Science, Time & Community

A Digital Exhibition
Supplementary Text & Illustrations

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M.Phil. in Reformation & Enlightenment Studies
The PROJECT researched by the M. Phil. candidates in Reformation and Enlightenment Studies 2005/6 concentrated its inquiry on a specific aspect of early modern cosmology:

1. **perceptions of time** (including eschatological dimensions, age of the world, end of creation) and the use of predictors of the future by means of astronomy/astrology and the interpretation of monstrous births

2. attempts to build a golden age, an ideal society, the creative imagination of improvers and ways in which **early modern science** assisted or cut across those attempts: mathematical principles to be identified in the harmony of the spheres and applied to human construction (such as fortifications and ideal cities), alchemy and geology,

3. the impact of both - perceptions of time and exploration of early modern science - on the various experiences of **community** life and its transformation.

While most illustrations utilise the holdings of the **Long Room** section of the Library, other major research institutions and private collections have also provided materials.
The digital exhibition begins with the young Emperor Charles V riding in procession to open his first imperial Diet at Worms in 1521. The orderly procession that assigned all the representatives of the empire their proper place was intended as a persuasive display of authority and a pledge to usher in a golden age of harmony, peace and order. This staging of Charles’ reforming intention was suddenly interrupted by a hawker who held up a broadsheet proclaiming the end of the world. It was to occur as a result of the conjunction of twenty planets, sixteen in the ‘watery sign’ of Pisces. Charles V took the warning seriously enough to encourage the princes of the realm to consult their astrologers about the prediction. A ‘flood of pamphlets’ was published in response. Mathematical astronomy seamlessly crossed over into judicial astrology. While there was criticism of such precise predictive practice, astrology remained in place as a valid predictor throughout the early modern period and beyond. Monstrous births were accepted as even more powerful and reliable indicators of change. Since God had created a ‘good world’ any birth-deformity could be read as a divine signal that had to be carefully decoded. Deformed creatures were considered public property to be exhibited for all the world to see. The meaning of such signifiers was explored by Sebastian Brant for pro-Habsburg propaganda as well as by Martin Luther and Philip Melanchthon for religious polemics. ‘Scientists’ merely recorded ‘monstrosities’ and deformities as specific instances of creation on the assumption that to know the parts would lead to an understanding of the whole.
Anzeigung wunderbarlicher geschichten und geburt derselben XXXI. Jars zu Augsburg geschehen se.

Wissen das verwolchter tag zu Augsburg ein schwangreiner swine/so fur geburt nicht kumen/drey wunderbarlicher/unnatürlicher/gesalter/von ewernlichen/und vormals verboten/noch der gleichen unnatürlichen geschah/vongetheilt/ans den leb in drey weile geboten und gedruckt hat.

Die erstes Geburts und geburt/so aus dem leb kamen/ist gewesen ein ämlich menschenhafter/one leb/handt/und sich/in einem betten/oder belgen gelegen/so das drey figuren zu erkennen gibt und anseh se.

Die ander unnatürlich/von seltsam geburt und figure überreichlich wunderbar hat ein blut mit mund zugleich einen stich/ähnlich wie ein leb, einen von aller gisstom gamen leb/aus som von gleichartigen eines geisth/van einer seelen, als ein stoff/one schwanger gehabt.

Durch Thibarum Bethabarenium.

Getrukt zu Günsenhagen durch Ab bertachum Biopium
At the same time, Vesalius’s effort to improve medical science through the teaching of anatomy provided a general model of man. The student of this work was reminded that, apart from his physical qualities, men were all alike in their mortality: a preoccupation discernible in the art and science of the period. Disease and war were never far away. If the improved transmission of knowledge brought about by the invention of printing helped to inspire alchemists and physicians to try to eradicate the first, the new speed of communication also enabled statesmen and generals to create and communicate new models for offensive and defensive warfare.

The introduction of drill and drill-books, and of star-shaped fortresses which could withstand gunpowder increased the scale and duration of conflicts. Seventeenth-century wars in Europe were the bloodiest yet. The ostensible aim of war, however, was still the common good, so that while deploying new and better weapons, men-at-arms were governed, notionally at least, by new legal codes. More complex weapons and more need for training brought into existence peacetime armies; military communities whose regulation required not only the rule of law, but the enactment of routine responses to danger in well-ordered spaces. Elaborate fortifications were designed first to repel gunfire, but also to embrace new communities of civilians and soldiers: fortresses such as Kinsale were intended to minimise danger to family areas, while cities like Antwerp, in adopting or improving fortification, used the space created by new boundary walls to experiment in the art of town-planning. As a result mathematics rose in status, but its final triumph as ‘the language of nature’ was contested even by men such as Robert Boyle, for whom the surest advance towards full knowledge was through a succession of experiments. A turning-point came with Isaac Newton who, by
True and Wonderfull.

A Discourse relating a strange and monstrous Serpent (or Dragon) lately discovered, and yet living, to the great annoyance and divers slaughters both of Men and Cattle, by his strong and violent poison.

In Sufex two miles from Horlam, in a woode called St. Leonards Forest, and thirtie miles from London, this present month of August, 1614.

With the true Generation of Serpents.

The Tragical History
Of the LIFE and DEATH of Doctor Faustus.

Printed with New Additions as it is now Acted. With several New Scenes, together with the Actors Names.

Written by G. W. M. A.

Printed for W. O. & I. B. and sold at the Bible without Mercerst. 1665.
presenting a convincing explanation from mathematical principles of his theory of the universe, not only won widespread support for his work, but persuaded many of his scientific contemporaries that the discovery of universal principles was the ideal towards which all sciences should aspire.

This was the background to the development of the social sciences. The Scottish Enlightenment attempted to generate what David Hume – himself a central protagonist – called ‘a science of man’. The three thinkers examined here represent these developments, and the way they overlapped to create a unified movement of thought. James Hutton symbolises the Enlightenment idea that the existence of the human being was the starting point for philosophical reflection. In overturning the biblical chronologies of the world, such as that offered by James Usher, archbishop of Armagh, he rethought the position of man in relation to the natural world. His geological theories laid the groundwork for investigating plate tectonics and the processes that shape our environment.

At the heart of his perception, however, was a re-imagining of the nature of geological time; one which paralleled conceptual developments concerning human history. Typical of this change in thinking is Adam Ferguson, whose Essay on the History of Civil Society (1767) proposed a three-stage analysis of society’s development, arguing that progress was dependent upon the means of production, and that society moved from a period of dependency upon hunting to agriculture and ultimately to commercial exchange.

Ferguson was equally concerned with the virtues to be found within his community. A Presbyterian minister – as were many of the Scottish literati – he argued for the retention of civic values that he thought were being undermined by the grosser versions of commercial activity he witnessed in urbanising Lowland Scotland. In this concern for morality, Ferguson was followed by the third of our thinkers, the jurisprudentialist and historian John Millar. Professor of Law at the University of Glasgow, Millar offered a radical critique of the British constitution based on classical ideas of republicanism and independence. He too offered a developmental theory of human history, here explored through the changing roles and behaviour of women.

In sum, the three thinkers highlighted here show at once the diversity and unity of opinion within the broad spectrum of the Scottish Enlightenment. While they clearly disagreed on matters of practical politics, for example, they shared a concern with the broad intellectual programme of developing a widely defined series of human sciences which rethought the relationship between the three themes of our exhibition – Science, Time and Community.
A BOOK OF KNOWLEDGE In three Parts.

The first, containing a brief Introduction to Astrology, shewing the nature, quality, and effects of the twelve Signs, and seven Planets; their Dominion over Bodies, with the Fortunes of those Calculated, who are Born under them, also a Delightful Wheel of Fortune.

The second, A Treatise of Phyfick, the Anatomy of MANS body, the Diseases Incident to the body of Man, Rules and Receipts for the curing of them; also Rules, for Sweating, Batheing, Confierving, and Preserving, and the way to make Cordial-waters; Also the Principal rules of Arithmatick, very plain and easie.

The Third, the Country-mans Guide to good Husbandry, rules for Sowing and Planting of Orchards, Gardens, and Woods; also rare Receipts for curing Diseases in Horses, Sheep, Cows, and Oxen; also an Almanack for ever, and other variety of Inventions, very profitable and advantageous.

Composed by Sam. Strangeways.

LONDON: Printed for Charles Tyas, at the three Bibles on London Bridge. 1663.
FRANC. BACONIS
DE VERULAMIO/
Summi Angliae
CANCELARII
Novum Organum
Scientiarum.

(LVG.D.BAT.
Apud Adrianum Wijngaerde,
et Franciscum Moiardum, 1645.)