

## THE ARCH TYPE.

### SUITABILITY FOR COAL CARRIERS

THE loss of the *Hartley*, following that of a considerable number of self-trimming colliers, in the bad weather of the past two years, which has caused a great deal of discussion and criticism in shipping and sea-going circles, has awakened attention to that type of self-trimmer which can boast no losses on this account over twelve years' experience of the same trade and weather—the Arch type.

The latest example of this design, the steamer *Sheaf Water*, completed her trials and was handed over to her owners on the 22nd inst., and is one of a series of practically duplicate vessels. The success of these vessels and their improved weather qualities—which prejudice questioned—can no longer be denied, in view of many years' commercial experience in their loading and running, and of the repeat orders from owners, who invariably state that they would not build any other design for this trade.

It would appear to anyone contemplating the building of vessels for such a trade the Arch type provides commercial facts not possible now to dispute—a lower first cost, a vessel which will load to her marks with every kind of coal and a better and safer sea-boat which has proved itself without question to maintain better passage time, and an infinitely drier ship. It was recently said in public by one shipowner:—

"He was personally surprised that more collier owners did not adopt this system of structure. His experience had been that for collier work it was a good system and made exceedingly good vessels at sea, standing up to the weather splendidly. During the storms of the past two months their ships came through the North Sea splendidly when other ships were delayed and in fact some foundered."

While in the recent Channel gales, one of the crew writing home stated: "This Arch type of ship is the ideal thing for throwing seas off, and all that comes over the bulwarks is heavy sprays."

### COMPARATIVE DESIGNS.

A comparison of the designs of those other types of colliers most usually built with the Arch ship is illustrated in figures 1, 2 and 3, and in the sketch showing the same vessels in a seaway. Obviously the greater freeboard of the Arch ship is an indisputable acquisition to this trade, for with a roll of 10 degrees both of the ordinary vessels ship a heavy sea, whilst the Arch vessel ships no water, the topside form further tending to throw the sea back. The low freeboard, together with the "wells" of the raised quarter and three island vessels, undoubtedly make these types "dirty" in a seaway, impeding the speed and allowing heavy seas to sweep the hatchways continuously. The absence of these features in Arch vessels is itself assistance towards immunity from danger.

A comparison of the types is afforded by the following table:—

### FULL CARGOES CARRIED.

In view of the advantage of the Arch design shown in these figures and the better sea-going qualities, the popularity of Arch type vessels is increasing. Indeed though the above figures show a deadweight for the raised quarter decker and three islander, these vessels rarely load the same with light coals. It is common to see these vessels belonging to well-known shipowners leaving port regularly 6in. to 8in. short of their load draft. This represents alone lost freight on 8,000 tons of cargo in the case of a 2,850 deadweight vessel, assuming 50 trips per annum, whilst this again ignores the freight on the extra deadweight carried by the Arch ship. Recognition of these economic figures of the Arch ship is startling enough in these days.

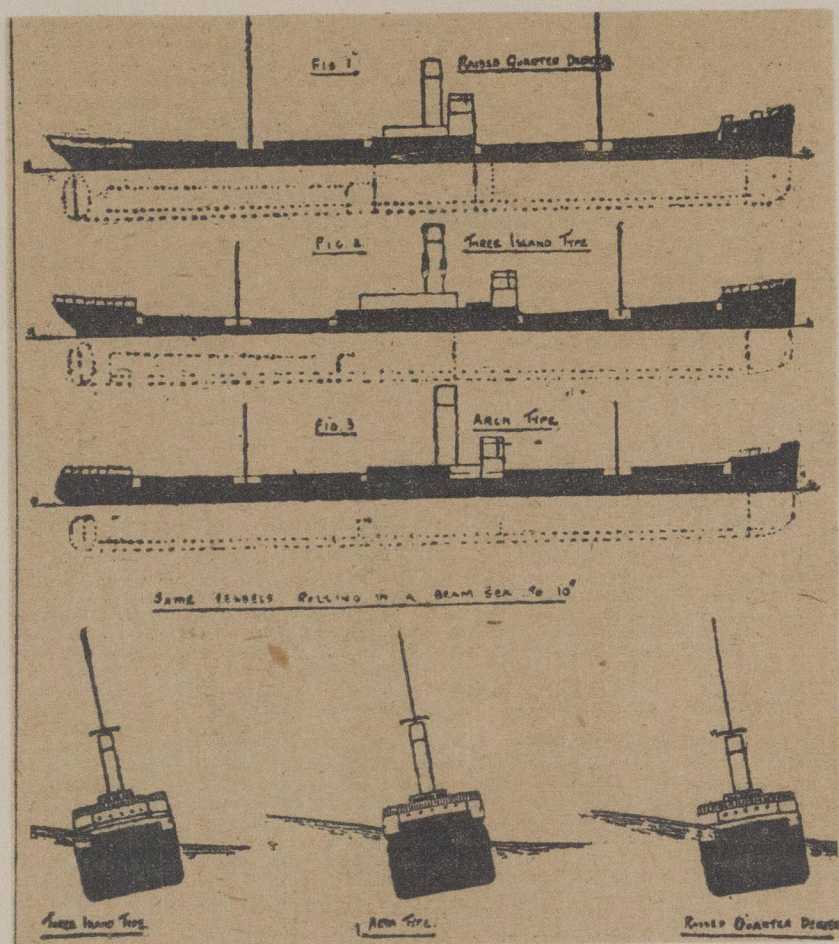
In the Arch design for cargo vessels much the same advantages are gained relative to the single deck types and similar expressions of opinion have been given; particularly in regard to the carriage of timber have they proved their efficiency, for not only is there an increase in that cargo carried in the holds but the high deck cargoes equal in height to that carried by any type have been shipped, the range of stability and reserve buoyancy of the Arch ship being greater than that of ordinary ships. Some 25 Arch vessels have now been delivered to their respective owners.



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	Raised quarter decker.	Arch type.	Three islanders.
Dimensions.....	285' x 41' 4"	285' x 41' 4"	285' x 41' 4"
Erections .....	P.20', B.20' F'cle 27' R.Q.Dk. 4' 0"	P.27', F.20'	P.26', B.72' F.27'
Deadweight .....	3,450	3,540	3,470
Displacement .....	5,000	5,000	5,000
Draft .....	19' 11 1/2"	19' 11 1/2"	19' 11 1/2"
Cubic capacity—Holds.....	162,400	171,800 of 166,300	162,000
Bunkers, etc.....	9,200	11,600 9,600	18,450
Cargo capacity/Cargo dwt. ....	50.1	52.3 50.8	50.1
Dwt/nett.....	2.65	2.67 2.80	2.61
Cargo capacity/nett .....	124	128.6 130.8	123.4
Freeboard .....	2' 0"	6' 11 1/2"	3' 3"



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