

O1 History of Mathematics

HT 2019 reading course: Nineteenth-Century British Symbolical Algebra

Essay 3: Augustus De Morgan on algebra

This is the topic for the classes in weeks 6 and 7 (and hence for reading in weeks 5 and 6). For Monday of week 6 please do enough research that you can discuss the topic in class and begin to focus the approach you propose to take for your written work. For week 7, please submit a 2000-word essay by email (to christopher.hollings@maths.ox.ac.uk as pdf) by 12 noon on Friday of week 6.

Here are some suggestions as to what points you might choose to focus on in your research and your essay. Every essay needs some background to set the context. Beyond that you should NOT expect to cover everything. There is much too much here. Choose one or two points to focus on.

- What was De Morgan's motivation?
- How does this text fit into the rest of his corpus?
- Which writers did De Morgan read and refer to?
- Summarise the material studied.
- What else (briefly) does the text contain?
- When and how were his ideas taken up?

Main texts for weeks 5 and 6

- Augustus De Morgan, *On the study and difficulties of mathematics*, London, 1831.
- Augustus De Morgan, Review: *A treatise of algebra* by George Peacock, *The Quarterly Journal of Education*, vol. IX, January–April 1835, pp. 91–110, 293–311.
- Augustus De Morgan, *Trigonometry and double algebra*, London, 1849.

Suggested reading (but do please browse more widely):

- *On the study and difficulties of mathematics*, preface, and Chapters IX and XII;
- the whole review of Peacock;
- *Trigonometry and double algebra*, preface, and Book II, Chapters I, II, IV and V.

Other sources that might be useful

- Helena M. Pycior, Augustus De Morgan's algebraic work: the three stages, *Isis* **74** (1983) 211–226
- Joan L. Richards, Augustus De Morgan, the history of mathematics, and the foundations of algebra, *Isis* **78** (1987) 7–30.
- G. C. Smith, De Morgan and the laws of algebra, *Centaurus* **25** (1981) 50–70.