

Samuel Smiles: Maritime Historian?

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Samuel Smiles was one of the best-selling non-fiction authors in the second half of the nineteenth century, yet his work has largely been ignored by maritime historians. This essay examines Smiles' writings on maritime matters and seeks reasons for their small influence on maritime historiography when compared with that of his interpretation of the history of inland transport, which was both far-reaching and extremely durable.¹ It concludes that while his maritime writings were certainly less important than some of his works on other topics, he nonetheless ought to be better known by those interested in the maritime-related past.

Samuel Smiles was born in Haddington, a little south of Edinburgh, in 1812. Trained first as a surgeon and later as a physician, he published his first book, which dealt with the health of children, in 1838. After some unsuccessful attempts to establish himself as a GP both in Scotland and in Leeds, he moved first into journalism, then into bourgeois radical politics, and finally into railway management. He even worked briefly for an insurance company before he became a full-time freelance author. He produced thirty books, the last of which, a biography of Josiah Wedgwood, was published in 1894. His autobiography was not complete at the time of his death but was published posthumously.²

Long before that, however, he had developed a "philosophy of life," which emerged in various pamphlets published in the 1840s and finally achieved maturity as *Self-Help* in 1859.³ The self-help philosophy has been much misunderstood over the years, the usual error being the assumption that by urging people to engage in self-help, society at large could free its conscience of any burden occasioned by observing the sufferings of its more unfortunate members. Smiles has been perceived as portraying these people as the feckless architects of their own misfortunes. It is true that he claimed that "what some men are, all without difficulty might be," in the context of a success story, but this was only one side of the coin.⁴ On the one hand people could only become useful, worthy and admirable members of society by hard work, perseverance and dedication to their fellows, but on the other there were levels of helplessness from which nobody could raise themselves unaided, no matter how hard they tried. "The duty to help the helpless speaks trumpet-tongued."⁵

The problem with Smiles from an historiographical perspective relates to the principal method of argument he employed in advancing this ideology: it was almost entirely a matter of anecdote, of teaching by example. *Self-Help* itself contains several quite

substantial cameo biographies, together with passing references to incidents in the lives of dozens of other people, and its eventual sequels, *Character, Thrift and Duty* work in the same way, though generally using more numerous examples explained in less depth. There was a reason for that change of approach.

The question of when Smiles first became interested in the life of George Stephenson as the supreme exemplar of self-help can, for present purposes, be glossed over. Suffice it to say that he wrote at least one short biographical memoir of Stephenson years before *Self-Help* was completed.⁶ His plans went somewhat awry when *Self-Help* was rejected by Routledge in 1855, and he went on instead to write a full-length *Life of George Stephenson*, published by John Murray in 1857. This was a considerable success and Murray profited from Routledge's mistake by publishing *Self-Help* in 1859: it fast became a best-seller and has never been out of print since. Smiles rapidly published more *Lives of the Engineers*, which appeared in two volumes in 1861, three in 1862, four in 1865 and five in 1874.⁷

Lives of the Engineers was long a basic source of information for plagiarism or adaptation by lesser men, and there is a whole genre of pseudo-Smiles books with titles like *Great Works by Great Men*, which take his ideology along with the fruits of his factual research. It has remained the basis of popular history to this day, and it is open to question whether any nineteenth-century historian has attracted as much long-term credibility. At the time of writing, the English £5 note has on its reverse a picture of George Stephenson along with three things he did not build.⁸ The Bank of England's research process went as far back as Smiles. It is legitimate to ask in what other sphere we would still regard a book published in 1857 as being the last word on its subject.

The fruits of self-help, as reaped by the great engineers, were a complex combination of material wealth, self-fulfilment and benefit to society at large. When externalised - which is the way they are generally presented - they mostly boil down to benefit to "the public," which tends to centralise engineering on *civil* engineering and within that field very largely on developments in inland transport. Smiles' writings on roads, canals and railways have been variously debated, deplored, plagiarised and admired by transport historians. His account of Smeaton's construction of the Eddystone Light is one of his classic works which has tended to overshadow his other writings on maritime matters.

There is one further general problem with Smiles' writing. Like all of us, he chose to write about the things he thought most important, and the things he thought most important were those which best exemplified the self-help philosophy. The result is that however much we may eventually come to trust Smiles, we must never forget his system of weighing the merit of an invention or a work of engineering. The quality of the finished product was not the only, or even necessarily the most important, criterion. Merit was not a measurable quantity dependent only on the attributes of the end product. Just as we today might find a cheap and ingenious answer to a problem quite as meritorious as a more elegant solution produced at unsustainable cost, so Smiles introduced the overcoming of adversity as a variable. The educational disadvantages of James Brindley and the early poverty of George Stephenson, for example, enhanced the merit of their achievements.

Closely allied to the question of adversity is that of perseverance. There are few, if any, greater merits in the Smiles system of values than perseverance. But these are stories of success, and perseverance can only be exhibited as a response to failure. Truly great men might be thought to get it right the first time and therefore be denied the moral accolades due

to those who persevere. Smiles was far too clever to make a mistake like that: successful men could indeed need to persevere, because all that is necessary is to show that their initial failure was brought about by aspirations which were truly epoch-making rather than merely ambitious, or was someone else's fault. Repeatedly we find Smiles' engineers being mocked for their attempts to build innovative things and Smiles often used the same technique of producing stupid reactionaries to "sabotage" the plans of his great men.⁹ It is a persuasive approach, because he applied it only in those cases where things originally mocked as "chimerical" had become standard practice among engineers and common knowledge among the comparatively sophisticated readership that Smiles was addressing. Obviously, some schemes mocked as impossible actually proved so to be, but they could simply be omitted.

In the field of maritime history, Smiles has been responsible for at least two long-term historiographical problems. It is still possible to find amateur historians who think that the Royal Navy was slow to move into steam propulsion because it was dominated by old fogies who were still re-living the glories of sail. More to the point, this remained a fairly orthodox view among professionals into the 1950s.¹⁰ One source for it is Smiles' account of the difficulties Pettit Smith encountered in selling his improved screw propeller to the Admiralty." Smiles was unable to claim that he was the original inventor of the screw propeller, just as he was unable to claim that George Stephenson had invented the railway locomotive, so the role of the hero had to be that of developing the invention into usable form and facing down the ill-founded scepticism with which he was faced. This obviously placed temptation in Smiles' way to exaggerate the difficulties, a temptation he was not always conspicuously successful in resisting.

The second is the persistent underestimation of the importance of the coasting trade. Smiles set something of a pattern by almost completely ignoring it, for the very simple reason that his greatest heroes were civil or mechanical engineers. If the aim of the exercise was to build up the importance of Rennie or Stephenson, then the emphasis must be on their greatest and most visible creations - the canals, railways and bridges. The coasting trade lost out for two reasons. It was in competition - and some would have us believe successfully - with overland transport modes.¹² Perhaps more to the point, coastal shipping does not exhibit "great works:" its permanent way is the sea and its locomotive and rolling stock are of multiple ownership and varied design. It was not a story which lent itself to biographical treatment: Masfield might try to romanticise the "Dirty British coaster with a salt-caked smoke-stack," but he could not tell you who designed it. Even where the occasional great work and great man were involved, as in the case of the Caledonian Canal, the coasting trade seems somehow to be forgotten. According to Smiles, the canal was partly to minimise the exposure of shipping to French privateers, "[b]ut there was another reason...It was this: vessels sailing from the Eastern ports for America had to beat up the Pentland Frith [sic]."¹³ There were thus two good and patriotic reasons for admiring the canal and its "alleged" Chief Engineer without mentioning grotty little coasters.¹⁴ Not one of the "pseudo-Smiles" works has anything to say of provision for the coasting trade, nor did Smiles' great admirer, Edwin Pratt, see fit to adjust the balance.¹⁵ At bottom, Smiles was a good storyteller and he recognised that the British public did not feel pride coursing through its veins at the mention of a coaster. When absolutely necessary, as when considering the traffic of the Thames as background to the construction of docks, Smiles mentioned coasters briefly, if somewhat reluctantly.

Of the coastwise passenger trade, however, we find quite considerable mention in Smiles' works, although almost all of it was derogatory.¹⁶ Anecdotes of various appalling discomforts, chiefly in the matter of embarkation and arrival, were discussed, and it becomes fairly clear that the reader was being fed *status quo ante* material intended specifically to magnify the achievements of the engineers, chiefly, in this case, Rennie. It is clearly comparable to the damage which Smiles did to the historiography of road transport by his attempts to show that railways were not merely a great but an epoch-making improvement. Here, too, the harm he did was long-lasting: misplaced trust in Smiles allowed one author to dispose of the subject of "Roads and Road Transport down to 1750" in less than five pages.¹⁷ The apparently strange thing is that when in 1838 Smiles chose to travel from Leith to Hull by steamer because it was cheaper than the stagecoach, he made no complaints. But perhaps this was not really so strange: the demonisation of the coastal passenger trade was geared to the lionisation of the railway industry, and in 1838 one could not get from Leith to Hull by rail.

This suggestion, of course, may be tested by its converse. In *Men of Invention and Industry*, Smiles incorporated an essay by Sir E.J. Harland on "Shipbuilding in Belfast - Its Origin and Progress." If this was indeed written as attributed, it must be said that Sir Edward was uncommonly good at imitating other people's writing styles, particularly in the use of familiar Smilesian tropes in the account of his childhood.¹⁸ The point is that there were many shipyards about which Smiles could have chosen to publish and that most yards built the odd coaster. We search in vain however: there are many mentions of the Bibby, P&O and White Star Lines, and of vessels trading to India or to South America. There is even a short section explaining how on some routes huge steel sailing ships were still a better proposition than steamers, but there is no hint that coasters existed.

Much of the way that Smiles selected and treated his subjects is fairly common knowledge within the relatively small circle of historians of civil engineering. What is less generally realised is that when Smiles was being historical he wrote in two quite separate styles and at equally separate levels of dependability. For present purposes these two styles may be distinguished as "sharp end" and "blunt end." The "sharp end" comprises material written broadly along the lines described above: the creation and exposition of heroes of self-help. The "blunt end" is the background, or *status quo ante* against which the heroes performed.

There is no doubt that Smiles was an extremely diligent and productive researcher. His *Lives of the Engineers* is by far the most massive contribution to the history of technology to date. But Smiles was not content merely to research and write; he wanted to carry on churning out publications which would confirm his primacy in the field. It is also worth recalling that by the 1880s he had no fewer than twenty-two grandchildren towards whose expensive education he made generous contributions: he was by now modestly wealthy but also financially careful, and it seems that in the 1880s he turned out a few books which he thought would sell well. One obvious area where he could economise on time without jeopardising his productivity was at the "blunt end" - writing introductions and background sections. The introduction to *Men of Invention and Industry*, actually written as part of the account of Phineas Pett, is one example.

Smiles had, down to this time, considered matters maritime chiefly in terms of the activities of civil engineers, of which more below. This collection of shorter biographies, including Pett, Pettit Smith, John Harrison and Sir Edward Harland, was the first that

tempted him into writing a general piece on the importance of maritime affairs to the British economy and the British character. Much of its detail is borrowed from the chapter of *Duty* which relates to sailors, containing anecdotes about what super chaps seamen were, always letting the women and children into the lifeboats first.¹⁹ This sits slightly unhappily with a section on how Britain rose from paltry beginnings to become a great naval power. The accounts of the key people and the turning points in warship construction could all be derived, and probably were, from James.²⁰ It is a section conspicuously lacking in original material: state papers are cited, but this is often a giveaway with Smiles, for when he wrote something based upon diligent research he rarely included references. Indeed, the more references there are, the more likely it is that either they were borrowed or that the section was written by one of the research assistants he occasionally employed.²¹

It is clear that Smiles had only recently taken an interest in things maritime. *Self-Help* and its sequels employed the technique of stating a principle and illustrating it with several (sometimes many) biographical examples. The people chosen were nearly always literary figures, philosophers, theologians, businessmen, politicians, scientists or engineers. There was a smattering of famous soldiers, but maritime examples were few; when one or two did occur, as in *Life and Labour*, they were naval rather than merchant heroes.²² Smiles' interest in fact dated from about 1870. He then had two sons living in Belfast, one of whom, Willy, after working as a tea agent, began a long and not uniformly profitable relationship with the Belfast Ropeworks. A major customer was Harland, later Harland and Wolff. In 1883, Smiles purchased four sixty-fourths in each of two Harland-built ships, *Dunluce* and *Dundeala*, for £2794. Both were lost at sea in 1891, and he felt the £2000 he received from the insurers was quite insufficient.²³ But back in 1871 he had suffered a serious stroke which completely disabled him for a time, and while he recovered and carried on writing he seems not to have continued to expand his "database" at the same rate as in former years. *Thrift, Duty, Men of Invention and Industry* and *Life and Labour* all contain many re-cycled examples.²⁴ His newfound interest in maritime affairs was not pursued with the doggedness he had shown in earlier years.

He could, for example, have spread his wings to include Alfred Holt, whose life could easily have been made to dance to the tune of *Self-Help*. Holt served an apprenticeship in the Edge Hill works of the Liverpool and Manchester Railway, making him not just a good mechanic but an intellectual heir of George Stephenson. He persevered with his vision of getting the compound engine to sea, a battle which could be presented as one fought chiefly against the ostriches of the Board of Trade. He became rich and famous; his activities benefited the public; and his ships had well above average safety records.²⁵ Yet Smiles chose not to write about Holt, or about any recent major figure in the shipping industry.²⁶

Perhaps as surprising is his earlier treatment of I. K. Brunei. Marc Brunei arrived in Britain as a political refugee, which should have inclined Smiles in his favour even before taking into account that as a boy he had been "much fonder of the village carpenter's shop than of school."²⁷ Yet when Smiles moved to an account of Brunei Junior, he concentrated almost entirely on his work as a bridge and railway designer, with barely a page allocated to his ships. Yet each vessel could have been used to tell a different story, culminating in the amazing perseverance Brunei showed in getting *Great Eastern* launched. It was left to L.T.C. Rolt almost a century later to spin out the pathos of another Smilesian "martyr of science" as Brunei worked himself to death.²⁸ It might be assumed that Brunei's habitual disregard for the best interests of his shareholders or his penchant for personal publicity had

turned Smiles against him, but the conclusion of the review is that "the public at large have certainly no ground of complaint; for it is unquestionable that both railway travelling and steam navigation were greatly advanced by the speculative ability of Mr Brunei." His failure to return to the theme remains a mystery.

Unlike the majority of Smiles' introductions, the passage in his account of Phineas Pett has little to tell us and is even short on standard Smilesian ideology. It is, for example, strange that Smiles should choose to give so much consideration to warships when far more typical of his views was the complaint in his account of Harrison that it was the peaceful nature of his invention that denied him the fame so readily accorded to anyone who won the odd battle. Yet the reason for this should make us take at least some of what Smiles wrote more seriously, for it was that although there were multi-volume histories available of the navy available, there existed no general history of British merchant shipping.²⁹ It is probably fair to say that Kirkaldy was the first such work, and it did not appear until 1914.³⁰ At the time Smiles was writing there were some good articles in the ninth edition of *Encyclopaedia Britannica* and some useful historical pieces in some of the professional journals, but there was no work of synthesis. While we may deride, perhaps justly, Smiles' somewhat perfunctory attempts in that direction, that deficiency should make us look more carefully at the other category of his material, that which was described above as "sharp end."

There are only a few places we need to look. *Men of Invention and Industry* contains his only serious attempts at biographies of specifically maritime notables; of these by far the most interesting is his account of "John Harrison: Inventor of the Marine Chronometer."³¹ This, it might be argued, is Smiles at or near his best, for it is a compactly-written account of the life of a somewhat remarkable inventor who, trained to work in wood, made a clock with mostly wooden mechanical parts yet managed to teach himself metalworking techniques to such good effect that he was able to construct what was probably the most accurate timepiece in world history. He then improved on it three times. The account is not merely compact: like much of Smiles' writing on technology it is clearly explained for the lay reader. As a result, it has scarcely been improved upon to this day. Harrison, of course, laboured under great difficulties and was required to prove his dedication by carrying on in the face of severe financial problems brought on by the niggardliness of the government. The reward of that exhibition of a truly noble and manly character was the lives he saved through preventing vessels from being wrecked.

In *Duty* we find plenty of ships getting wrecked, and we also find plenty of heroes saving lives.³² Some of these are stock items, like the story of the troopship *Sarah Sands*, whose crew fought a serious fire at sea and eventually arrived safely at Mauritius, or the heroism of Grace Darling. Others form a reasonable compilation of causes of, and responses to, ships in a sinking condition. It may not be important - though it is certainly interesting - that a short account of the activities of Samuel Plimsoll begins with mention of his "warfare against greedy shipowners."³³ Smiles was by this time a considerable public figure and his books were still selling in large numbers - *Duty* had to be reprinted in the year of first publication, so it is not beyond the bounds of possibility that this particular utterance on shipping safety, while ostensibly a comment on the past, might have affected the drive for continued improvement in safety at sea in the future. One thing is sure: right to the end of his writing life Smiles was not afraid to say what he thought. Perhaps unfortunately, one of the things he seems to have thought was that foreigners did not always behave very well in maritime emergencies.³⁴

By far the largest collection of maritime material in Smiles' work was concerned with dock and harbour construction. The "Life" of James Watt contained fleeting mention of his work on Ayr Harbour and preparation of plans, notably for the Caledonian Canal, which were not implemented. In the 1874 edition of *Lives of the Engineers*, Volume II on Smeaton and Rennie begins with an introductory chapter on shipping and harbours, followed by one on beacons and lighthouses. While neither of these approach present-day knowledge of their respective subjects, they are clearly and logically explained, and providing that one always bears in mind Smiles' techniques and agenda, they are not even all that misleading. Smeaton carried out comparatively few harbour works; and his biggest one, the harbour of refuge at Ramsgate, was not entirely successful because he installed a sluicing system for silt clearance.³⁵ Some, but not many, such systems have been known to work satisfactorily, but this one undermined the breakwater walls.³⁶ The work which ensured Smeaton's undying fame was of course his masterly construction of the third Eddystone light, built on an intertidal rock in a rough and exposed position. Smiles, for obvious reasons, emphasises this at such length as to overpower Smeaton's other maritime works.³⁷

Yet Smeaton, who is sometimes called Britain's first consulting engineer, did not complete many projects in the maritime sphere. Thus, the man upon whom any claims for real importance in Smiles' "sharp end" writings must centre is John Rennie. The present writer has more than once advanced the priority of Jesse Hartley as the world's first full-time civilian dock engineer, but John Rennie was the most prolific and successful of the consultants of the older generation.³⁸ This may sound a harsh judgement on the works of Telford, but in fact it is quite proper that Telford should be better known for his roads, canals and bridges than for his docks and harbours, for the majority of his port projects were comparatively small and were in Scotland, where they were built more for social than economic reasons and were commonly subsidised by the Fisheries Board, the Forfeited Estates Fund, or both.³⁹ While building a breakwater wall in rough seas is no simple matter, neither can a tidal harbour designed for small inshore fishing boats be compared with Rennie's East India Docks. The only dock system in England which Smiles recorded Telford as designing was St. Katherine's Dock in London, which was begun in 1825. It was, to such an engineer as Telford, a poor site on which to be set to work, but one to which he applied high standards of design and construction. In particular, the provision of ten feet of water over the entrance sill at low water was an expensive feature which many lesser engineers would have trimmed to ensure getting the job. But it was a wise decision, probably wiser than his clients deserved. His outline plan for Ellesmere Port docks, completed after his death by William Cubitt, was not mentioned by Smiles, but was an ingenious and effective development, again on a somewhat constricted site, based on the works of his old "chief," William Jessop. It should in fairness be added that not all of Telford's work in Scotland was on non-economic fishing facilities: he completed quite complex dock works at Aberdeen and at Corpach and Clachnaharry, the two ends of the Caledonian Canal.

But the primacy remains with Rennie. His London and East India docks were the second largest constructed up to that date and used the latest construction methods, including a spoil railway with steam-hauled inclines.⁴⁰ Some of his projects, including the rectification of the errors made by the New Haven Company at Grimsby, were of exceptional technical difficulty. As with other great engineers, his special talents lay in the use of existing technique improved by careful attention to detail nearly all the time. Only when existing techniques would not work did he embark on the expensive and risky course of innovation.

Thus, for use on bad ground he took Jessop's idea of the so-called "banana wall," whose large curved batter increased its resistance to ground forces, diminished its bearing pressure, and turned it into a "hollow wall," which consisted of a facing backed with "relieving arches" running with their soffits at right angles to the quay wall, radically reducing the total weight of the structure and hence the likelihood of foundation failure. Realising that entrance lock floors in bad ground could "blow up" through ground water pressure, he built them as inverted arches. A list of his works would try the reader's patience, but it must be mentioned that he was quite as important in Admiralty harbour works (especially the huge Plymouth Breakwater) as he was in commercial dock construction and that he also had a significant input in the physical improvement of the notoriously under-engineered Royal Dockyards.⁴¹

Nearly all the above can be learned without reading Smiles, and some of it can be learned more accurately. So why should we bother with an obsolete historian whose true allegiance lay elsewhere? Prior to Smiles, few authors had tried to write engineering history for a non-engineering readership, and those that did largely failed to sell. In the general history of technology Smiles was enormously influential in a number of ways, including, as Buchanan noted, the continuing fascination of his biographical subjects. There have been a few recent biographies of people Smiles neglected, but each of his main subjects has been examined repeatedly by later authors.⁴² Something about Smiles' writing got through to his readers in a very unusual way.

Certainly one factor was Smiles' storytelling ability, which rested on his knack for explanation. Rennie's work in London was not treated *in vacuo* but was placed in a social and economic context. It is presented as something of which people should be proud, as part of their cultural birthright. It may be that one of the reasons present-day engineers complain, with some justification, about the lack of esteem in which their profession is held results from the fact that they have no modern Smiles to present them to an admiring public.

The maritime aspects of Smiles' work are not the most important things he wrote and one can be an excellent maritime historian without reading a word of him. He does, however, have something to offer in the way of approach to the subject. While he can be simplistic, he is never narrow. He can be a mine of information, provided one remembers that alongside every mine is a spoil heap of unwanted material. He shows us one aspect of the development of the subject, because nobody had previously brought together so many strands of the story.

There is, however, one respect in which maritime history needs its very own Samuel Smiles today. When Clapham wrote his classic *An Economic History of Modern Britain*, much of what he had to say on transport and technology was derived from Smiles. It is a standard complaint of maritime historians that their sub-discipline is disregarded by mainstream historians, and the same was undoubtedly true of the history of technology before Smiles. He laid some of the groundwork which both encouraged and enabled historians to look wider than church and state, law and politics. He did the job which now needs doing for maritime history, and while that job cannot be done using exactly his methods, finding out about what he did and how may have some use.

NOTES

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1. Exact sales figures for Smiles' works are difficult to determine. Still, his personal account book, housed in the West Yorkshire Record Office (WYRO), enables some reasonable approximations. See, for example, T. Travers, *Samuel Smiles and the Victorian Work Ethic* (New York, 1987), appendix F. The *Life of George Stephenson* (1857) seems to have sold some 20,000 copies in its first year. It may be some measure of his importance that the various editions of *Self-Help*, perhaps his most famous book, occupy two and one-half pages of the National Union Catalogue.
2. While there is no scholarly biography of Smiles, his life can be pieced together from T. Mackay (ed.), *The Autobiography of Samuel Smiles LLD* (London, 1905) and his granddaughter's affectionate account (A. Smiles, *Samuel Smiles and his Surroundings*, [London, 1956]). Other works, including Travers, *Samuel Smiles*, and my *Samuel Smiles and the Construction of Victorian Values* (Stroud, 1997), have concentrated on his thought and writings rather than the sometimes obscure events of his life.
3. Two key examples are his *Address to the Bradford United Reform Club* (Leeds, 1842); and *The Education of the Working Classes* (Leeds, 1845).
4. S. Smiles, *Self-Help* (1859; London, 1897), 294.
5. S. Smiles, *Thrift* (London, 1875), 321.
6. This appeared in *Eliza Cook's Journal*, I, No. 5 (1849), 65-67.
7. All were published by John Murray. For estimates of numbers of printing of these and other Smiles' hardbacks, see A. Jarvis, "An Attempt at a Bibliography of Samuel Smiles," *Industrial Archaeology Review*, XIII, No. 2 (1991), 162-171.
8. Namely *Locomotion*, the Skean Bridge and the *Rocket*. The way in which later writers extemporised on the broad sweep of Smiles' interpretation while actually introducing new errors is considered in A. Jarvis, "The Story of the Story of the Life of George Stephenson," in D. Smith (ed.), *Perceptions of Great Engineers* (London, 1994).
9. The most conspicuous example is that of the "reactionary" James Cropper opposing George Stephenson's ideas on locomotive haulage on the Liverpool and Manchester Railway. But not all was as it seemed: see A. Jarvis, "James Cropper, Liverpool Docks and the Liverpool & Manchester Railway," *Journal of Transport History*, 3rd series, XIX, No. 1 (1998), 18-32.
10. See, for example, M. Lewis, *The History of the British Navy* (Harmondsworth, 1957), 224-225.
11. S. Smiles, *Men of Invention and Industry* (London, 1884), 60-72.
12. John Armstrong has argued the cause of the coasters in numerous publications, but most recently in "Climax and Climacteric: The British Coastal Trade, 1870-1930," in D. J. Starkey and A. G. Jamieson (eds.), *Exploiting the Sea: Aspects of Britain's Maritime Economy since 1870* (Exeter, 1998).
13. S. Smiles, *Lives of the Engineers* (5 vols., London, 1874), III, 226-227.
14. Charles Hadfield, *Thomas Telford's Temptation* (Kidderminster, 1993), has alleged that Telford only became Chief on the Caledonian after the death of William Jessop. This is part of the wider argument that Telford and Rickman (his first biographer) conspired to minimise Jessop's role in order to maximise Telford's.
15. E. A. Pratt, *A History of Inland Transport and Communication* (1912; reprint, Newton Abbot, 1970).
16. See, for example, Smiles, *Lives of the Engineers*, II, 18-24.
17. C.I. Savage, *An Economic History of Transport* (2nd ed., London, 1966), 11-15.
18. These included a fascination with watching

craftsmen at work, acquiring tools at an early age and making models which presaged future achievements; cf. both Smeaton and Rennie in *Lives of the Engineers*, II. Also there was the story about getting thrashed by his schoolmaster for such extracurricular activities. See S. Smiles, *Life of a Scotch Naturalist* (London, 1877), chapter 2.

19. S. Smiles, *Duty* (London, 1880).

20. W. James, *The Naval History of Great Britain from the Declaration of War by France in 1793 to the Accession of George IV* (6 vols., London, 1837), has a forty-four-page introduction which covers earlier developments.

21. This observation does not apply to notes in later editions of earlier works, which often provided useful supplementary comment or information which Smiles had gathered since he first wrote the passage in question.

22. S. Smiles, *Life and Labour* (London, 1887), 174-175.

23. WYRO, SS/B/71, Samuel Smiles' Personal Account Book.

24. Nor were all the self-plagiarisms trifling: accounts of John Harrison also appeared in *Longman's Magazine*, I, and *The Eclectic Magazine*, C.

25. For a succinct outline of Holt as an engineer, see his "Memoir," in *Minutes of the Proceedings of the Institution of Civil Engineers*, CLXXXVII (1911-1912), 325-327.

26. This was not because Smiles adhered to the *Dictionary of National Biography* principle that you do not get in until you are dead. Smiles not only wrote biographies of the living but, in the introduction to *Life of a Scotch Naturalist*, explained why he did so.

27. S. Smiles, "The Brunels," *The Quarterly Review*, CXII (1862), 1-39. This was a review of R. Beamish, *Memoirs of Sir Marc Isambard Brunei* (London, 1862).

28. L.T.C. Rolt, *Isambard Kingdom Brunei* (London, 1957).

29. For example, James, *Naval History*; and C D. Yonge, *The History of the British Navy* (3 vols., London, 1866).

30. A. W. Kirkaldy, *British Shipping: Its History, Organisation and Importance* (1914; reprint, Newton Abbot, 1970).

31. Smiles, *Men of Invention and Industry*, 73-106. It is interesting to note that this essay, the only one of the maritime biographies to get the full ideological treatment, is also the only one to have inspired a recent imitator. D. Sobel, *Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time* (New York, 1995), wrings maximum value out of re-using the Smiles' technique of lionising a hero of humble birth and demonising the Astronomer Royal, who is portrayed as stupid, arrogant, dishonest and gratuitously nasty in general. It may not be coincidence that *Longitude* became an unexpected bestseller and has recently been made into a film. While I do not claim to have read all the reviews of *Longitude*, none that I have seen, whether generally favourable or unfavourable, makes any mention of Smiles.

32. Chapter 7 is titled "The Sailor."

33. Smiles, *Duty*, 190. This was, of course, written before the loss of the *Dunluce* and *Dundeala*.

34. *Ibid.*, 188-189. See, for example, his discussion of the incident in which the Spanish vessel *Murillo* caused severe damage to the emigrant ship *Northfleet*, anchored off Dungeness, and "steamed away leaving over three hundred people to perish, without the slightest offer of assistance." Only eighty-five people were rescued.

35. He did, however, prepare schemes for many more which were not implemented, usually on grounds of cost. This was far from uncommon and is no slur on Smeaton's reputation.

36. This is not, of course, mentioned in the "Life" of Smeaton, but in that of Rennie, when the latter attempted to sort out the problem.

37. Smiles, for lack of engineering knowledge, did not bring out the full significance of this structure, for its use of stone dovetails and leaded-in iron fastenings meant that it was no longer, like virtually all previous masonry structures, held up by its own weight. It was a "strength structure." Where he does not fail to score heavily is on the ideological front, pointing to the countless lives saved by Smeaton's skill, courage and perseverance.

38. See, for example, A. Jarvis, *The Liverpool Dock Engineers* (Stroud, 1996), 15-29; and Jarvis, "Evaluating Albert - and Its Engineer," in Jarvis and K. Smith (eds.), *Albert Dock: Trade and Technology* (Liverpool, 1999).

39. The "Life" of Thomas Telford is mated up with various others in different editions. Those most commonly found in libraries and secondhand bookshops are the 1862 edition in three volumes (reprinted by David and Charles and Augustus Kelley in 1967) and the 1874 edition in five volumes. In the former he appears in volume 2, along with Smeaton and Rennie, while in the latter volume 3 contains Metcalfe and Telford. His "Life" is a substantial piece of work, running to more than 200 pages.

40. The largest project was William Jessop's West India Docks (1800-1806), but Smiles habitually

underrated Jessop for reasons explained in Hadfield, *Thomas Telford's Temptation*. See also A. W. Skempton, "Engineering in the Port of London 1789-1808," *Transactions of the Newcomen Society*, 1. (1978-1979), 87-105.

41. This stricture, derived from Smiles, perhaps requires a little explanation. The problem Rennie, and other consultants called in for advice, found was that the Dockyards exhibited a cyclical pattern of neglect followed by frenzied expenditure, governed by the strength of expectation of war. This was not how civilian engineers thought things should be done: the works they designed had to be maintained at or near peak efficiency all the time, hence the difference in approach.

42. A. Buchanan, "The Lives of the Engineers," *Industrial Archaeology Review*, XI, No. 1 (1988), 5-15.