



BRITISH SOCIETY  
FOR THE HISTORY  
OF MATHEMATICS

## Research in Progress

Saturday 25 February 2017 in the Shulman Auditorium, The Queen's College, Oxford

### Programme

- 10.30 Registration and coffee
- 11.00 PHILIP BEELEY Welcome  
BSHM President
- 11.15 TONY ROYLE The Perilous Practice of 'Flying and Applying'  
The Open University
- 11.55 KEVIN TRACEY Marking Mathematical Readers in Early Modern  
London Science Museum & England: An Analysis of John Seller's *A Pocket  
Swansea University Book* and its Annotations
- 12.35 Winners of the BSHM Under-graduate Essay Prize 2016:
- MICHAEL SEAL Was there a Revolution in Analysis in the Early 19th  
London School of Economics Century?
- BRIGITTE STENHOUSE The Mathematics of Mary Somerville  
Somerville College, Oxford
- 12.55 Lunch in the Magrath Room
- 14.00 TROY ASTARTE Formalism in the Forest: the 1964 Formal Language  
Newcastle University Description Languages IFIP Working Conference
- 14.40 CLARE MORIARTY The *Ad Hominem* Argument of Berkeley's *Analyst*  
King's College London
- 15.20 Refreshment break
- 15.45 PROFESSOR JEANNE PEIFFER *Invited lecture:*  
CNRS; Centre Alexandre Koyré, The Bernoullis in the Mirror of Contemporary (18th  
Paris Century) Scholarly Journals
- 16.45 Close of meeting

## Abstracts

**Troy Astarte** (Newcastle University)

Formalism in the Forest: the 1964 Formal Language Description Languages IFIP Working Conference

The emergence of high-level programming languages in the 1950s brought a series of challenges to the burgeoning computing community. Many of these centred around the difficulty of determining precisely the meaning of programming languages, and programs written in these languages. A number of different people in the computing and mathematics worlds attempted to address these challenges by creating a variety of ways to describe the syntax, grammars, and especially semantics of high-level languages. Interest in this topic came together at a conference on the subject held in Baden-bei-Wien in September 1964, an extremely important event in the history of theoretical and formal computer science. The story of this conference and some of its participants will be explored.

**Clare Moriarty** (King's College London)

The *Ad Hominem* Argument of Berkeley's *Analyst*

This paper responds to two issues in interpreting George Berkeley's *Analyst*. First, it explains why the text contains no discussion of religious mysteries or points of faith, despite the claims of the text's subtitle:

A DISCOURSE Addressed to an Infidel MATHEMATICIAN. WHEREIN It is examined whether the Object, Principles, and Inferences of the modern Analysis are more distinctly conceived, or more evidently deduced, than Religious Mysteries and Points of Faith.

I argue that the subtitle must be understood, and its success assessed, in conjunction with material external to the text. Second, it's unclear how naturally the arguments of the *Analyst* sit with Berkeley's broader views. He criticises the methodology of calculus and conceptually problematic entities, and the extent to which they require one to bend the rules of classical mathematics. Yet, elsewhere, Berkeley's opinion of classical mathematics and its intelligibility is low, and he defends a pragmatism that should not find fault with so functionally successful a theory. The *ad hominem* intention of the text makes it difficult to discern to what extent Berkeley is committed to the truth of these criticisms. This component of the text is rarely discussed, but I argue that when trying to decide what Berkeley's true position is in the *Analyst*, we should treat its *ad hominem* component as its primary intention.

**Tony Royle** (The Open University)

The Perilous Practice of 'Flying and Applying'

Early aeronautical research in Britain was advanced by a decision to allow a number of the nation's finest young mathematicians to train as pilots and conduct airborne experiments using full-scale aircraft. Given that many would subsequently perish in flying accidents, what aspects of their work justified the risk?

**Michael Seal** (London School of Economics)

Was there a Revolution in Analysis in the Early 19th Century?

The study of Analysis has had profound implications for modern Mathematics, from its foundations to its applications. In this short talk, I will draw on the work of Judith Grabiner and others to summarise my essay of the same title. I will explore the work of many mathematicians of the era, to present a '3-pronged' argument in favour of the idea that the work of the early 19th Century does indeed constitute a Revolution.

**Brigitte Stenhouse** (Somerville College, Oxford)

The Mathematics of Mary Somerville

Mary Somerville was a significant figure in nineteenth-century scientific society. She published works in most branches of scientific discovery, and corresponded with some of the most influential scientists of her time. However, while Somerville's translation of Laplace's mathematics was highly regarded, and she described analysis as the subject 'most congenial' to her, she never published a novel mathematical text of her own. My talk will focus on how Somerville's financial instability, and the expectations placed on women in the nineteenth century, affected her mathematics.

**Kevin Tracey** (London Science Museum and Swansea University)

Marking Mathematical Readers in Early Modern England: An Analysis of John Seller's *A Pocket Book* and its Annotations

In this paper, I present evidence of marginalia and provenance as discovered in the mathematical texts of the Rare Books Collection of the Science Museum, London. I will draw particularly from a copiously-annotated copy of John Seller's *A Pocket Book, containing Several Choice Collections* (1677), analysing this book as means to consider how annotations can contribute to our understanding of the use of mathematical materials in the early modern period. I argue that marginalia found in the Science Museum's collections help us to situate idiosyncratic examples of engagement within a wider culture of mathematical practice, thereby allowing for a more detailed examination of such texts and their users.

John Seller's *A Pocket Book* offered its readers a range of trigonometrical, geometrical, and arithmetical tools, and was intended to be consulted for action by sailors, merchants, and gagers alike. Its contents are therefore demonstrative of the 'useful' mathematics a less-numerate occupational group might require to undertake a number of activities. The annotations contained therein evince users' responses, and range from copying, to correction, to the creation of wider mathematical and intertextual repositories thereafter: all within a single text. I argue that by understanding Seller as a producer, together with his readers as consumers, we may further deepen our understanding of the use and value of mathematical practice in early modern English culture.

**Professor Jeanne Peiffer** (CNRS; Centre Alexandre Koyré, Paris)

The Bernoullis in the Mirror of Contemporary (18th Century) Scholarly Journals

In the 18th century European mathematicians were well aware of the important publishing resource offered by scholarly journals, and they knew how best to make use of them. In particular, the Bernoullis published the major part of their scientific production in journals—notably the *Acta eruditorum*—and also in the volumes issued by the scientific academies of the time. Besides, the editors of more general learned journals were often keen on reviewing their publications and achievements. By doing so they built a public image of the Basel mathematicians, of their mathematics, and also more generally of the mathematical activity *per se*. This image, kaleidoscopic as it were, depended on local (or national) situations, on the target audiences of the journals, on the inclinations or prejudices of the journal contributors, on international competition, and on other cultural, political or even religious features. In this talk we shall look, through some case studies, at how the learned European press pictured the mathematical achievements of the Bernoulli dynasty.

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