IEEC4 - AGENDA AND TIMETABLE

FOURTH INTERNATIONAL EARLY ENGINES CONFERENCE
KINGSWOOD HERITAGE MUSEUM

20-22 MARCH 2026

DAY 1 (20th March 2026)

10.00 Registration Desk open for delegates

10.30 Refreshments available/delegates at leisure to explore Museum

11.00 First Guided Tour of Museum Grounds (max 20 people, duration 1 hour)

12.00 Finger Buffet Available

12.50 Welcome & Conference Opening – Lynda Blackwell, Chair Kingswood History Museum

12.55 Agenda, Logistics and Housekeeping – Steve Grudgings, IEEC4 Chair

13.00-13.10 Setting the Scene – Steve Grudgings

> Steve will highlight Bristol's role as the city where the Industrial Revolution was conceived and describe the significance of its Brass and Copper Industries and will also outline Kingswood Heritage Museums unique features.

13.10-13.40 Early Engines and Engine Houses in the Bristol Coalfield – Steve Grudgings (north of the Avon) and David Hardwick (Somerset).

> The construction dates and locations the first atmospheric engines deployed in both areas have been the subject of considerable research, which is still ongoing. Steve's and David's paper describe the findings, outlining the sources consulted and the clues resulting from related areas of study.

13.40-14.10 Clarence Becker's Journal and Photographs – Richard Becker.

> Whilst Becker's name may be familiar to devotees of Early Engines, the unsuspected survival of his journal and its examination by his Great Grandson, Richard, provides much new information. This paper outlines Clarence's career and his interest in Early Engines.

14.10-14.40 The Coster Family and Their Pumps – Rick Stewart.

> The Costers were a wealthy and influential family of Bristol merchants who played pivotal role in the development of copper mining in Cornwall and the smelting of ore in Bristol. Rick's paper examines the innovations and funding the family applied to develop the pumping technologies used in Cornish mining in the second half of the seventeenth century.

14.40-15.10 The Role of Waterpower in the Development of Coal Mining in Somerset – John Hunter and Steve Grudgings.

> Focussing on the Mells valley at the southern end of the coalfield, this paper is intended as the first stage of a programme examining how water wheel powered drainage enabled deeper, earlier and more extensive mining from the medieval period onwards.

15:10–15:25 REFRESHMENTS

15:25-15.55 An Early 18th Century Underground Water Engine in West Devon - Robert Waterhouse.

South-West England's 18th century Copper boom saw a number of mines worked below adit level for the first time. Various water powered devices for pumping and winding from deeper levels were tried, including the 1723 overshot waterwheel described here. Comparisons will be made with continental mining practice, from which the Devon example may be derived.

15.55-16:15 Calculations That Powered the Nation: The Tabulated Proportions of the Newcomen Engine as Published by Messrs. Beighton, Smeaton and Curr - Richard Lamb.

This short paper examines how these figures were calculated and how accurate they were. Some will be used to illustrate one or two examples including the Dudley Castle engine.

16.15-16.35 Class and the Newcomen Engine – James Greener.

This short paper will outline the impact of the societal divide between those with funds to commission engines and those with the skills to operate and manage them and how this held back the development of early engines.

16.35-17.05 Engine Builders and Enginewrights – Ben Russell and Steve Grudgings.

Newcomen, his team and their successors could not have continued commissioning new engines without a cadre of trusted operators or engines wrights to care for them. This paper examines the skills required, how they were acquired and how these men came be regarded as some of the earliest engineers.

17.05 Short updates on papers from previous conference topics:

- Steve Grudgings – **More James Twyford Papers Examined**
- Ian Casteldine – **Chevin Engine House Update**
- Andrea Christova – **Next Phase of Archaeology at Althandel**

18.00 Day 1 Close. Second Guided Tour of Museum Grounds (max 20 people, 1 hour)

19.00 Hot Buffet and Cash Bar – delegates at liberty to explore Kingswood Heritage Museum

DAY 2 (March 21)

8.30 Venue opens and refreshments available.

9.00-9.05 Welcome. Recap Day 1 and review agenda for Day 2

9.05-9.35 The Beginning and End of the Coal-fired Economy – Ben Russell.

Recent initiatives within the Science Museum and by English Heritage prompted this reflection on the significance of stationary steam as the UK's principal power source for three centuries. Ben will, as it were, look back to Newcomen and Savery through the wrong end of the telescope

9.35-10.05 The Steam Engines at London Bridge: from Savery to Boulton & Watt – David Perrett.

The progression of engines used to raise water for the city at London Bridge are in many ways a microcosm of their wider deployment nationally. David's paper will examine the backgrounds to these engines and the reasons for their replacement.

10.05-10.35 The Earl's Own Engineer – Carol Whittaker and Stuart Warburton.

The paper draws on previously unrecognised documents to show that Earl Fitzwilliam had a dedicated engineer, even if he wasn't addressed as such. It will outline this gentleman's other work, and propose a solution to a mystery surrounding another famous early engine.

10.35-11.05 Life After William Brown: Colliery Engines in the Northeastern Coalfield, 1780-1800 – John Kanefsky.

Whilst Brown's contribution to local engine building and performance was important, significant developments in this area continued after his death and these are the subject of Johns paper.

11.05–11.20 REFRESHMENTS

11.20-11.50 Raising Steam: The Growth of Steam Power in Birmingham, 1780-1850 - John Townley.

This paper takes a wider, more abstract view of the growth, development and subsequent dependency of Birmingham's industries on the power of steam drawing on John's extensive research in this area.

11.50-12.20 Boulton & Watt's Bell Crank Engines – Bill Whitehead.

The Bell Crank was an important development in steam engine technology and Bill's paper will examine, in his own enigmatic style, how this innovation came to pass and its significance. Extensive use will be made of images from B&W archive at Birmingham Library.

12.20-12.40 The first Newcomen-type Engines in Lancashire – Maurice Handley.

This short paper will use maps, plans and documentary evidence to describe what is known of the first two engines that were used at three locations in Prescot and Whiston, Lancashire.

12.40-13.40 LUNCH

13.40-14.10 Issac Potter and the first Newcomen Engines in Europe – James Greener.

This paper sets out the timings, contexts and rationale for the first European Engines and describes the personalities of their erectors and commissioners and the events surrounding them.

14.10-14.40 Moving the First Atmospheric Engine in Central Europe: Where did Potter's and Fischer's Althandel Engine end Up? - Peter Konečný.

This paper tells the fascinating story of the engines relocation after it stopped working at Althandel in 1729 and the reasons for this. The paper also reveals Isaac Potters previously unrecognised contributions to this project.

14.40-15.00 Boulton and Watt: A Reassessment – John Kanefsky.

John's short paper re-examines B &W's contribution to engine building & industrial development, recognising that Smiles & other hagiographies leave us with inaccurate

impressions of this topic. This reminds us of the importance of data and evidence rather than conjecture and anecdote.

15.00-15.30 Greenhill Collieries Atmospheric Engine and Other Early Engines Around Ripley - Ian Casteldine.

Clarence Becker's Journals provide fascinating insights into the continuing operation of these engines into the 1920s. Ian's paper combines maps & photographs of these engines with Becker's own images & descriptions to shed new light on these survivors.

15.30-15.45 REFRESHMENTS

15.45-16.15 The 'Early Days' of the Horizontal Engine Design - Chris Hodrien.

The emergence of the horizontal arrangement for engines opened up a range of innovations. Chris's paper describes how these were developed and their importance based on selected examples.

16.15-16.45 Reconstructing the Althandel 'Fire Engine': From Archival Sources to Digital Interpretation – Brano Meres.

This paper draws on the range of recent work in Slovakia excavating and recording Isaac Potters 1722 Althandel engine to develop a realistic and accurate 3D model of the engine as basis for interactive exploration and interpretation.

16.45-17.15 Charlesworth's Yorkshire Engines – Steve Grudgings.

A surprisingly large number of images of early engines used in J.J. Charlesworth's Yorkshire Collieries have survived. Steve's paper presents these images, describes the engines and includes Clarence Becker's and other observer's notes on them. The company's underground waterwheel drainage network is also described.

17.15-17.35 Digital Monitoring for the Operation and Health of the Crofton Beam Engines – David Throup.

This short paper describes how a wide range of modern technologies have been deployed and refined to monitor and enhance various aspects of the operations of Crofton's iconic Beam Engines.

18.00 Venue Closes and Delegates Depart – Coach departs for Evening at Clevedon Court.

21.30 Coaches Depart from Clevedon Court (via attendee's accommodation where feasible)

DAY 3 (March 22)

8.30 Venue open and refreshments available

9.00 Welcome, recap day 2 and review agenda for day 3

9.05-09.35 Calley to Curr II – Steve Grudgings.

This paper describes how demands for improved performance from atmospheric engines accelerated development of a range of engineering processes and skills, the combination of which resulted in the UK becoming the cradle of the Industrial Revolution.

9.35-10.05 Coal Mining in the Keynsham Area – David Hardwick.

This paper will describe the pattern of early coal mining and the engines associated with it in this little examined but significant part of the coalfield near to Bristol.

10.05-10.25 Water Shafts: Exploring Definitions and Purposes - Steve Grudgings and David Hardwick.

Discoveries of shafts on engine sites designed to hold, rather than dispose of water, have long puzzled archaeologists and historians. This short paper will outline what is known of the different types of water shafts and their functions.

10.25-10.40 REFRESHMENTS

10.40-11.10 Early Engines in the Forest of Dean – David Hardwick.

The activities of the Free Miners of the Forest have been well documented whilst the early engines installed here have largely escaped notice. David's paper seeks to remedy this omission.

11.10-11.40 The Bell Crank Engine at Upminster Windmill – Chris Hodrien.

We are fortunate that this engine was fully recorded and Chris's paper will take us through the engines working life and survival of some of its components.

11.40-11.50 Short Updates on new archival discoveries and initiatives:

- John Kanefsky – **John Smeaton's Royal Society Drawings**
- Steve Grudgings – **Medieval Trans-European Mining Technology Knowledge Transfer**

11.50-12.00 Newcomen Timelines and Lead into Newcomen 2029/IEEC5 – James Greener

12.00-12.05 Closing Address

13.00 Conference Ends – Delegates depart OR go on further excursions.

Thanks to IEEC4 Conference Sponsors:

Northern Mine Research Society

Association for Industrial Archeology

South Gloucestershire Mines Research Group

International Stationary Steam Engine Society

Bristol Industrial Archaeological Society