

RESISTANCE OF FLUIDS.

Of all the resistances of bodies to each other, there is undoubtedly none of greater importance than the resistance or re-action of fluids. It is here that we must look for a theory of naval architecture, for the impulse of the air is our moving power, and this must be modified so as to produce every motion we want by the form and disposition of our sails; and it is the resistance of the water which must be overcome, that the ship may proceed in her course; and this must also be modified to our purpose, that the ship may not drive like a log to leeward, but, on the contrary, may ply to windward, that she may answer her helm briskly, and that she may be easy in all her motions on the surface of the troubled ocean. The impulse of wind and water makes them ready and indefatigable servants in a thousand shapes for driving our machines; and we should lose much of their service did we remain ignorant of the laws of their action: they would sometimes become terrible masters, if we did not fall upon methods of eluding or softening their attacks.

We cannot refuse the ancients a considerable knowledge of this subject. It was equally interesting to them as to us; and we cannot read the accounts of the naval exertions of Phœnicia, Carthage, and of Rome, exertions which have not been surpassed by any thing of modern date, without