paid to it. But if multiplicity, variety, and intricacy of principles, and a ſyſtematic knowledge of theſe prin­ciples, intitle any art to the appellation of *ſcientific* and *liberal,* ſeamanſhip claims theſe epithets in an eminent degree. We are amuſed with the pedantry of the ſea- man, which appears in his whole language. Indeed it is the only pedantry that amuſes. A ſcholar, a ſoldier, a lawyer, nay, even the elegant courtier, would diſguſt us, were he to make the thouſandth part of the alluſions to his profeſſion that is well received from the jolly ſea- man; and we do the ſeaman no more than juſtice. His profeſſion muſt engroſs his whole mind, otherwiſe he can never learn it. He poſſeſſes a prodigious deal of know­ledge; but the honeſt tar cannot tell what he knows, or rather what he feels, for his ſcience is really at his fin­gers ends. We can ſay with confidence, that if a perſon of education, verſed in mechanics, and acquainted with the ſtructure of a ſhip, were to obſerve with atten­tion the movements which are made on board a firſt or ſecond rate ſhip of war during a ſhifting ſtorm, under the direction of an intelligent officer, he would be rapt in admiration.

What a pity it is that an art ſo important, ſo diffi­cult, and ſo intimately connected with the invariable laws of mechanical nature, ſhould be ſo held by its poſſeſſors, that it cannot improve, but muſt die with each individual. Having no advantages of previous educa­tion, they cannot arrange their thoughts; they can hardly be ſaid to think. They can far leſs expreſs or communicate to others the intuitive knowledge which they poſſeſs; and their art, acquired by habit alone, is little different from an inſtinct. We are as little in­titled to expect improvement here as in the architec­ture of the bee or the beaver. The ſpecies (pardon the alluſion ye generous hearts of oak) cannot improve. Yet a ſhip is a machine. We know the forces which act on it, and we know the reſults of its conſtruction— all theſe are as fixed as the laws of motion. What hin­ders this to be reduced to a ſet of practical maxims, as well founded and as logically deduced as the working oſ a ſteam engine or a cotton mill. The ſtoker or the ſpinner acts only with his hands, and may “whiſtle as he works for want of thought;” but the mechaniſt, the engineer, thinks for him, improves his machine, and di­rects him to a better practice. May not the rough ſea- man look for the ſame aſſiſtance; and may not the inge­nious ſpeculatiſt in his cloſet unravel the intricate thread of mechaniſm which connects all the manual operations with the unchangeable laws of nature, and both furniſh the ſeaman with a better machine and direct him to a more dexterous uſe of it?

We cannot help thinking that much may be done; nay, we may ſay that much has been done. We think highly of the progreſſive labours of Renaud, Pitot, Bouguer, Du Hamel, Groignard, Bernoulli, Euler, Romme, and others; and are both ſurpriſed and ſorry that Bri­tain has contributed ſo little in theſe attempts. Gor­don is the only one of our countrymen who has given a profeſſedly ſcientific treatiſe on a ſmall branch of the ſubject. The government of France has always been ſtrongly impreſſed with the notion of great improve­ments being attainable by ſyſtematic ſtudy of this art; and we are indebted to the endeavours of that ingenious nation for any thing of practical importance that has

been obtained. M. Bouguer was profeſſor of hydro­logy at one of the marine academies of France, and was enjoined, as part of his duty, to compoſe diſſertations both on the conſtruction and the working of ſhipa. His *Traité du Navire,* and his *Manœuvre des Vaisseaux,*are undoubtedly very valuable performances: So are thoſe of Euler and Bernoulli, conſidered as mathemati­cal differtations, and they are wonderful works of ge­nius, conſidered as the productions of perſons who hard­ly ever ſaw a ſhip, and were totally unacquainted with the profeſſion of a ſeaman. In this reſpect Bouguer had great ſuperiority, having always lived at a ſea-port, and having made many very long voyages. His trea­dles therefore are infinitely better accommodated to the demands of the ſeaman, and more directly inſtructive; but ſtill the author is more a mathematician than an artiſt, and his performance is intelligible only to mathe­maticians. It is true, the academical education of the young gentlemen of the French navy is ſuch, that a great number of them may acquire the preparatory knowledge that is neceſſary; and we are well informed that, in this reſpect, the officers of the Britiſh navy are greatly inferior to them.

But this very circumſtance has furniſhed to many perſons an argument againſt the utility of thoſe per­formances. It is ſaid that, “notwithſtanding this ſuperior mathematical education, and the poſſeſſion of thoſe boaſted performances of M. Bouguer, the French are greatly inferior, in point of ſeamanſhip, to our coun­trymen, who have not a page in their language to inſtruct them, and who could not peruſe it if they had it. "Nay, ſo little do the French themſelves ſeem ſenſible of the advantage of theſe publications, that no perſon among them has attempted to make a familiar abridge­ment oſ them, written in a way fitted to attract atten­tion; and they ſtill remain neglected in their original abſtruſe and unintereſting form.

We wiſh that we could give a ſatisfactory anſwer to this obſervation. It is juſt, and it is important. Theſe very ingenious and learned diſſertations are by no means ſo uſeful as we ſhould expect. They are large books, and appear to contain much; and as their plan is logical, it ſeems to occupy the whole ſubject, and therefore to have done almoſt all that can be done. But, alas! they have only opened the ſubject, and the ſtudy is yet in its infancy. The whole ſcience of the art muſt proceed on the knowledge of the impulſions of the wind and water. Theſe are the forces which act on the machine; and its motions, which are the ultimatum of our reſearch, whether as an end to be obtained or as a thing to be prevented, muſt depend on theſe forces. Now it is with reſpect to this fundamental point that we are as yet almoſt totally in the dark. And, in the perform­ances of M. Bouguer, as alſo in thoſe of the other au­thors we have named, the theory of theſe forces, by which their quantity and the direction of their action are aſcertained, is altogether erroneous; and its reſults deviate ſo enormouſly from what is obſerved in the mo­tions of a, ſhip, that the perſon who ſhould direct the operations on ſhipboard, in conformity to the maxims deducible from M. Bouguer’s propoſitions, would be baffled in moſt oſ his attempts, and be in danger of loſing the ſhip. The whole proceeds on the ſuppoſed truth of that theory which ſtates the impulſe of a fluid