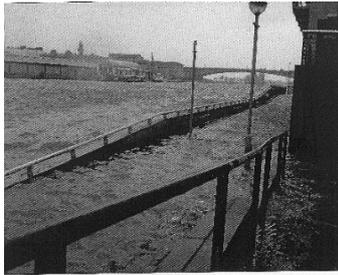


Figure 18. The Cycle walkway submerged by the storm surge of 28th January 2002, when the tide rose 2.2 metres higher than predicted: view from Broomielaw below Robertson Street, looking down-river towards the Kingston Bridge. [Clydeport photo]

On the day, the maximum wind speed recorded was 141mph on Ben Nevis, with 99mph recorded on the Tay Bridge.



High water at Broomielaw

When the amount of floodwater coming downriver equals that coming upriver with a high tide, there is a silence; a serene moment when the river stays absolutely still, calm, placid, creating a beautiful and peaceful moment. One minute the water is rushing upstream then there is this stalemate, then the water rushes off downstream. I can only wonder at the ability of the people who work out these tide times. This must be the same on rivers and other waterways the world over.



High water levels are not just not recent. I was shown photos of the water level lapping up on the top stones of the quay walls and told that this was the water level getting higher. I retaliated by showing photos of the water level at the same height about 1934.

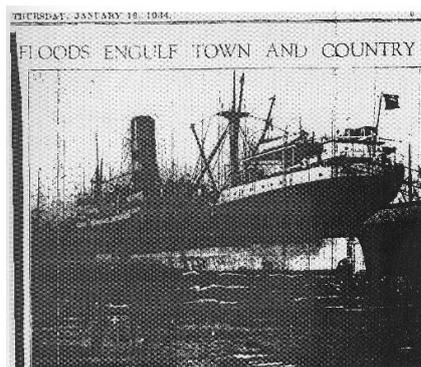


Figure 19. The scene in Queen's Dock just after the height of the surge: unladen freighter high out of the water; note waves and residual water on quay in foreground [scratched microfilm print]



I do not know answers to the above and only point out my own observations in the hope that someone will find the issue interesting enough (and important enough) to start a study.

Each area in this world should try to find answers to their local problems. It all adds up.