

АЛЕКСАНДРЪ НИКОЛАЕВИЧЪ
КРУСЬКОЕВЪ.

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I R O N ,

AS

A MATERIAL FOR SHIP-BUILDING;

BEING

A COMMUNICATION TO

THE POLYTECHNIC SOCIETY OF LIVERPOOL.

BY JOHN GRANTHAM, C.E.,

PRESIDENT.



L O N D O N :

SIMPKIN, MARSHALL, AND CO., STATIONERS' HALL COURT, AND J. WEALE,
HIGH HOLBORN.

LACE AND ADDISON, STANDARD OFFICE, AND W. WEBB, LIVERPOOL;
FINLAY, GLASGOW; CURRY AND CO., DUBLIN.

1842.

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1888

LIVERPOOL:

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TO THOMAS SANDS, ESQ.,
CHAIRMAN OF THE DOCK COMMITTEE, LIVERPOOL.

DEAR SIR,—I avail myself of this opportunity to thank you for having, together with our respected Chief Magistrate, honoured me by listening to so much of the annexed communication as the limits of an evening's meeting would enable me to read.

I have much pleasure in being allowed to dedicate to you this small volume, and feel that, in so doing, I address myself to one whose mind is fully alive to the importance of the subject I have here discussed, and well capable of taking a sound practical view of its merits.

The elevated position you hold, in connection with the shipping interests of this port, will render your advocacy of it of great value. May I trust that the favourable opinion you kindly expressed on hearing a portion of this communication will not be withdrawn, when, at your leisure, you have an opportunity of perusing the additional arguments with which I have endeavoured to support it.

I am, dear Sir,

Yours very respectfully,

JOHN GRANTHAM.

IRON,

AS A MATERIAL FOR SHIP-BUILDING.

AT A MEETING OF THE POLYTECHNIC SOCIETY, HELD IN THE ROYAL INSTITUTION, PRESENT, THE MAYOR, THE CHAIRMAN OF THE DOCK COMMITTEE, AND A NUMEROUS MEETING OF SCIENTIFIC MEN, MR. GRANTHAM, PRESIDENT OF THE SOCIETY, READ THE FOLLOWING COMMUNICATION ON "IRON, AS A MATERIAL FOR SHIP-BUILDING."

Liverpool, March 10, 1842.

H. DAWSON, ESQ., VICE-PRESIDENT, HAVING TAKEN THE CHAIR,
MR. GRANTHAM SAID,—

MR. CHAIRMAN,

THE object, Sir, of the present communication is, to institute an inquiry into the advantages to be derived from employing iron as a material for building ships, and to compare such vessels with those built of timber.—It is not without feelings of hesitation that I venture to occupy the time of the meeting on the present occasion; not that I fear the reception I shall meet with from this assembly, past experience assuring me that every subject, involving scientific and mechanical improvement, will *here* meet with careful and considerate attention; neither is it that I fear to pledge myself to the opinions I shall this evening advance; but, that I feel I have undertaken an inquiry of deep and growing interest—an inquiry of the greatest importance to this maritime country, and, if I mistake not, to this port in particular,—and though I may, without assumption, lay claim to considerable experience in the details of the subject, it is one of such magnitude in its various bearings and

ramifications, that I cannot, in entering upon it, divest myself of some feelings of anxiety lest I should fail to do it that justice which its importance demands. I should not indeed have ventured upon such a topic had my previous impressions not been strengthened, and my humble exertions stimulated, by the favourable opinion of several gentlemen on whose more mature judgment I can implicitly rely; and, even with these advantages, I must, in consideration of the difficulties I have had to encounter, and of the short intervals of leisure which my arduous occupations afford, solicit the indulgence of my fellow members in behalf of an essay which has grown upon me to an extent which I did not at first anticipate. I have sought everywhere for documents of a practical nature relating to timber and iron ships—something that I could take as the foundation of an argument—some historical view of the subject which I could carry out and enlarge. Excepting, however, works relating solely to timber vessels, or some few detached and very imperfect sketches of iron vessels—and scarcely any, on either subject, of a practical nature—I could obtain little or no assistance from published documents. I therefore determined to take an independent course, and to trust more to my own observations, and to information derived from those who would kindly assist me in collecting it, than to waste my efforts in a further and, in all probability, a fruitless search. And here permit me to thank several friends, to whom I have applied for information, for the uniform readiness with which they have replied to all my inquiries, and to state that I shall have much pleasure in receiving further additions to the facts I have already collected, from any one who will favour me by supplying them.*

Some explanation may, in the outset, be expected from me, as to the opportunities I have had of forming an opinion on this subject, that those who hear me may be better enabled to judge of the correctness of what I shall advance. A few words only are necessary on this point. My attention was first directed to the subject in consequence of my father having, in 1824, caused a small iron

* Since reading this paper to the Polytechnic Society, I have been favoured with several communications, which were, however, too late to be embodied into it under their proper heads. I have therefore inserted some of them as an appendix to the original paper. I beg particularly to draw attention to the letter of my friend Mr. Fairbairn, as containing the sentiments of a man of great practical and scientific information.