

MS 3147/3/553
STEAM BOAT MEMORANDA
WILLIAM CREIGHTON'S MEMORANDA AND SKETCHES
1815—1822

INTRODUCTION

Memoranda, sketches and calculations for proposed and experimental steam boat designs. These include various types of engine, the layout of "passage boats" and various methods of propulsion. The majority of the items are by William Creighton, the head of the Drawing Office. Many date from around 1815, when Boulton Watt & Co. were working on designs for boat engines in order to properly enter the expanding boat engine market.

The bundle was sub-divided into four smaller envelopes, as follows:

- Nos. 1-15. Envelope A – Engine Plans
- Nos. 16-25. Envelope B – Plans of Boats
- Nos. 26-36. Envelope C – Propulsion, Dimensions
- Nos. 37-39. Envelope D – Distances and Times

'Envelope A – Engine Plans'

The majority of these items are in William Creighton's hand. Sketches showing proposed arrangements, dimensions etc. of boat engines, 1815—1818 and 1822.

1. Sketches. General order 30 to 53 horse engines – hot water pumps. 22 Mar. 1815.
Coded "KRK No. 2." Docketed "Sketch Feed Pumps 30 to 53 HP."
2. Sketches. Section and plan of a boat engine. 3—5 Sep. 1815.
Docketed "Design for boat engine."
3. Sketch. Proposed 20 horse boat engine. 10 Nov. 1815.
4. Pen & wash drawings. Scheme for Boat Engine 20 horse. 16 Nov. 1815.
5. Sketches. Sections and plan – scheme for a boat engine (20 horse). 14 Mar. 1816.
Docketed (in a much later hand) "Overhead grasshopper beam engine in a boat."
6. Sketch. 14 horse boat engine with 23 ½ inch cylinder. Not dated.
7. Sketch. "Superwigwag / Talywag Engine, being scheme CCCXXXVIII." Not dated.
Docketed (in a much later hand) "An inverted grasshopper with rising and falling gear-driven paddle wheel."
8. Sketch. General Scheme 10 horse boat engine. Feb. 1818.
9. Sketch. Sketch of a scheme for Mr. Murdock. Aug. 1822.
Showing a boat engine [?] with a 60 inch cylinder and 2 foot stroke.
10. Sketches. Section and plan of a boat engine with a 38 inch cylinder. Not dated.
11. Sketch. Small rough sketch and notes on a boat engine. Not dated.

12. Sketches. Section of a steam boat and 20 horse power engine. Not dated.
13. Sketch (on press copy paper). Arrangement of a boat engine. Not dated.
14. Sketches. Section and plan of a 20 horse boat engine. Not dated.
15. Sketch. "The Spick & Span new Patent Daffy!!!" Not dated.
Sketch of a diagonal boat engine.

'Envelope B – Plans of Boats'

Drawings of proposed boats, cross-sections of American steam boats, and various other calculations, circa 1815—1818.

16. Sketches. "Scheme for a boat at sea." Oct. 1815.
Sections of a paddle boat pitching at sea.
17. Sketches. "Sketches of Passage Boats." Not dated.
Plan and elevation. Initialed "H. C. [Henry Creighton]"
18. Sketches. "Passage Boats." Not dated.
Plan and elevation. Initialed "H. C. [Henry Creighton]"
19. Sketches. Plan and elevation of boat similar to the "passage boat" above. Not dated.
Initialed "H. C. [Henry Creighton]"
20. Sketches. "Proposed Boat." Not dated.
Rough plans and sections of arrangement of boat engines.
21. Sketches & notes. Rough notes for a boat engine. Not dated.
22. Sketches. Rough sections and details of nine American steam boats. Not dated.
23. Sketches. Sections and details five American steam boats. [Circa Feb. 1817.]
*These sketches have been drawn on the reverse of drawing JCM, engine and boiler house for Messrs. Meinert Lind & Dickie.
The boats are John Molson's first boat Swiftsure, his second boat Malsham, Chancellor, steam frigate Fulton the First, and Powhattan.*
24. Memorandum (press copy). Rough Calculation on Steam boats. Soho, 25 Jun. 1818.
25. Drawings. Cross section of a steam boat; part of sheer draught intended for the Engine; Whole breadth of the timbers for Engine room. Not dated.
[This item is of a much later date than the rest of the contents of the envelope.]

'Envelope C – Propulsion; Dimensions'

26. Sketches. Methods of propulsion. 1815 or 1816.
"Duck's foot" and kicking mechanisms, Archimedes' screw impellor and "chain pump".
27. Sketches. "A rowing scheme." 1815 or 1816.
*These sketches have been drawn on the reverse of drawing BUE (reverse copy), engine house for Robert Willoughby.
Plans for steam-powered oars.*

28. Diagrams. Inclination and depth of paddle wheel blades and graph of resistance. Jan. 1816.
29. Sketches. Patent Scheme. Not dated.
Three sketches of boats propelled by air being blown out into the water at the stern. The first scheme features "farting out wind behind, the bubbles rising up an inclined plane to make the boat go forwards!!!"
30. Sketch. Paddle wheel with moveable sheet iron shell. Not dated.
Docketed (in a much later had) "Paddle wheel driven by open gear and being in hinged frame to be raised or lowered."
31. Sketches. Section and elevation of a paddle wheel. Not dated.
32. Memorandum. Dimensions of 200 and 300 ton ships. Not dated.
33. Calculations. Dip of paddle wheels of boats with one or two engines. Sep. 1817.
34. Memorandum. Dimensions of Coal Boxes proposed & drawn for the two 60 horse engines for the Navy Towing Vessels. Mar. 1822.
In James Watt Jr. 's hand.
35. Memorandum. Dimensions of cross bars, beams and air pump cross bars of 20 and 30 horse engines. Not dated.
36. Memorandum. "Other proposed diagrams." [Circa 1824.]

'Envelope D – Distances and Times'

37. Memorandum. Distances from London to Rotterdam. Not dated.
38. Memorandum. Voyage of a tug from Hull to Gainsborough. From *The Times*. Not dated.
39. Calculation. Voyage of a tug from Leith to Grangemouth towing a 50 ton lighter. Not dated.

MS 3147/3/553

**MR. MURDOCK'S MEMORANDUMS RESPECTING LORD LOWTHER'S
COLLIERIES AT WHITEHAVEN
1802**

INTRODUCTION

Memoranda and sketches describing the coal mines in the Whitehaven belonging to Lord Lowther, and the various pumping and winding engines at work on them, from 1802. The information was gathered by William Murdock and passed to Boulton Watt & Co.

1. Bundle wrapper.
Marked "No. 12 Mr. Murdock's Memorandums respecting Lord Lowther's Collieries at Whitehaven 1802."
2. Memorandum. Agents on Lord Lowther's Coal Works. 22 Jul. 1802.

3. Pencil sketch. Elevation and plan of Ginn's engine. Jul. 1802.
By William Murdock? Also includes a section of the boiler.
4. Sketch. Elevation of the Salton engine, Whitehaven. 24 Jul. 1802.
5. Sketch. Plan of the Salton engine, Whitehaven. 24 Jul. 1802.
Also includes a section of the boiler.
6. Memorandum. An account of the Quantity of Coals... Salton and Ginn's Engines will consume in two hours, by a trial made 26 July 1802.
By R. Bryham.
7. Memorandum. Pits and engines upon Howgill Colliery. 26 Jul. 1802.
8. Memorandum. A List of the different Seams of Coal, and Stratas of Metal in James Pit, situate about 100 yards east of St. James Chapel, the property of Lord Viscount Lowther. Whitehaven, 26 Jul. 1802.
By John Peile. Given to William Murdock. Docketed as 24 Jul.
9. Memorandum. Depth of Pits from the surface at Whingill Colliery, situated at the East Side of Whitehaven, the property of Lord Viscount Lowther. 27 Jul. 1802.
*By John Peile. Given to William Murdock.
With details of engines at the colliery on the same sheet.*
10. Memorandum. Memorandums respecting Lord Lowther's Engines. 26 Sep. 1802. 2 sheets.
*Docketed "Communicated by Mr. Murdock." In James Watt Jr.'s hand.
Details of pumping engines, Ginn's engine, winding engines.*
11. Drawing. A section of the Coal mine between Duke's Pit and Lady Pit. Not dated.
In five separate sections.

MS 3147/3/554
STEAM BOAT MEMORANDA
STEAM BOAT CALEDONIA
1818—1819

INTRODUCTION

Memoranda, sketches and diagrams relating to the steam boat *Caledonia*, from 1818 and 1819. The *Caledonia* was built by James and Charles Wood and James Barclay of Glasgow in 1815. James Watt Jr. and M. R. Boulton bought the boat from her original owners, The *Caledonia* Steam Boat Co., in May 1817, and replaced her existing engines with the 14 horse Boulton Watt & Co. side lever engines. The boat was used for trials and demonstrations of the Boulton Watt & Co. engines, including a voyage across the Channel and up the Rhine with James Watt Jr. aboard. She was sold in 1819 and went to Copenhagen.

For drawings of the *Caledonia* see Portfolio 5/1243.

1. Memorandum. Details of the power of *Swiftsure*, *Malsham*, *Ontario*, and experiment on the *Caledonia*. 1818.
In William Creighton's hand.

2. Memorandum. Trials of the *Caledonia*. 3—4 and 10—11 Jul. 1818. 5 sheets.
In James Watt Jr. 's hand.
3. Diagrams. *Caledonia* from experiments of 1818.
In William Creighton 's hand.
Diagram of angles etc. of paddle wheels.
4. Sketch. Section of *Caledonia* showing dimensions of paddle wheels. Not dated [circa 1818/1819?].
5. Memorandum. *Caledonia* – wheels 10/6. Circa Apr. 1819.
In William Creighton 's hand.
Notes and calculations re experiments on the Caledonia 's paddle wheels.
6. Memorandum. *Caledonia* – 16 paddles in wheels. Circa Apr. 1819.
In William Creighton 's hand.
Notes and calculations re experiments on the Caledonia 's paddle wheels.
7. Graph. Comparison of performance of *Caledonia* with other steam boats. Not dated.
Marked "From best experiments of Caledonia."

MS 3147/3/555
STEAM BOAT MEMORANDA
MISCELLANEOUS MEMORANDA, PAPERS ETC.
1737; 1816—1830

INTRODUCTION

Memoranda, sketches, transcripts, calculations etc. concerning various steam boats, from 1816 to 1830. The bundle contains information on a wide variety of boats, both those fitted with Boulton Watt & Co. engines and those with other manufacturers' engines, including a transcript of a pamphlet published in 1737. Many of the items are in William Creighton's hand, and the dates of these items roughly spans his tenure as head of the Drawing Office.

1. Transcript of a pamphlet by Jonathan Hulls on steam boats, 1737.
Transcribed in the 1810s/1820s? Docketed (in a late 19th c. hand) "Jonathan Hulls, steam tug."
2. Memorandum. Dimensions of the Humber Steam Packet now plying between Hull and Selby. 3 May 1816.
Docketed "Particulars communicated by Mr. Brown."
3. Sketch & notes. Section of an American steam boat – Ogden Esq. Dec. 1816.
In William Creighton 's hand.
4. Sketches & notes. Sections of a steam frigate and the *Chancellor*. 2 Feb. 1817.
Marked "From Mr. Molson."
5. Memorandum. Dimensions of *Prince Regent* steam packet. John Walker, May 1817.
6. Memorandum. Account of the American boat *Chancellor Livingstone*. Not dated [circa Nov. 1817].

7. Memorandum. Notes on a boat engine for Mr. Schröder. Not dated [circa Nov. 1817].
8. Sections & plan. Sketch of a model made by Capt. (now Admiral) Schank, & from which the Forth & Clyde Canal Co. have built a barge for their Committee. 22 Mar. 1817.
9. Memorandum. List of Steam Boats trading to New Orleans. 1818.
In James Watt Jr. 's hand. Taken from Brock's Sketch of Improvements in Philadelphia.
10. Memorandum. Account of some steam vessels in America. London, 20 Mar. 1818.
In James Watt Jr. 's hand.
11. Memorandum. Dimensions of Several Steam Boats in America according to Mr. Molsham [Molson]. 25 Apr. 1818. 2 sheets.
By George Rennie.
Docketed "Particulars of steam boats obtained from Mr. Molson."
12. Sketches. *London Engineer* steam boat. Aug. 1818.
In William Creighton's hand. Marked "From Mr. Murdock & Mr. Brown." Section of the boat showing internally mounted paddle wheels, and plan and section of the engines made by Henry Maudslay.
13. Sketch. Section of the *Favourite* steam boat. 1818.
In William Creighton's hand.
14. Memorandum. *Favourite* steam boat in 1818.
In William Creighton's hand. Marked "From Johnson". Dimensions, coal consumption, details of paddles etc.
15. Memorandum. Lengths of the *Favourite*, *Victory*, *Eclipse* and *Engineer* steam boats. 5 Sep. 1818.
- 16a. Memorandum (in Italian). Particulars of the Velocity of the current, depth of water and modes of navigating the River Po. Communicated by Count Confalonieri. 7 Oct. 1818. 2 sheets.
Kept with (b) below.
- b. Memorandum. Translation of the Particulars of the Navigation of the Po, communicated by Count Confalonieri at Soho. With memorandum made with him there. 7 & 8 Oct. 1818. 2 sheets.
In James Watt Jr. 's hand.
17. Memorandum. Draft of agreement for building a steam boat with Daniel Brent of Rotherhithe. 1819. 2 sheets.
18. Memorandum. *Eclipse* towing *Hastings* 74 gun ship. James Brown, 5 Jun. 1819.
In William Creighton's hand.
19. Calculation & small newspaper cutting. *Robert Burns* boat – a voyage to Greenock. Circa Aug. 1819.
In William Creighton's hand.
20. Memoranda. Estimate of the expense of a Steam Schooner of 387 tons; Dimensions of a Steam Vessel, No. 2. Aug. 1819.

21. Memorandum. Towing Boat for the Navy. Soho, 11 Dec. 1819.
In William Creighton's hand.
Docketed "Some particulars of the proposed design, boat and engines."
22. Sketch. Outer end block, paddle wheels, 40 horse boat engines. Not dated [circa 1820?].
In William Creighton's hand. For engines XS & XT.
23. Sketches & notes. Dimensions etc. of the *Eclipse* and *Engineer*. Not dated [circa 1820?]
In William Creighton's hand.
24. Memorandum (press copy). *Eclipse*. Not dated [circa 1820?]
In William Creighton's hand. Details of performance, paddle wheels etc.
25. Memorandum (press copy). *Eclipse* steam boat, Thames, experiment. 4 Feb. 1820.
In William Creighton's hand. Marked "Given to Mr. Ewart by W. C. Feb. ? 1820."
Mounted on a sheet on the reverse of which are some plans of an engine room.
26. Sketches & notes. Sections and performances of the *Caledonia* and *Sons of Commerce*. 6 Sep. 1820.
27. Sketches. Sections of *Ivanhoe* and *Talbot* steam boats. 11 & 13 Sep. 1820.
In William Creighton's hand. Marked "Mr. Brown's letter, 14 Sep."
- 28a. Memorandum. Boat Engines No. 1. Soho, 21 Sep. 1820.
Kept with (b) and (c) below.
 - b. Memorandum. Proposed sizes of steam pipes for boat engines. Not dated.
In James Watt Jr.'s hand. Covers engines pairs of engines from 20 to 100 horse power.
 - c. Memorandum. Project for Sizes of Boat Engines. Not dated.
29. Diagrams, sketches & notes. Post Office *Lightning* steam boat from experiment. 10 Apr. 1821. 4 sheets.
In William Creighton's hand. Diagrams and graphs re the positioning and resistance of the paddle wheels etc.
30. Sketch. Section of the *Swiftsure* steam boat. May 1821.
In William Creighton's hand.
31. Sketches. Sections of the *Meteor* and *Eagle* steam boats. 8 & 12 May 1821.
In William Creighton's hand.
32. Sketch. Section of the *Venus* steam boat. 29 May 1821.
In William Creighton's hand.
33. Sketches. *Dasher* steam packet, Dover No. 1. Experiment. 14 Oct. 1821.
In William Creighton's hand.
34. Memorandum. Memorandums & Suggestions for the construction of the 3rd Holyhead Steamer. Apr. 1822. 2 sheets attached together.
In William Creighton's hand. Docketed by James Watt Jr.

35. Memorandum. Catalogue of Steam Vessels. 29 Apr. 1822.
Table giving port, name, power, place of work, builders and engine makers of various steam vessels.
Docketed "From Mr. Maudslay in the Report on Holyhead roads."
36. Sketches. Rough plan & section of an iron boat. 11 May 1822.
In William Creighton's hand.
37. Transcript. Grant of exclusive privilege to William Wager for operating steam boats between Rotterdam and Antwerp. The Hague, 21 Sep. 1822.
Docketed "Copy of exclusive privilege. Dated — Renewed 21 Sep. 1822."
38. Memorandum. Dimensions of Steam Vessels – James Brown at Soho. 24 Sep. 1822.
39. Memorandum. Weights of pumps for boiler in the *Lightning* and also in the *Comet*. 3 Oct. 1822.
In James Watt Jr.'s hand.
40. Sketch. Section of the *Soho* steam vessel. Sep. 1823.
In William Creighton's hand.
41. Memorandum. Steam Boat Chimneys & Flues. 30 Sep. 1823.
In William Creighton's hand.
42. Memorandum. Experiments with the *City of Edinburgh*, and *Crocodile*. 14 Jan. & 10 Apr. 1825.
43. Memorandum. Experiments made with the *Crocodile*. James Brown, 8—11 Apr. 1825. 2 sheets sewn together.
44. Memorandum. Rules and Regulations to be observed by the Engineers and Firemen belonging to the Dublin Steam Packet Company. Not dated [circa 1825?]
Date taken from the watermark.
45. Sketch. Section of the *Etna*, Liverpool, built by Fawcett. 1826.
In William Creighton's hand.
46. Graph. 70 horse engine parallel Motion. 3 Apr. 1826.
Marked at the bottom "Model for Thetis 4 Dec. 1826."
47. Sketch. Boiler shrouding iron. 21 Jun. 1826.
48. Memoranda. Tables with details of paddle wheels of various vessels. [Late 1820s?] 3 sheets.
49. Memorandum. General Dimensions of Steamers. James Brown, 5 May 1830.
Docketed "Catalogue of steam vessels having engines made at Soho – the power, tonnage, dimensions."
50. Memorandum. "Steam Boat Vocabulary." Not dated.
In William Creighton's hand. Soho slang names/pronunciations of the names of various steam boats.
51. Memorandum. Ships of 1600, 1700, 1800, 1900 tons being 74 guns. Not dated.
Tables of dimensions of 74 gun ships.

52. Memorandum. Comparison of draughts of the *London* and *Sons of Commerce* steam packets. Not dated.
53. Sketch. Savery's boat – *Lexicon Technicum*. Not dated.
54. Table. Experiments on vessels and oars. Not dated.
55. Memorandum. List of dimensions and weights of various boats. Not dated. [Box 8/5]

MS 3147/3/556
STEAM BOAT MEMORANDA
MISCELLANEOUS MEMORANDA, PAPERS ETC.
1832—1847

INTRODUCTION

Memoranda, sketches, transcripts, calculations etc. concerning various steam boats, from 1832 to 1847. Most of the items relate to boats fitted with Boulton Watt & Co. engines.

1. Table. Dimensions of Navy Steamers 492 tons *Firebrand* and *Flamer*. Not dated [circa 1832?]
2. Table. Timbers used in the *Monarch*. 21 Feb. 1833.
3. Table. Details of slide valves for boat engines. Not dated [circa 1834?] 2 sheets.
Date taken from the watermark.
4. Notes and calculations re. marine boilers. Not dated [circa Feb. 1835].
In 2 different hands – a second hand has added pencil comments. The first page mentions a letter of 4 Feb. 1835. Mentions Beaver and Maria Anna.
5. Table. *Dundee* body. 27 Apr. 1836.
Table of timbers used in the vessel.
6. Memorandum. Trial of *Crusader*. James Brown, 15 Aug. 1836.
7. Memorandum. Post Office *Flamer*. 1 Dec. 1836.
In Gilbert Hamilton's hand. Note of James Brown's proposed alterations. Also his comments on grease cups 6 Dec. 1836.
- 8a. Memorandum. Steam expansion – *Atalanta* and *Berenice*. 18 Nov. 1837.
Extracts from the engineering logs. Kept with (b) and (c) below.
- b. Calculations. In reference to the *Berenice*. 14 Dec. 1837.
Calculations re power, steam expansion etc.
- c. Draft letter. ? to the Editor of ?. Not dated [circa Dec. 1837].
Re the passage of the Atalanta and Berenice to India and their performance.

9. Memorandum. *Vulcan* – Calculation of displacement. 10 Jan. 1838.
10. Table. Danube Body No. 15. 12 Apr. 1838.
Table of timbers used in the vessel.
11. Calculations. Parallel Motion 14 horse boat engine. 27 Apr. 1838.
12. Memorandum. Operation of the 110 horse crank with 15 foot connecting rod as per *Hydra*. 5 Nov. 1838.
13. Letter. James Brown (London) to Henry Wollaston Blake (Soho). 17 Sep. 1841.
On the same sheet:
Memorandum. Ratio of performance of six flat-bottomed, square bilged steam vessels.
14. Memorandum. Size of Air Pumps etc. – Boat Engines. Circa Apr. 1842.
Written on a sheet torn from a letter with a postmark dated 15 Apr. 1842.
15. Table. Austrian Lloyd steamers body. 30 Nov. 1842.
Table of timbers used in the steamers for the Austrian Lloyd Co. Marked “Ex^d. 9 Nov. 1864.”
16. Note on the size of various boat engines’ slide valves. [Circa 1843?]
On the reverse are calculations re. the 60 horse belted cylinders of the Herne Bay.
17. Table. Proportion of cylinders and air pumps – boat engines. Not dated [circa 1844].
Date taken from a postmark on the scrap on which the table is written.
18. Calculations. *Centaur*’s air pump beam. Not dated [circa 1845?].
19. Transcript of letter. Boulton Watt & Co. (London) to J. H. I. Corry (Admiralty). 22 Dec. 1845.
Docketed “On subject of using high steam.”
20. Table. Necks of shafts – marine engines. Not dated [circa 1847.]
Date taken from the watermark.
Docketed “Boat Engine Memoranda & Calculations” – originally used as a wrapper?

MS 3147/3/557
STEAM BOAT MEMORANDA
STEAM BOAT NEWSPAPER EXTRACTS ETC.
1821—1842

INTRODUCTION

Transcripts from newspapers, notes and memoranda about various steam boats, from 1821 to 1842. Several of the notes concern boats that were not fitted with Boulton Watt & Co. engines. Most of the transcripts were made by William Creighton, the head of the Drawing Office, and his successor Gilbert Hamilton.

1. Bundle wrapper.
Marked “Steam Boat newspaper Extracts etc.”

2. Memorandum. Arrival of the *Majestic* at Greenock from Liverpool. From a Scottish newspaper. [18 May 1821.]
3. Memorandum. Steam ship *Majestic*. From the *Glasgow Chronicle*, 10 Jul. 1821.
In William Creighton's hand. Details of the ship and its voyage from Greenock to Liverpool.
4. Transcript. Voyage of the *Eclipse* from Belfast to Glasgow. From the *Glasgow Chronicle*, 23 Oct. 1821.
In William Creighton's hand.
5. Memorandum. Dover *Sovereign* – particulars from Capt. Wager. 1822.
6. Memorandum. Extracts from evidence about steam vessels. Mar. 1822.
Marked "Parl. Report." Docketed "Sovereign, Meteor, Ivanhoe, Talbot, Hero, Victory."
7. Memorandum. Extracts from evidence about steam vessels. 22 Apr. 1822.
8. Memorandum. List of Steam Boats plying on the River Clyde in 1822.
Taken from the Edinburgh Philosophical Journal, 1 Jul. 1822.
Docketed "Catalogue of steam vessels in the River Clyde. Passage of St. George from Greenock to Liverpool and back again. Dimensions of St. George and St. Patrick."
9. Memorandum. New steam boat at Potsdam. From the *Glasgow Chronicle*, 10 Feb. 1824.
10. Memorandum. *Neptune* on the Clyde. Not dated.
In William Creighton's hand. Costs and dimensions.
11. Memorandum. Steam vessels – America. Apr. 1830.
In William Creighton's hand. Notes taken from London newspapers, 8 and 25 Apr. 1830.
Docketed "Explosion at Louisville. Explosion in Tennessee."
12. Memorandum. "Dreadful Steam Boat Accidents from the American Papers." From the *Liverpool Mercury*, 8 Jul. 1831.
In James Watt Jr.'s hand.
13. Transcript (press copy). "Iron Steam Boats." From the *Glasgow Herald*, 30 Oct. 1835. 2 sheets.
14. Memorandum. French steam ship the *Courier* on the Dover Station. 25 Aug. 1836.
Information from James Brown.
15. Memorandum. Particulars of steam boats *Sirius* and *Great Western*. From the *Albion* newspaper, 28 May 1838.
16. Memorandum. The *British Queen*. 17 Jul. 1839.
Information from James Brown.
17. Note. Dimensions of the beams of *Teadorio* and *ElRapido*. [Circa Nov. 1841.]
Written on the reverse of a note from Hollins Hunt dated 23 Nov. 1841.
18. Transcript. "New Men of War." From the *Hereford Journal*, 7 Sep. 1842.
19. Note. Dimensions of the *Trident*. Not dated

- 20. Note. Dimensions of the *London* and *Wilberforce*. Not dated.
- 21. Note. Dimensions of the *Styx*. Not dated.
- 22. Note. Experiments on a steam boat. Not dated.

MS 3147/3/558
STEAMBOAT MEMORANDA
STEAM BOAT BOILERS.
1827—1836

INTRODUCTION

Memoranda and correspondence about the construction, weight and cost of boilers for various steam boats, from 1827 to 1836. The last three items also concern the accounts of Samuel Richards, the head boiler maker at Soho Foundry.

- 1a. Memorandum. For calculating the size etc. of the new boiler of the *James Watt*, two 60 horse engines. 27 Feb. 1827.
In James Watt Jr. 's hand. Kept with (b)—(d) below.
- b. Letter. James Brown [London] to James Watt Jr. [London]. 27 Feb. 1827.
- c. Memorandum. Weight of the *Hero*'s boiler, say for 2 50 horse engines. 10 May 1827.
- d. Memorandum. Weight of the pieces of boiler No. 357 for the *James Watt*. 10 Mar. 1828.
- 2. Memorandum. Comparative view of boilers for two 40 horse engines. 2 Mar. 1827.
- 3. Table. List of boilers. 27 Nov. 1820—6 Sep. 1827.
Boilers for ships – records boiler no., name of vessel, weight and date sent away.
- 4. Letter. Isaac Horton (West Bromwich) to Boulton & Watt [Soho]. 12 May 1827.
On the same sheet:
 Account. Charge for the *Venus* boiler. 30 Sep. 1827.
The account and the docket are in William Creighton's hand. Docketed "Terms for boilers £5 plain, £8.10 boat. N.B. An order given Isaac Horton for a boat boiler for the Venus to be made on his own premises 17 May 1827. Charge for Venus boiler, Soho Day Book, 30 Sep. 1828."
- 5. Letter. John Dawn (Soho Foundry) to James Watt Jr. [Soho]. 6 Nov. 1827.
On the same sheet:
 Tables. Weights of various boat boilers.
- 6. Memorandum. Price charged to us for boilers by Horton & Laird 1826 and 1827 and by Isaac Horton 1827 and 1828.
- 7. Memorandum. Estimate of making boat boilers with iron of £9 per ton. 20 Oct. 1829.

8. Memorandum. Boulton Watt & Co.'s charges for boat boilers. Jun. 1828, Oct. 1829, Jan. & Mar. 1830.
In James Watt Jr.'s hand.
9. Memorandum. Estimate of boat boiler No. 495 for 2 40 horse engines sent for the *Aladdin*. Soho Foundry, 21 Oct. 1829.
Marked "Revised 22 Mar. 1830."
10. Transcript of letter. John Dawn (Soho Foundry) to James Watt Jr. (London). 3 Jul. 1828.
Docketed "Price charged from Foundry for common boilers in sundry years, and cost of the plates used. Revised 24 Oct. 1829 and 22 Mar. 1830."
11. Letter. Jonathan Dawn (Soho) to James Watt Jr. (Soho). 29 Nov. 1827.
On the same sheet:
Tables. Weights of the pieces of various boat boilers.
Details of various other boat boilers up to Mar. 1830 have been added to the sheet.
12. Letter. John Dawn (Soho Foundry) to James Watt Jr. [Soho]. 28 Sep. 1830.
On the same sheet:
List. Boilers in stock at Soho Foundry.
13. Memorandum. Boiler plates. Frederick Bennett (Soho Foundry). 20 Apr. 1831.
Docketed "Thickness of plates used in land and boat boilers and in coal boxes."
14. Memorandum. Stock of boilers at Soho Foundry. 5 Aug. 1831.
15. Memorandum. Weight of 45 horse boilers for Plymouth Victualling Engines. Oct. 1831.
16. Accounts. Samuel Richards' accounts, Lady Day 1820—Christmas Quarter 1830; Christmas Quarter 1830—6 Jul. 1832. Soho Foundry, 20 Jul. 1832.
17. Letter. John Thomas Jr. (Soho Foundry) to James Watt Jr. (Soho). 29 Jul. 1832.
On the same sheet:
Account. Samuel Richards' account, Christmas 1830—Midsummer 1833.
18. Letter. Henry Wright (Soho Foundry) to James Watt Jr. (Soho). 20 Aug. 1836.
Docketed "Abstract of Richards' boiler making account from Christmas 1830 to Jul. 1836. Average cost of making boat boilers: 1820 to 1824 £8.8.2 per ton; 1824 to 1830 £8.13.2 per ton; 1830 to 1836 £9.12.4 per ton. Means of accounting for the increased cost."

MS 3147/3/559
STEAMBOAT MEMORANDA
MISCELLANEOUS MEMORANDA, PAPERS ETC.
1849—1863

INTRODUCTION

Memoranda, transcripts, calculations etc. concerning various steam boats, from 1849 to 1863, when the firm was called James Watt & Co. The items relate both to boats fitted with James Watt & Co.'s engines and boats fitted with other manufacturer's engines. The bundle contains three items relating to the engines for Isambard Kingdom Brunel's boat *Great Eastern*.

1. Memorandum (draft). "Why are H. M. Steam ships inferior to those of the merchant service." Not dated [1840s?]. 2 sheets.
- 2a. Memorandum. The Cost of an Iron Vessel 160 feet long. John Laird, Birkenhead, 16 Jun. 1849.
Kept with (b) below.
- b. Memorandum. The Cost of an Iron Vessel 220 feet long. John Laird, Birkenhead, 16 Jun. 1849.
Docketed "Scantlings of iron steam vessel for the Honourable East India Company."
3. Memorandum. Specification and Scantlings for Iron Steam Vessels for the Honourable East India Co. Money & W. L. Wigram, Blackwall Yard, 16 Jun. 1849.
4. Graph. Height of high and low water at Sunderland. 30 Nov.—13 Dec. 1849.
5. Memorandum. Weight of feathering paddle wheel for *Thames*. Jun. 1850.
6. Memorandum. *Marlborough* screw steamship, 131 guns. [Circa 1850].
Date taken from the watermark.
Docketed "Dimensions of the Marlborough and other ships of war."
- 7a. Memorandum. Extract from the Engineer's Log, steam ship *Great Britain*. 1—14 May 1852.
Kept with (b) below. The original was signed on 15 May by F. P. Smith.
- b. Memorandum. Extract from the Engineer's Log, steam ship *Great Britain*. 5—16 Jun. 1852.
The original was signed on 16 Jun. by F. P. Smith.
8. Memorandum. Difference between H. M. S. ships *James Watt* and *St. Jean de Acre*. [Circa 1853].
Date taken from the watermark.
9. Table. Dimensions of foot and delivery valves, marine engines. [Circa 1854].
Date taken from the watermark.
10. Table. Velocities of Steam Ships supposing the engines are exerting 3 times their nominal horse power. 28 Jul. 1855. 2 sheets.
11. Table. Velocities of Steam Ships supposing the engines are exerting 3½ times their nominal horse power. [Circa Jul. 1855?]
12. Memorandum. Details of the boilers of the *Stephanie*, *Rajah*, *Loa*, *Cornelia* and *Furribees* [?]. [Circa 1855.]
Date taken from the watermark.
13. Memorandum. Introduction of Steam Vessels 1787—1812. [Written circa 1856.]
Date from the watermark. Notes on W. Miller, W. Symington and Robert Fulton's boats.
14. Tables. Irish postal vessels – expansion etc. of steam in the boilers. [Circa 1856.]
Date taken from the watermark.

15. Printed sheets. Results of Trials of “Wethered’s Patent Combined Steam,” as compared with Ordinary Steam, on board the Steam Ship *Avon*. 10 Dec. 1857—6 Feb. 1858. 3 sheets. Docketed “*Superheated steam results.*”
16. Memorandum. *Great Eastern* – speed, coal and ratio. [1858?]
17. Memorandum. *Great Eastern* – power at different pressures. [1858?]
18. Table. Displacement of Ships – Constant to find the same. 4 Jun. 1860.
19. Memorandum. Holyhead Steamers – Surface of the Boilers of the *Ulster* and *Munster*, and the *Leinster* and *Connaught*. 28 Jun. 1860.
20. Memorandum. *Ulster* trial by Admiral Moorsom. 5 Apr. 1861.
- 21a. Memorandum. Queen’s Yacht and Dublin steamer. Aug. 1861.
Kept with (b) below.
Memorandum of trial of Queen’s yacht at Stokes Bay, 3 Jul. 1855, and crossing to Holyhead Aug. 1861, compared to the Postal Vessel Ulster.
- b. Calculations. Comparison of the Queen’s Yacht and the *Ulster*.
22. Memorandum. Performance of *Leander*’s engines. Nov. 1861.
23. Calculations. *Deerhound*. 15 Jul. 1863.
24. Memorandum. List of Vessels which now form the Peninsular & Oriental Steam Navigation Company’s magnificent steam fleet. Not dated.
25. Memorandum. Boilers for Indus troop steamer. Not dated.
Docketed “Calculation of capacity for water to be evaporated per minute.”
26. Memorandum. Great Circle Arcs or Minimum Distances. Not dated.
By R. Abbatt.
- 27a. Calculations. Sizes of various back plate openings – boat engines. Not dated. 2 sheets.
Kept with (b) below.
Includes calculation for the Great Eastern.
- b. Calculations. Back plate openings. Not dated.
Includes calculation for the Great Eastern.
- c. Wrapper for the above two items.
Docketed “Sizes of various back plate openings – boat engines.”

MS 3147/3/560
STEAMBOAT MEMORANDA
DRAWINGS OF BOATS, ENGINES, PADDLE WHEELS ETC.
1814—1850s

INTRODUCTION

Drawings, reverse drawings, printed plates, tracings etc. of various steam boats, engines, machinery and paddle wheels, from 1814 to the 1850s. Several of the items concern engines other than those made at Soho, including Joseph Maudslay and John Penn.

1. Drawings. Method of preserving parallelism in the paddles of water wheels attached to a steam boat. Robertson Buchanan, Glasgow. 1814.
Marked "Copy of sketch made for the Archduke John of Austria, 31 May 1817."
2. Pen & wash drawings. Steam boat proposed for James River from Norfolk to Richmond, Virginia. From Mr. F. B. Ogden. Dec. 1816.
3. Printed drawings. A steam engine constructed on the principle of F. B. Ogden's patent. [Circa 1816?]
4. Pen & wash drawings. Plans and sections of various steam boats. [Circa 1817?]
Includes sections of hulls of London-Richmond and London-Gravesend boats, plans of the Caledonia, Majestic and Richmond, paddle wheels of Caledonia and Prince Regent etc.
5. Printed drawings. Mr. Schroder No. 1. Nov. 1817.
Marked "Mr. Trev. [Treviranus]."
6. Drawings. Design of a Tow Boat for the River Po. 18 Aug. 1818.
Reverse copy. Drawing LEV.
- 7a. Drawing. Cross section of machinery on board the *Tartar* steamer. [Circa 1824.]
Kept with (b) below. Date taken from the watermark of (b).
- b. Drawing. Plan of machinery on board the *Tartar* steamer. [Circa 1824.]
Date taken from the watermark.
- 8a. Transcript. Letters Patent to Joseph Maudslay for "Certain Improvements on Steam Engines." 29 Nov. 1827.
Patent for the oscillating engine. Transcript made much later than 1827. Kept with (b) & (c) below.
- b, c. Drawings (on tracing paper). Maudslay's patent vibrating engine (to accompany his specification dated 29 Nov. 1827). 2 sheets.
Traced much later than 1827.
9. Pen & wash drawings. Mr. Morgan's paddle wheel as applied to H. M. Steam Boat *Confiance*. 30 Dec. 1830.
Reverse copy. Marked "See Mr. Brown's letter 16 Nov. 1830."
10. Printed memorandum & drawings. Elijah Galloway's new patent paddle wheels. 1835.

11. Printed memorandum & drawing. Elijah Galloway's patent paddles. 1836.
12. Drawings. Sections of *Gorgon's* engines – 2 160 horse power. 1841.
Reverse copy. Marked "To Soho 30 Apr. 1841."
13. Printed drawings. Grantham's Patent – Plate No. 1. Not dated.
Drawings of various arrangements of boat engines.
14. Drawings (on tracing paper). Cylinder for H. M. S. *Lively*, 250 horse power, as made by J. Penn & Co. Not dated.
15. Drawings (on tracing paper). Design for engines for H. M. Steam Frigate *Arrogant* of 350 horse power. Not dated.