



THE ORDERED UNIVERSE PROJECT SYMPOSIA SERIES 2015-2020

Light, The Universe, and Everything:
Robert Grosseteste's *De iride*, *De colore*, *De lineis*, *De natura locrum*, and *De cometis*

7–9 January 2020
The Centre for Medieval Studies,
University of York, United Kingdom

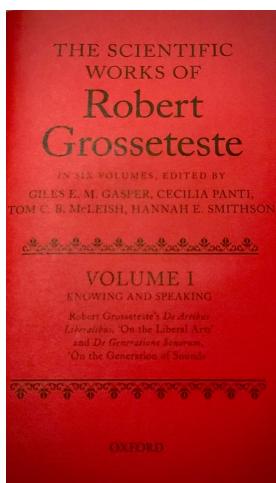


WELCOME

This is the tenth and final of the Ordered Universe symposia under the aegis of the Arts and Humanities Research Council award which provides funding for the project until March 2020. It is also the 26th Ordered Universe symposium in a sequence stretching back to July 2010. This symposium takes place at the University of York and marks the first time that we have held a full symposium in this particular location. We are delighted to be hosted by the Centre for Medieval Studies.

The interdisciplinary ethos of the Ordered Universe has developed into an iterative methodology of reading, listening, discussing and writing together. The core of our activities is a collaborative reading process that, although constantly evolving, remains simple. Collaborative reading means that every question is important and every point of view equal (they should also at some point make their way to the chair of the session!). The aim of the project is to work through Grosseteste's shorter scientific treatises (*opuscula*) and present them in new editions, translations and multi-disciplinary perspectives. These are the *De artibus liberalibus*, *De generatione sonorum*, *De sphaera*, *De impressionibus elementorum*, *De cometis*, *De luce*, *De motu supercelustum*, *De motu corporali et luce*, *De differentiis localibus*, *De lineis*, *De natura locorum*, *De iride* (and the *De colore*). The first volume, containing the *De artibus liberalibus* and the *De generatione sonorum* was published on November 6, 2019 and the rest of the volumes, also under contract with Oxford University Press, are at various stages of planning and preparation.

The 2019–2020 academic year has already been very busy for the Ordered Universe Project. We were delighted with the production of the first volume in our series, *Knowing and Speaking*, and celebrated the first of a series of book launches at Pembroke College, Oxford, in November. Further



launches at this symposium, at York a little later in January, and in Durham in Easter, will be taking place. Bringing together the learning and insights of nineteen medievalists and scientists has allowed for a different sort of publication. This is joint monograph, not an edited collection, and, though the processes are different, represents the same spirit of collaboration, debate, and discussion that informs our reading symposia. We are hard at work on the second volume, *Mapping the Universe*, which takes a singleton text, *On the Sphere*, but is already generating considerable new, and challenging, thinking, and

deepening our experience of co-writing in long format. Forward planning for volume three, which takes on the treatises *On the Impressions of the Elements* and *On Comets* is underway. As you'll notice the front cover of the first volume is a resplendent red: subsequent volumes will take the remaining colours of the rainbow.



As ever with our symposia we operate with an open policy and only a few rules. Discussion should run eventually through the chair and should be clear and well-paced, and there are no stupid questions: disciplinary trespassers are welcome!



OUR TREATISES

The symposium will focus on five treatises, all of which have been discussed before as part of our collaborative reading programme. *De colore*, *De iride*, *De lineis*, *De natura locorum* and *De cometis* form the axes on which our activities hinge. None of the treatises are straightforward to date, but probably date to from the early 1220s in the case of *De cometis*, and second half of the decade in the case of the others. *De cometis*, *De lineis*, and *De natura locorum* have been edited by Cecilia Panti, *De iride* and revisions to the *De colore* by Sigbjørn Sønnesyn, and all five have been translated into English by Sigbjørn and following our collaborative deliberative process.

The works under scrutiny represent Grosseteste's different scientific interests. *De cometis*, possibly composed with reference to the appearance of Halley's Comet in 1223, speaks to an interest in meteorology, and a critique of existing explanations for the nature of comets. Grosseteste, in a

scholastic mode, works through what he considers erroneous interpretation, before offering his own version. To this extent then the treatise is theoretical rather than observational.



Whether this is the same case for the *De colore* is an interesting question. The shortest of the scientific *opuscula*, *De colore* offers an original account of colour, described in terms of three bi-polar axes, two dealing with the nature of light, one with the nature of the medium in which the light is embodied. As such then the treatise is important in Grosseteste's developing doctrine of light and its incorporation into matter. Exactly where *On Colour* fits into the chronology of the works, whether before, or after, the treatise *De luce* for example, is not clear.

It must however, pre-date *De iride*, probably Grosseteste's final treatise, which quotes a section of *De colore* in a discussion of how to understand the differences of colours within and between rainbows.

De iride, another treatise on meteorological topic, is also the occasion for Grosseteste's major discussion of geometry and optics, in particular refraction. His wider thought on the subject is the subject for the paired treatises *On Lines* and *On the Nature of Places*. The first treatise elaborates an abstract approach, the second a discussion through examples, including an extended treatment of the focusing of light rays in a urine flask. Light rays and their behaviour are essential to Grosseteste's evolving understanding of the world around him. The range of ancient and more recent authorities to which Grosseteste refers, or engages with, critically and approvingly, is considerable. By the end of the 1220s, though he did not know the work of Ibn al-Haytham, he was certainly familiar with Ibn Rushd/Averroës, and Euclid's *De speculis*, amongst a wide range of other texts. By this period too we can begin, with some certainty, to place him in Oxford, providing a more detailed context for the purpose of his works and their possible audiences.



PUBLICATIONS & PRESENTATIONS

In addition to the appearance of Volume One in *The Scientific Works of Robert Grosseteste* Ordered Universe members have been busy with other publications, presentations, and other project promotion activities. Amongst science papers the second half of 2019 saw the publication of ‘A thirteenth-century theory of speech’ in *The Journal of the Acoustical Society of America* 146, 937 (2019); [<https://doi.org/10.1121/1.5119126>] led by Joshua Harvey, with Hannah Smithson, Clive Siviour, Giles Gasper, Sigbjørn Sønnesyn, Tom McLeish and David Howard. Two papers led by Rebekah White have been submitted, one on Grosseteste’s treatise *De cometis* and the modern phenomenon of coma aberration, and the other on optical effects within Grosseteste’s *De iride*. We await the rest of the process with interest! In a similar vein a paper by Giles, Brian Tanner, Sigbjørn Sønnesyn, and Nader El-Bizri, ‘Travelling Optics: Robert Grosseteste and the Optics behind the Rainbow’ for an edited collection by Christian Etheridge and Michele Campopiano, is now in press.

Other publications related to the project include contributions to a volume prepared under the aegis of *The Ordered Human Project*, inspired by Ordered Universe, and directed by Jack Cunningham and Steve Puttick. *Robert Grosseteste and Theories of Education* published in November included essays by Jack Cunningham ‘Robert Grosseteste and the Educational Renaissance in Twelfth and Thirteenth Century Western Europe’, Giles and Michael Gasper, “Gentleness and Discretion”: Medieval Perspectives on Childhood Learning and Guiding Adult Education’, Brian and Robert Tanner, ‘The Legacy of Robert Grosseteste and the Teaching of Experimental Physics to 14-16 Year Olds in England’, Tom McLeish, ‘The Human Ordering of the Arts and Science’, and Peter Claus and Giles Gasper, ‘Rejecting the Market-Place: Using the Past to Inspire Access to University Education’. Other papers from Gioacchino Curiello, Rosamund Gammie, Charles Roe, all within the wider orbit of the Ordered Universe project, also featured. Alongside these publications other relevant publications from team members include Tom McLeish’s essays , ‘Beyond Barbour: A Theology of Science from ancient and modern thinkers’, in Berry Billingsley et al eds, *Science and Religion in Education*, and ‘Our Common Cosmos: Towards a New Natural Philosophy’, in Celia Deane-Drummond et al, eds., *Philosophy, Theology and the Sciences*. Giles Gasper’s essay on ‘Creation, Light, and Redemption: Hexaemeral Thinking, Robert Grosseteste, and the *Summa Halensis*’ in a volume of essays edited by Lydia Schumacher is in press,

Team members have made a number of academic presentations in the last few months. Tom McLeish to the Harvard-Smithsonian Astrophysics Lunchtime Seminar, and Giles Gasper, Sigbjørn Sønnesyn, and Billy Crozier, on Grosseteste and the Franciscans at the Durham Centre for Catholic Studies Franciscan conference. David Thomson was the 2019 Grosseteste Lecturer at Bishop Grosseteste University, talking on ‘What’s it all for? Grosseteste on the Liberal Arts and Education, then and now’. There are, of course, more publications, academic presentations, and public talks and activities to come: not least our second volume in the *Scientific Works* series, the volume of essays under preparation which draw on the project conference from 2019, a study-morning at Hereford Cathedral, February 8th, and a public talk at the Light-Up Poole Festival, February 22nd. Some smaller projects are in the incubator already, for example, work on particular amongst Grosseteste’s sermons and dicta. We also have future projects and meetings in the planning – continuing and extending the collaboration between natural sciences and medieval studies and opening up new areas for analysis and exploration.



BEYOND THE ACADEMY

Following the successful Ordered Universe strand within the OxNet Access to University programme's summer school in August 2019, we have been hard at work putting together the programme for the next cohort. This will be the fourth year for the OxNet the Sunderland Hub, led by Southmoor Academy, and its OxNet co-ordinator Claire Ungley, and the Ordered Universe academic programme which it supports, led by Giles Gasper, Peter Claus, and other team members. We were delighted by the news in Autumn 2019 that Southmoor Academy, with the leadership of its Vice-Principal Sammy Wright and Claire Ungley won a UK Social Mobility Award for School/College of the Year. This is well deserved recognition for the considerable work being done at the school and within the North East region to raise aspirations and de-mystify through experience, university study and research. Our North-East taster event went off well in November, with Brian Tanner, Walker Christian, Tom Henderson and Samantha Kemp show-casing the project and its work. We await the new cohort, and look forward to the evening-classes in February and March, the Easter School at Durham, and then the Summer School at Pembroke College, Oxford.

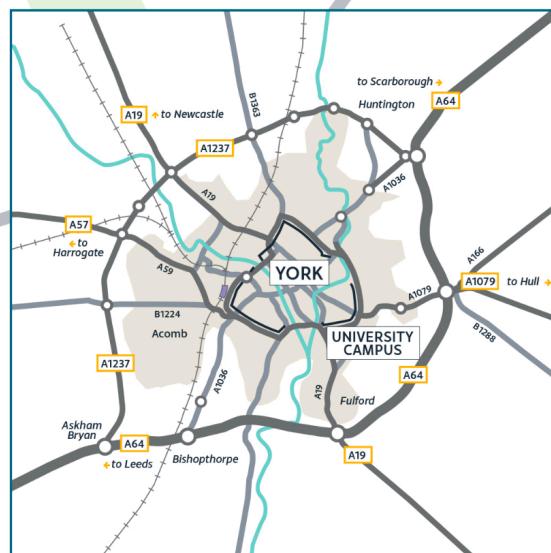
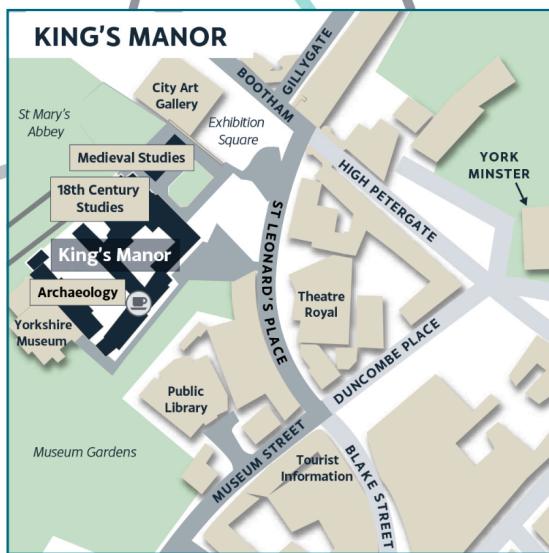


November 2019 also saw a return of The Projection Studio's *Northern Lights* to York Minster. An exciting internal projection, the show featured material provided by Ordered Universe team members. For 2019 Sigrbjørn, Giles, and Sarah Gilbert also gave an evening lecture, before the show, on the project, and medieval understanding of light and astronomical phenomena 'Light Fantastic and a Medieval Big Bang'. We were delighted to support the show and give a different set of insights to the audience; and equally delighted for Ross Ashton and Karen Monid of the Projection Studio that *Northern Lights* 2019 won Best Use of Audio-Visual Technology at the 2019 Event Technology Awards. Ordered Universe is currently working on a number of projects with Ross and Karen, including *First Light* and a projection show on the elements.





THE CENTRE FOR MEDIEVAL STUDIES KING'S MANOR, YORK, UK, YO1 7EP



Alternative formats and an interactive version of the University map are available at york.ac.uk/maps



TUESDAY 7 JANUARY
CENTRE FOR MEDIEVAL STUDIES, KINGS MANOR
ROOM K/122

14.00-14.30	Coffee/Tea	
14.30-14.45	Welcomes	Tom McLeish, Giles Gasper
14.45-15.45	Session 1	Collaborative Reading of <i>On Colour</i>
15.45-16.00	Break	
16.00-17.00	Session 2	Collaborative Reading of <i>On the Rainbow</i>
17.00-17.15	Break	
17.15-18.30	Session 3	Collaborative Reading of <i>On the Rainbow</i>
19.30	Dinner	

Participants:- Bondeli, Campi, Cleaver, Cunningham, El Bizri, Gasper, Gilbert, Harvey, McLeish, Panti, Smithson, Sønnesyn, Tanner, Thomson, Brown, Rees-Jones, Tyler

WEDNESDAY 8 JANUARY
CENTRE FOR MEDIEVAL STUDIES, KINGS MANOR
ROOM K/111

09.00-09.30	Coffee/Tea	
09.30-11.00	Session 4	Collaborative Reading of <i>On the Rainbow</i>
11.00-12.30	Visit to York Glaziers Trust: Professor Sarah Brown	
12.30-13.00	Lunch	
13.00-14.00	Session 5	Collaborative Reading of <i>On Lines</i>
14.00-14.10	Break	
14.10-15.40	Session 6	Collaborative Reading of <i>On Lines/On the Nature of Places</i>
15.40-16.00	Break	
16.00-17.00	Session 7	Collaborative Reading of <i>On the Nature of Places</i>
19.30	Dinner – to include Book Launch: Volume 1 from the Ordered Universe – <i>Knowing and Speaking</i>	

Participants :- Bondeli, Campi, Christian, Cleaver, Cunningham, El Bizri, Gasper, Gilbert, Harvey, McLeish, Panti, Smithson, Sønnesyn, Tanner, Thomson, Ungley, Manolova, Jagot, Garrison



Arts & Humanities
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THURSDAY 9 JANUARY
CENTRE FOR MEDIEVAL STUDIES, KINGS MANOR
ROOM K/122

09.00-09.30	Coffee/Tea	
09.30-11.00	Session 8	Collaborative Reading of <i>On the Nature of Places</i>
11.00-11.15	Break	
11.15-12.45	Session 9	Collaborative Reading of <i>On Comets</i>
13.00-14.00	Lunch and Depart	

Participants: - Bondeli, Campi, Christian, Cleaver, Cunningham, El Bizri, Gasper, Gilbert, Harvey, McLeish, Panti, Smithson, Sønnesyn, Tanner, Thomson, White



Ordered Universe will return...



ATTENDEES AND DISCIPLINES

1) Dr Sarah Gilbert (Durham University)	Palaeography / History
2) Dr Sarah Brown (University of York)	History of Art
3) Dr Rebekah White (University of Oxford)	Psychology
4) Professor Tom McLeish (University of York)	Physics
5) Dr Shazia Jagot (University of York)	Medieval and Global Literature
6) Professor Cecilia Panti (Università di Roma, Tor Vergata)	Philosophy
7) Professor Hannah Smithson (University of Oxford)	Psychology
8) Rev. Dr David Thomson (Durham University)	Middle English Studies
9) Professor Sarah Rees Jones (University of York)	History
10) Dr Sigbjørn Sønnesyn (Durham University)	History
11) Dr Luigi Campi (Università degli Studi di Milano)	Philosophy
12) Dr Laura Cleaver (School of Advanced Study, London)	History of Art / History
13) Dr Divna Manolova (University of York)	Medieval Literature and Science
14) Professor Brian Tanner (Durham University)	Physics
15) Dr Jack Cunningham (Bishop Grosseteste University)	History
16) Moritz Bondeli (Yale University)	Political Science
17) Professor Elizabeth Tyler (University of York)	Medieval Literature
18) Walker Christian (Durham University)	History
19) Professor Giles Gasper (Durham University)	History
20) Dr Joshua Harvey (University of Oxford)	Engineering / Psychology
21) Claire Ungley (OxNet)	Education / History
22) Professor Nader El-Bizri (American University of Beirut)	Arabic Studies / History of Science
23) Dr Mary Garrison (University of York)	History
24) Professor Tim Ayers (University of York)	History of Art

ACKNOWLEDGEMENTS

The organisation for this symposium in the Ordered Universe series has been borne by Tom McLeish of the Centre for Medieval Studies and the Department of Physics at the University of York. The Ordered Universe would like to extend its thanks to University of York and all of the professional services staff who have worked hard to put this event together. The symposium is the tenth to take place as part of the Arts and Humanities Research Council major grant: we are delighted to be supported in this way by the council, and by its Science in Culture theme. Since this is the last in our current series, Giles, Tom, and Hannah, would like to thank, very much, every single contributor to the project, and to all supporters of the project who have sustained its life and energy in the many, varied, and equally important ways in which this is done.



Image 1: Robert Grosseteste in MS London, British Library, Royal 6 E v, f. 6r.
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