

# Safety at Sea and Lighthouses

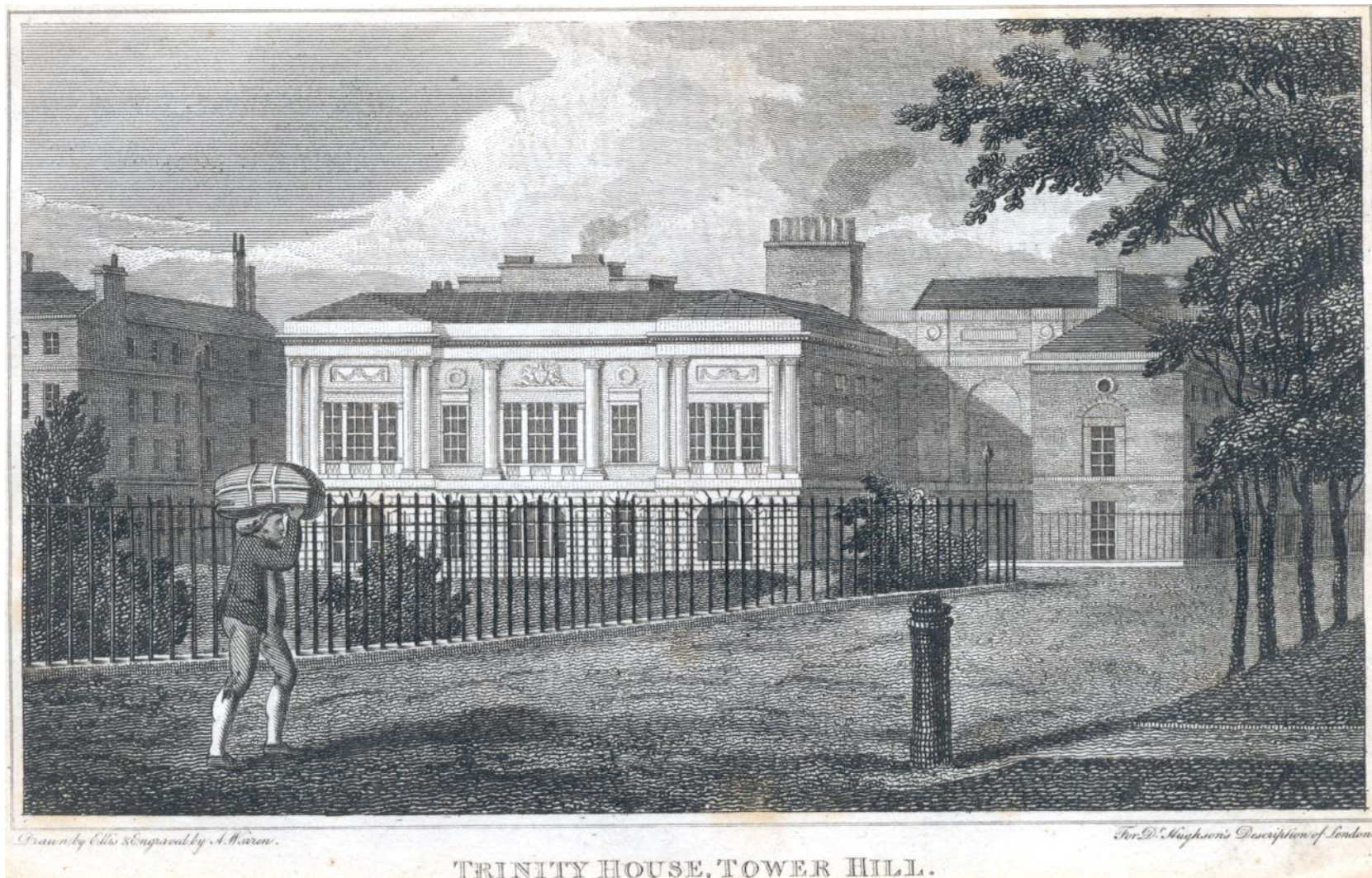
Frank James



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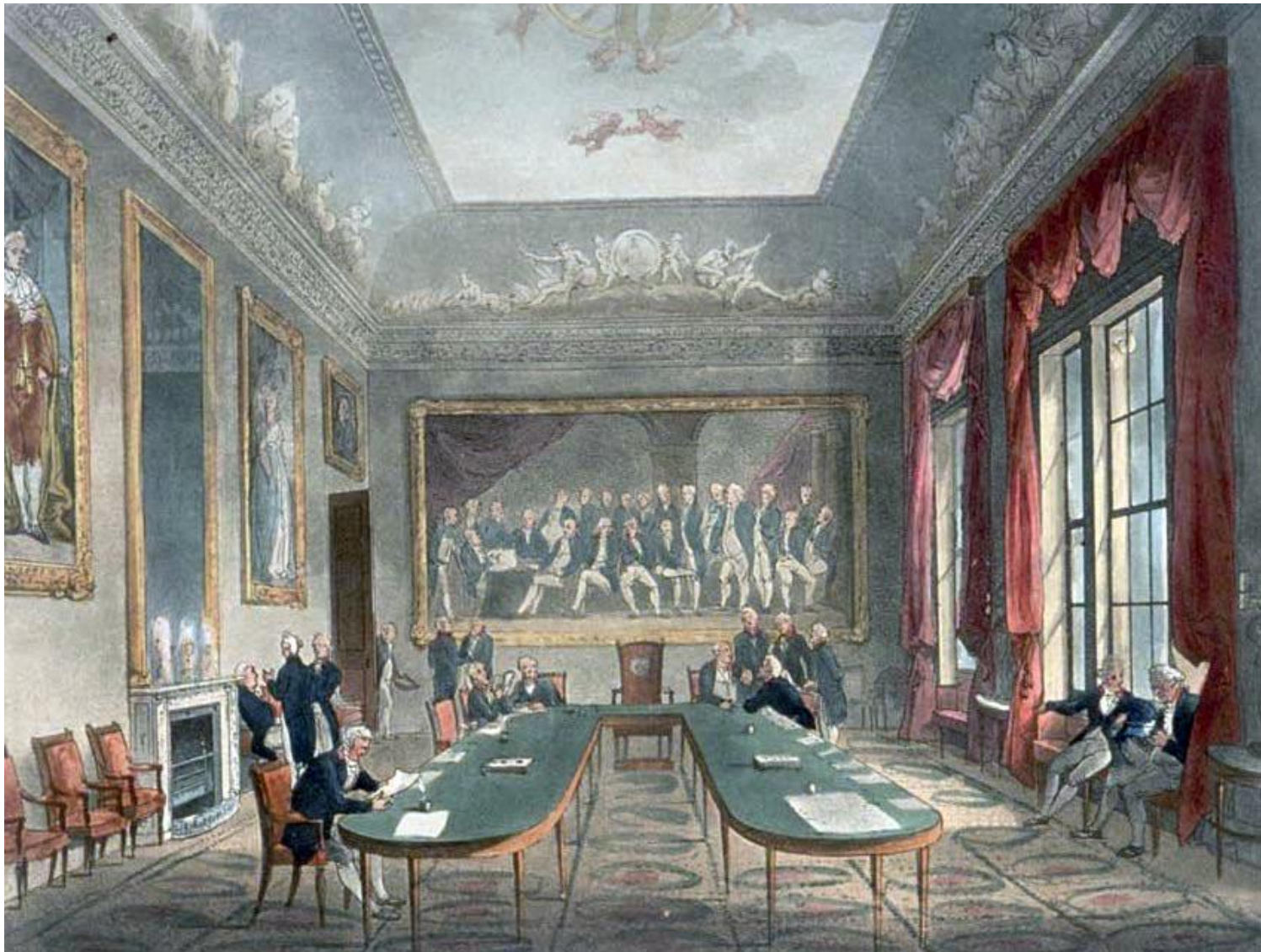


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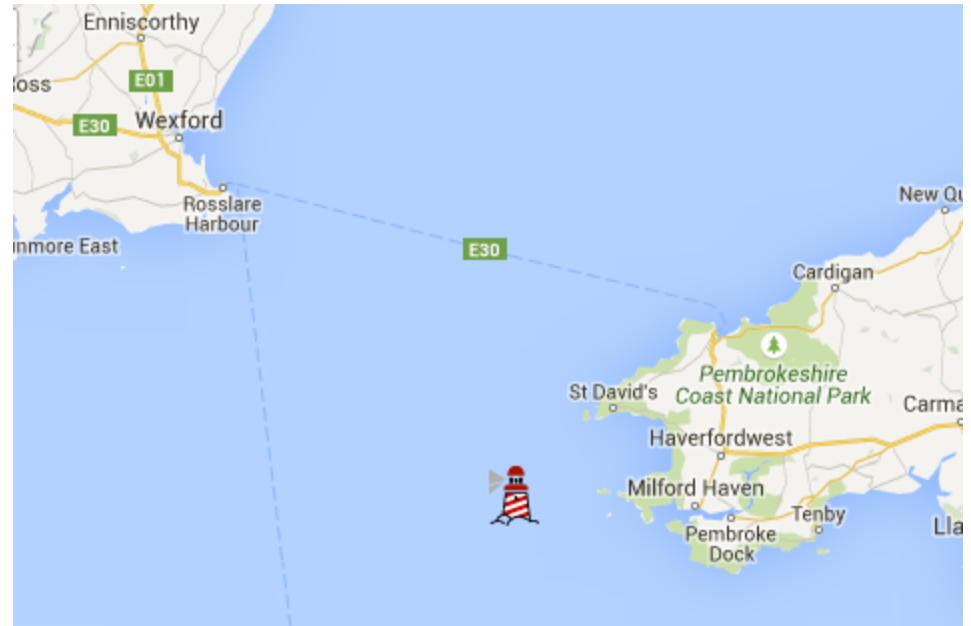












AN ACCOUNT of the Proceeds of the *Smalls Light*, in the Years 1831 and 1832, together with the Amount of Commission allowed for Collecting; distinguishing each Port at which the Duties were collected.

*A. S. Woodward*, Rec<sup>r</sup> Gen<sup>l</sup> for the Smalls Light.

The Smalls Lighthouse  
is one of those Lights  
leased in 1778 by the  
Trinity House, most  
inconsiderately, for 99  
years, at a nominal rent

Select Committee report, 1834



LIGHTHOUSE, and Name of Proprietor or Lessee.	Remaining Term of Lease purchased.	Rate per Cent. for Money to purchase.	Amount of Purchase-money.
		£.	£.
Longships:—Henry P. Smith, Esq.	9 $\frac{1}{2}$ years - - -	6	40,696
Smalls:—Rev. A. H. Buchannan, Thomas P. Clarke.	41 years - - -	6	170,468
Winterton and Orford:—Lord Braybrooke.	12 years and 5 months	4 $\frac{1}{2}$	37,896
Harwich:—Lieutenant - general Rehow.	12 years and 5 days -	4 $\frac{1}{2}$	31,730
Dungeness:—Thomas W. Coke, Esq.	12 years and 175 days	4 $\frac{1}{2}$	20,954
Hunstanton:—Frederick Lane, Esq.	-- 9 months and 16 days, to October 1837.	4 $\frac{1}{2}$	384
Ditto - ditto - - - -	-- 11 $\frac{3}{4}$ years, from Oc- tober 1837.	4 $\frac{1}{2}$	1,221
Tinmouth:—Mr. Fawke - -	In perpetuity - - -	-- 23 $\frac{1}{2}$ years' purchase.	124,678
Spurn:—J. B. B. Angel, Esq. -	- ditto - - - -	-- 23 $\frac{1}{2}$ years' purchase and award of jury.	309,531
Skerries:—Morgan Jones, Esq.	- ditto - - - -	-- Award of jury.	444,984
TOTAL POUNDS - - - £.			1,182,546



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219  
the french lamp 4 inches in diameter - 4 weeks - high chimney - and  $4\frac{1}{2}$  inches high of flame - has 30 inches in diameter

Arrangement easily seen  $68\frac{3}{4}$  miles by naked eye than brighter than a common lamp & reflector at 15 miles - its successful application from Rheims to Lissis Hill.

### Light-Houses.

Expense 10 to 1 - light 60 to 90 to 1. against present lamps  
In rotating light propose 1 ball in place of 4 lamps then expense as 2 to 1. yet ratio of intensity at 15 - 22 to 1

Leggards patent. Tully Lancers

increased expense only on combustion not on house altogether - on about  $\frac{1}{4}$  of whole expense - may perhaps lessen it by restoring the margin - by use of rubber for oxygen - and if lenses in place of reflectors then 1 ball for several lenses.

Refer to analogy between this and flame - and show superiority even in principle - at first use flame as of phosphorus - now concentrate the action all the power of rotating light in combustion is concentrated in the focus

Action of the light on chloride of hydrogen - on chloride of silver - light yellowish to day light from preponderance of yellow - greenish blue compared to red light from green rays in it that are not in red light

Make the great experiment



[The] Committee ... are ... of opinion that all the Public General Lighthouses ... should be placed under one Board, resident in London and conducted under one system of management.

Captain Drummond recommends a Board consisting of Four Persons; one to be a Seaman, and the Hydrographer of the Admiralty; another to be a scientific Chemist; a third a Member of the Royal Society [of London] and an Optician; and the fourth, the President or Vice-President of the Board of Trade.

Select Committee report, 1834



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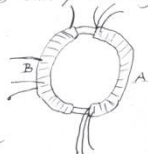
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Aug 29th 1831.

1. Efforts in the production of Electricity from Magnets did  
 2. Have had an wire my made (soft iron), wire round and inches  
 thick of ring 6 inches in external diameter. Wound many  
 coils of copper wire round one half the coils being separated  
 by tissue of fabric - there were 3 lengths of wire each about 24  
 feet long and they could be connected as one length or used  
 as separate lengths. By trial with a trough each was  
 insulated from the other. Will call this side of the Ring  
 A. on the other side but separated by an  
 interval was wound wire in two pieces  
 together amounting to about 60 feet in  
 length the direction being as with the former  
 coils. This side call B.



Changed a battery of 10 ft. plates & switches again. Made  
 the coil on B side one coil and connected its extremities by  
 a copper wire passing to distance and just over a magnetic  
 needle (3 feet from wire ring). Then connected the end of one of the  
 pieces on A side with battery immediately a sensible effect on needle  
 & oscillation of needle at half its original position. On breaking  
 connection of A side with battery again a disturbance  
 of the needle.

Made all the wires on A side one coil and sent cur-  
 rent from battery through the whole. Effect on needle much  
 stronger than before.

The effect of the needle then had a very small part of  
 that which the wire communicating directly with the battery  
 could produce.





Oct 17, 1891.

73 13.

58 The needle did not remain deflected but returned to its place each time. The order of motions was more as in former exps - the motions were in the direction consistent with former exps i.e. the indicating needle tended to turn parallel with the spool magnet being on the same side of the wire & poles of the same name in the same direction.

59 When the P. helix was made one loop helix the effect was not so strong on the galvanometer as before, probably not half so strong - so that it is best in future to wind at the end.

60 When only one of the P. helix was used it was bent inwards. hardly sensible.

61 Make a coil of jute of two feet round a paper cylinder so that being separated at the ends by paper the galvanometer wires could be attached to them. (See sketch of coil)

not in fact but could produce nothing at galvanometer. could hardly induce effect it because as magnet introduced there was the part in advance only & carrying the current back. Now in fact, the part in advance could not do.

62 But jute may be effective with wire in its place make a magnet of wire within by contact of bars or by helix round it.

Oct 18, 1891.

62 Again changed battery of 12 troughs 10 ft each & inches square.

63 Re-experiments with block of coils M. ( ) connected as before with the galvanometer. When battery was connected with one wire the other very feeble effect galvanometer. When connected





J. H. Shepherd del.

G. B. 116 Sc.

THE ADMIRALTY  
WHITEHALL.





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“Scientific adviser to this Corporation in experiments on Light.” at a Salary of £200 p. annum.

Jacob Herbert to Faraday, 5 February 1836, letter 885

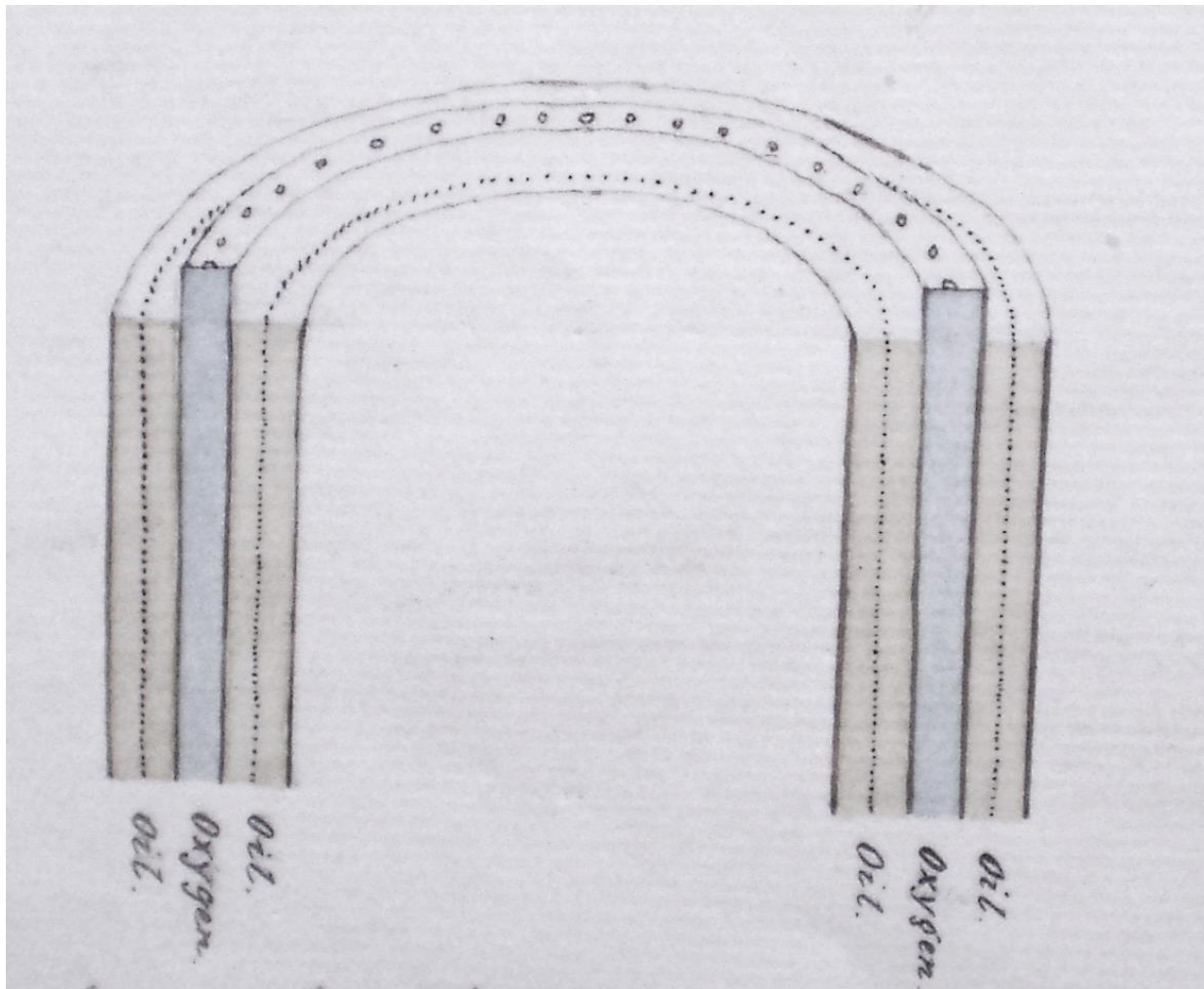


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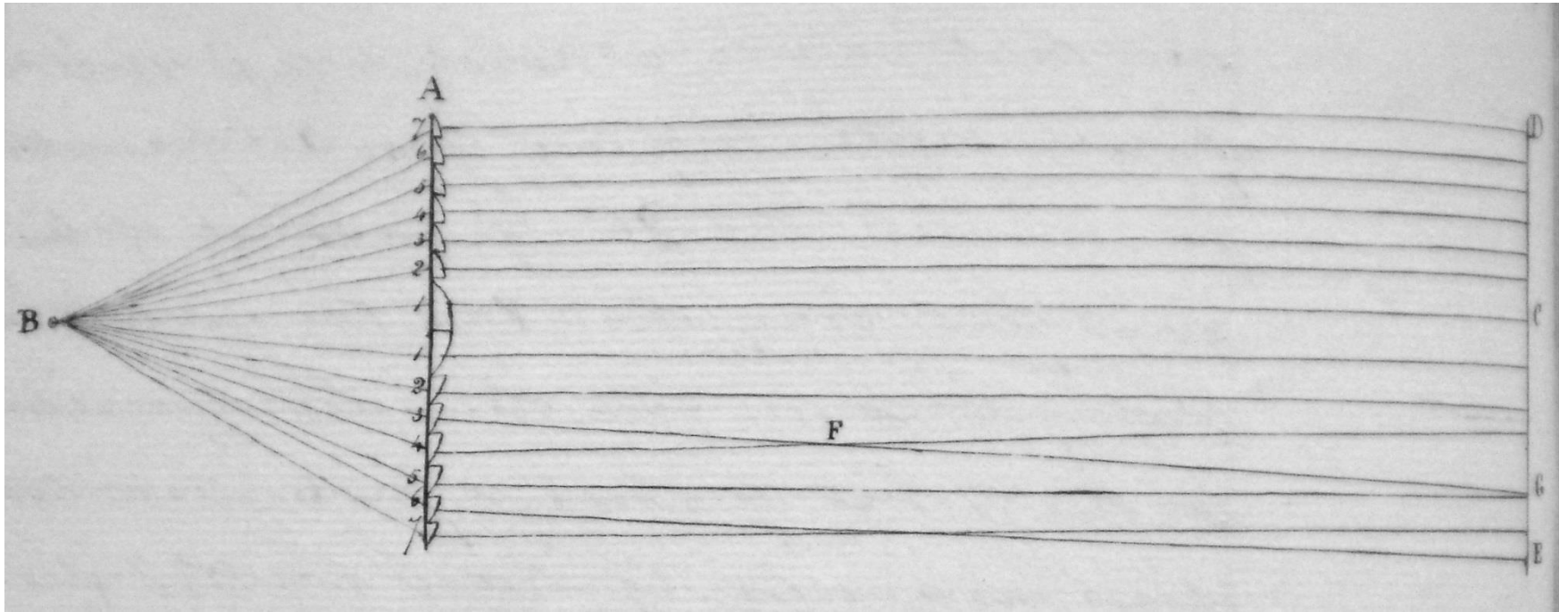


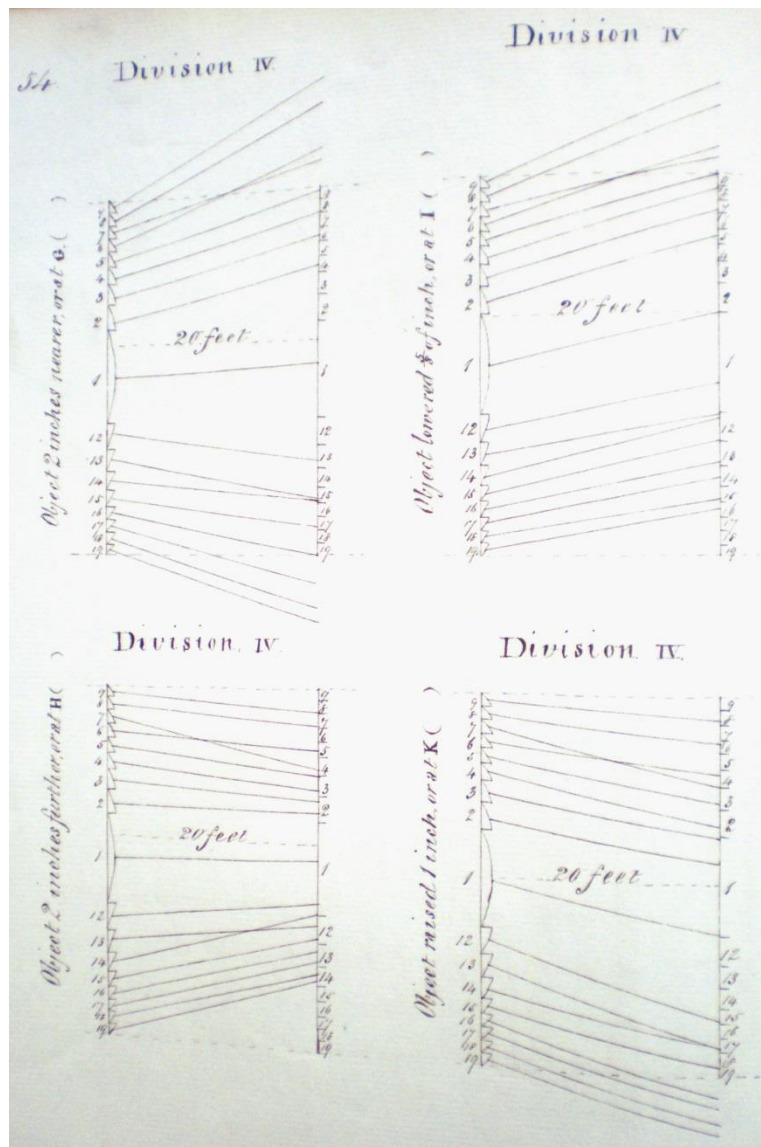
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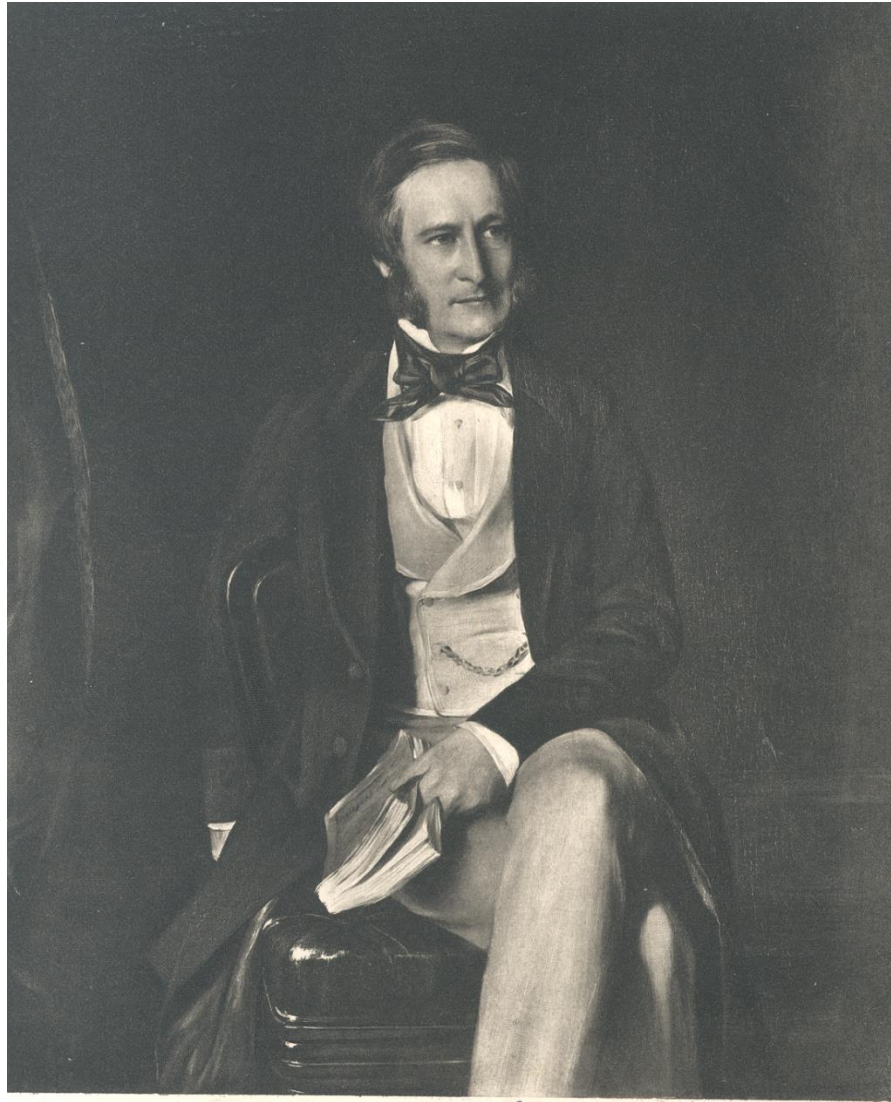










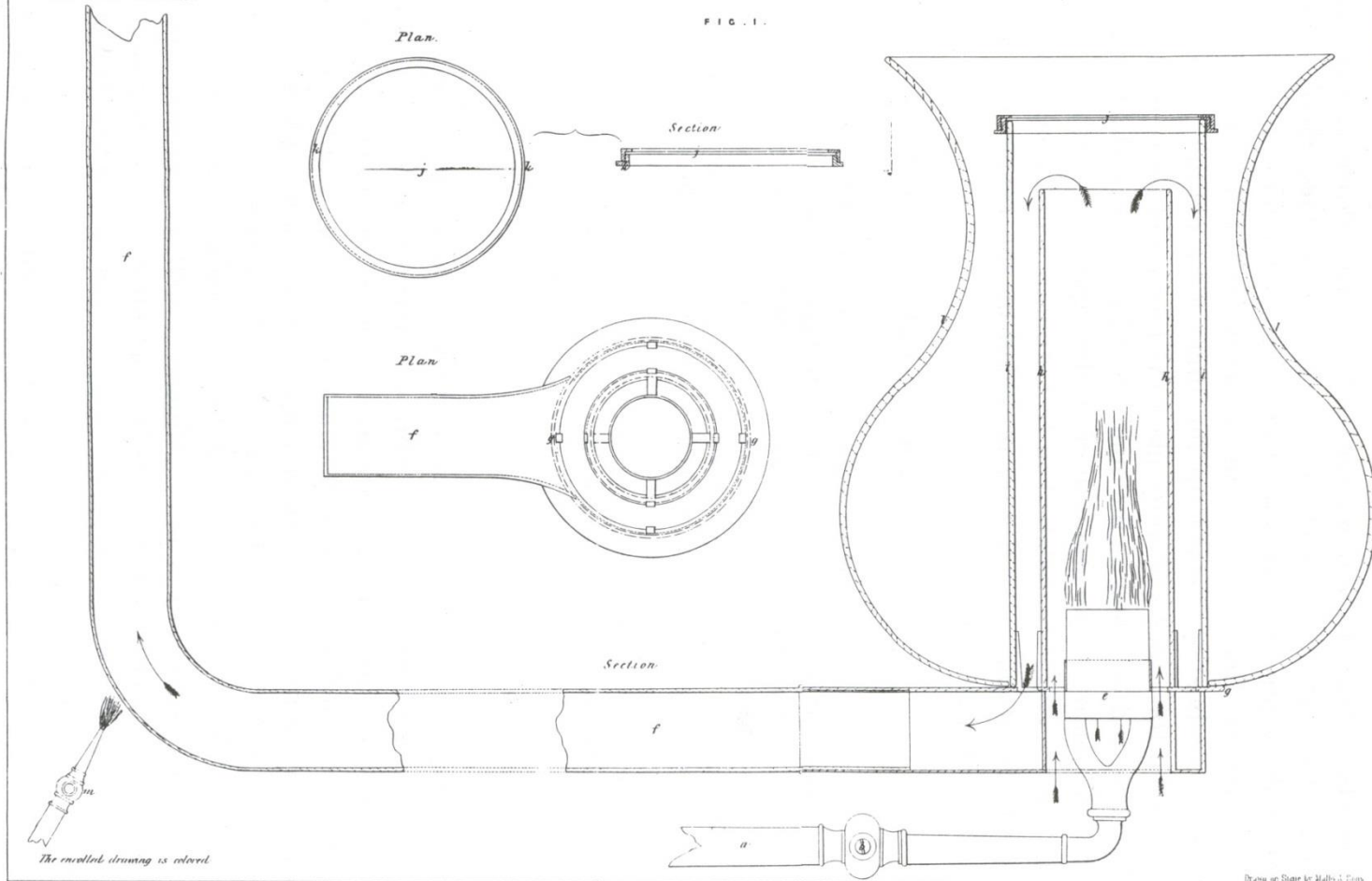


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FIG. 1.



LONDON: Printed in Green, by Edward Fry and William Stott, Stationers,  
Printers to the Queen's most Excellent Majesty. 1842.

Drawn up by John J. Tom.



The weather to day forms a comparison of Feby 1841 but pleasing to say no damp[.] Sir your Plan has driven the enemy out[.] I entertain no not the slightest fears of him ever coming again to cause such labour as you wittnesed on the 4th of Feby 1841[.]

George Neale to Faraday, 19 February 1843, letter 1473



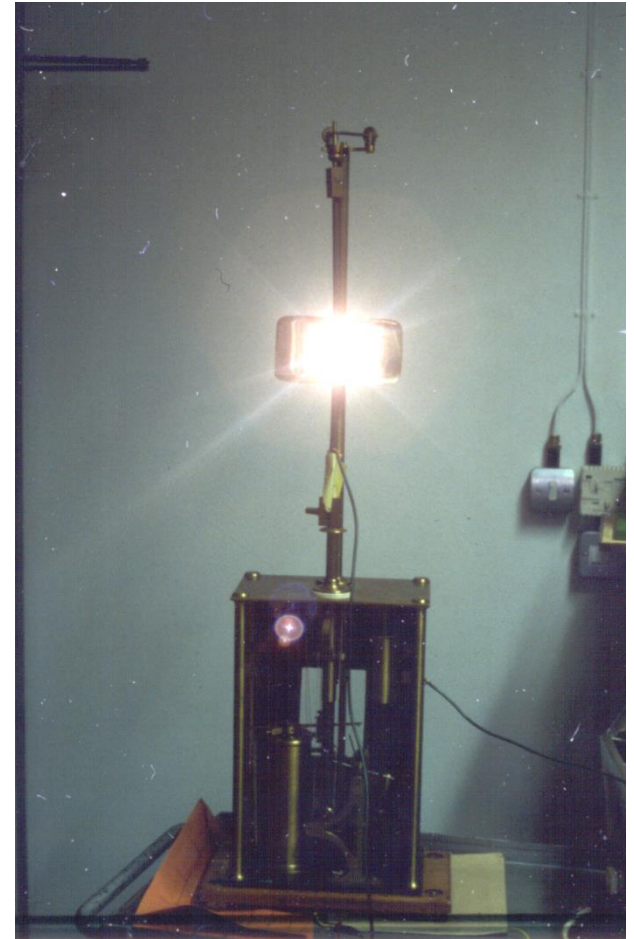
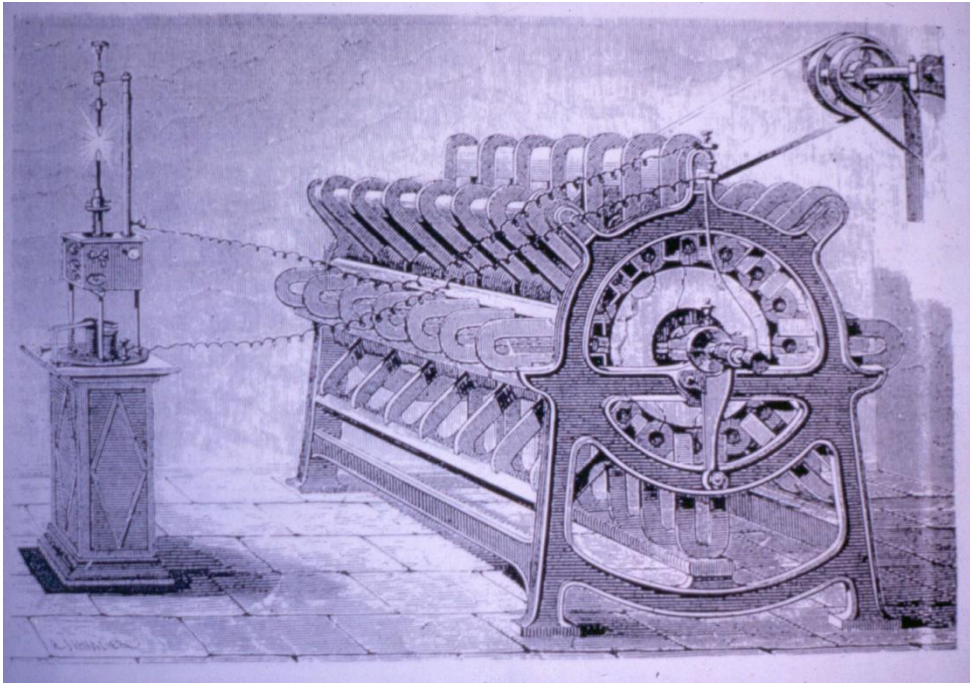
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Much, therefore, as I desire to see the Electric light made available in lighthouses, I cannot recommend its adoption under present circumstances. There is no human arrangement that requires more regularity and certainty of service than a lighthouse. It is trusted by the Mariner as if it were a law of nature; and as the Sun sets so he expects that, with the same certainty, the lights will appear.

Faraday report to Trinity House, 15 August 1854, letter 2878



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I went to Dover last Monday (the 13th instant); was caught in a snow storm between Ashford and Dover and nearly blocked up in the train; could not go to the lighthouse that night; and finding, next day, that the roads on the downs were snowed up, returned to London. On Friday I again went to Dover and proceeded by a fly that night, hoping to find the roads clear of snow; they were still blocked up towards the lighthouse, but by climbing over hedges, walls, and fields, I succeeded in getting there and making the necessary inquiries and observations.

Faraday report to Trinity House, 20 February 1860, letter 3728



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Some delay has occurred in my reply to your letter but I have been seriously ill during the past cold season. Dr Bence Jones my (Medical friend) ascribes some of my loss of power to the severe attack of sea sickness which I had between Dover and Dungeness and forbids me from going to sea again[.]

Faraday to Peter Berthon, 15 February 1864, letter 4431

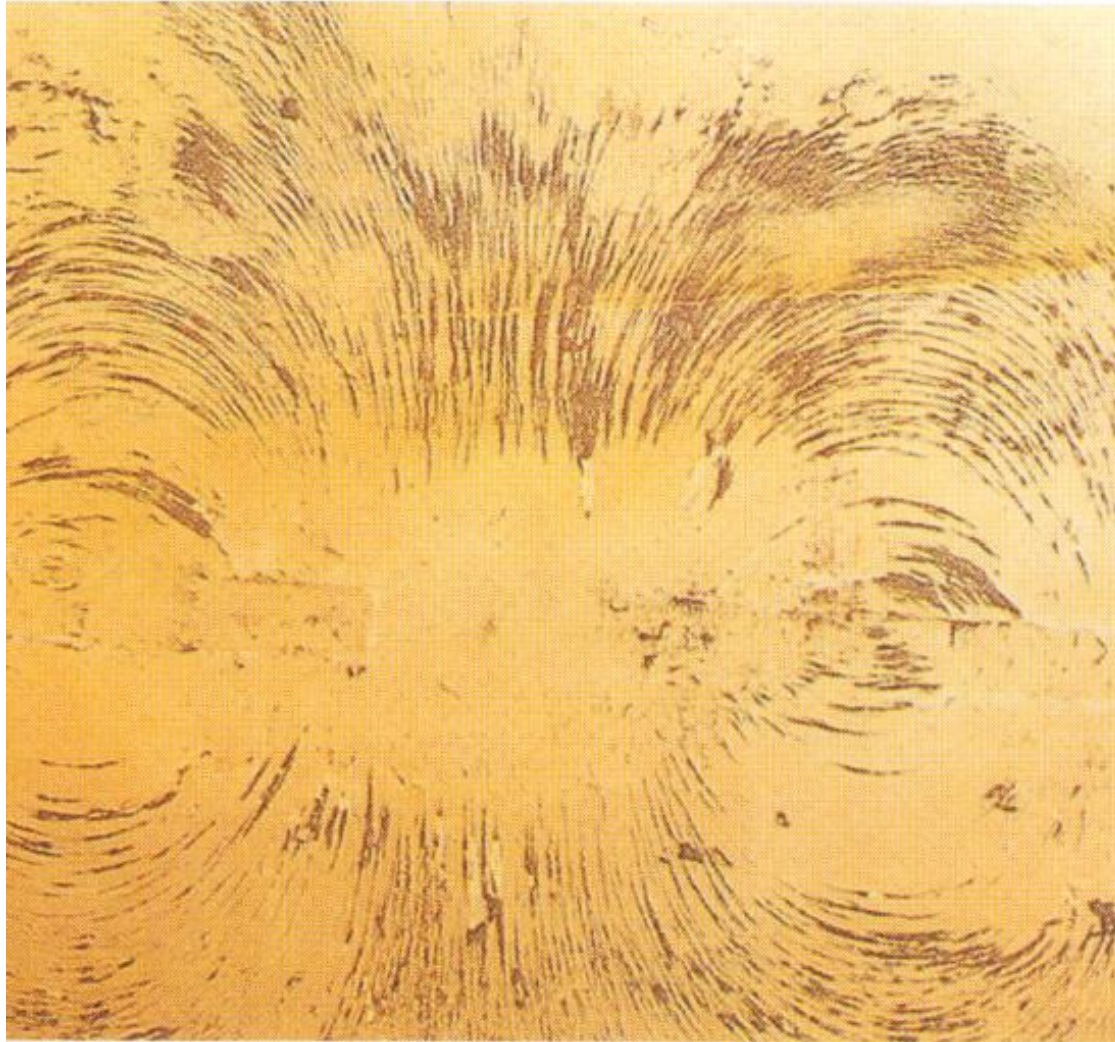


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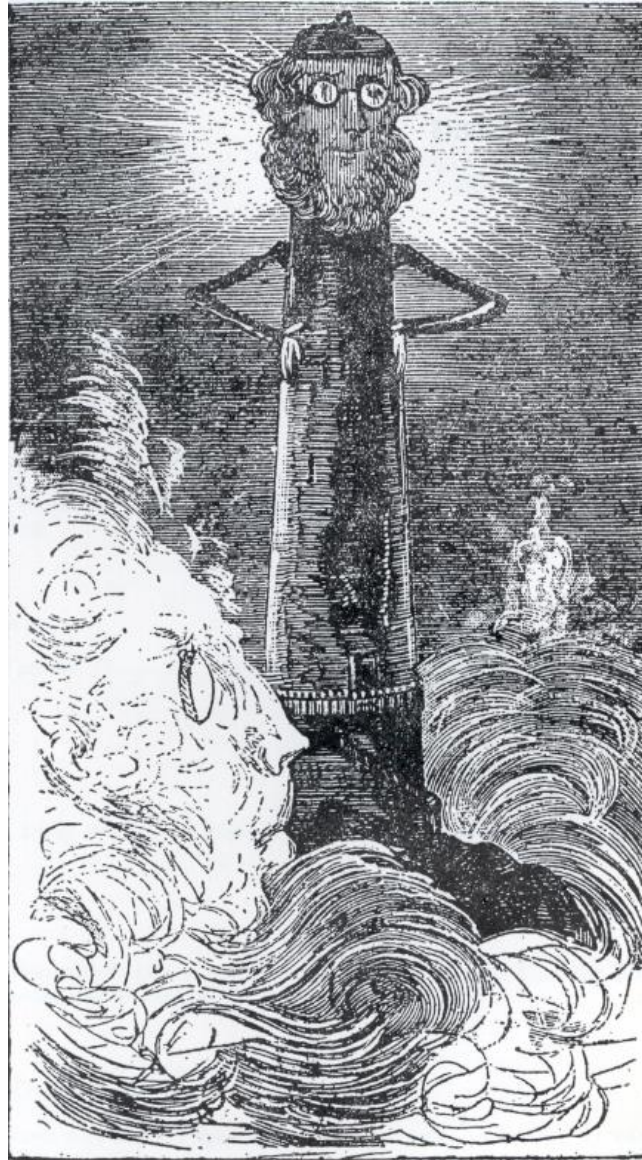


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The use of light to guide the mariner as he approaches land, or passes through intricate channels, has, with the advance of society and its ever increasing interests, caused such a necessity for means more and more perfect, as to tax to the utmost the powers of both the philosopher and the practical man, in the development of the principles concerned, and their efficient application.

Faraday lecture to Royal Institution, 9 March 1860



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