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0521473470 - The Transformation of Natural Philosophy: The Case of Philip Melanchthon

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Introduction

Of the countless ways in which historians may try to understand what sixteenth-century people made of the natural world, I offer in this book an account of what Philip Melanchthon, colleague and ally of Martin Luther, meant by natural philosophy. By the beginning of the sixteenth century, natural philosophy was a well-established subject in universities, a subject in which the nature of the natural world was discussed. In this study, I have looked at Melanchthon's idea of this natural philosophy in a way which is different from traditional accounts found in the histories of science, of renaissance philosophy or of universities. A different approach has meant a different picture. On my reading, natural philosophy emerges as undergoing a significant transformation at the hands of Melanchthon. In the following pages, I have tried to chart this transformation which, to my knowledge, has never been fully appreciated.

Today Melanchthon is best remembered for his attempts to explain Luther's theology of 'justification by faith alone' in his *Loci communes* and for his influential educational reforms which earned him the title of the *Praeceptor Germaniae*. Amongst the innumerable products of his prodigious writing and editing activity, there were two textbooks on natural philosophy, the *Commentarius de anima* and the *Initia doctrinae physicae*. These and their revised editions were read widely across Northern Europe throughout the sixteenth century.

Historical assessments of the significance of Melanchthon's natural philosophy have, however, remained oddly fragmented. For instance, historians have congratulated Melanchthon on the swift incorporation into his textbooks of some of the new findings of Copernicus and of Vesalius; on his enthusiastic promotion of mathematics; and on his success in educating a series of students of

astronomy and botany.¹ Yet this ‘progressiveness’ of Melanchthon has remained largely irreconcilable with his apparent dependence on Aristotelian teleology and Galenic anatomy, and his unabashed enthusiasm for astrology.² It is a problem, I believe, that has arisen for historians of science who have tried to understand the sixteenth century in terms of the ‘Scientific Revolution’ – a movement which broke away from the Aristotelian qualitative explanation of natural phenomena to pursue the mathematical, quantitative explanation of natural change, and culminated in the triumph of experiment and observation over the occult, the superstitious and the religious.³ In other words, they have tried to tease out of the past some elements of ‘modern science’, the end-product of this ‘Revolution’, thus dissociating those elements from the ‘non-modern’, superstition and religion.⁴ Because it is a search for what modern historians themselves regard as respectable science or modernity, their history has been and forever will be about a past trapped in a strange mixture of ‘modernity’ and ‘non-modernity’.

In this study, I propose a different way of understanding Melanchthon’s natural philosophy. My aim has been to understand what natural philosophy meant to *Melanchthon*.⁵ Why was it that Melanchthon thought it important and necessary to write about natural philosophy and how did he do it? For an answer I have looked at his own words in his correspondence, textbooks, theological tracts, disputations and poems, as well as at a number of pictures connected with him. As I hope will become apparent, Melanchthon’s natural philosophy, which was built on classical as well as contemporary material, closely reflects issues of faith which were immediate and important to him.

To historians of renaissance thought, it may seem less than

¹ For Melanchthon’s partial adaptation of Copernicus, see Westman (1975); for his use of Vesalius, see Nutton (1993); for his promotion of mathematics and astronomy, see Westman (1980b); and for his students of botany, see Dannenfeldt (1972).

² For Melanchthon’s ‘Aristotelianism’, see Petersen (1921), 38–108; for a study of his Galenic sources, see Rump (1896); and for traditional treatments of his astrology, see Warburg (1919) and Thorndike (1923–58), v, 378–405, but see now also Bellucci (1988) and Caroti (1982).

³ Representative works of this approach in the history of science are Koyré (1961), Dijksterhuis (1961) and Hall (1983).

⁴ For a recent re-examination of the historiography of the ‘Scientific Revolution’, see now the essays in *Reappraisals of the Scientific Revolution*.

⁵ For philosophical reasons for adopting this kind of historical approach in intellectual history, see Skinner (1969), and Baxandall (1985) for history of art. Cf. also a review of the current state of the history of ideas in Kelley (1990).

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surprising that a parallel can be found between a man's faith and his classical scholarship in an age when the fruits of humanist scholarship were ripe and when faith had become a hotly contested issue. Is that not just what we might expect of a 'Christian humanist'?⁶ Yet, according to its most influential modern proponent, the term 'humanism' (be it Christian or not) cannot be identified with any particular ideological, theological or philosophical position.⁷ That is, the term cannot account for the particular way in which individuals in the sixteenth century quoted from classical authors: a 'Christian humanist' did not, for instance, need to write about natural philosophy using Aristotle or Galen in the way that Melanchthon did. Nor was it imperative for a 'Christian humanist' to write about natural philosophy at all.

Yet Melanchthon did write about natural philosophy in a way which was different from his predecessors, and he did so by building on writings of classical authors such as Plato, Aristotle, Galen, Ptolemy and Cicero. Individual studies have gauged the extent to which Melanchthon was indebted to Aristotle, Galen and Plato.⁸ It is nevertheless insufficient to explain what Melanchthon was doing by simply characterizing him an Aristotelian or a synthesizer of Platonic and Aristotelian philosophies. Melanchthon's use of Plato is quite different from that of a Ficino and there seem to be as many forms of Aristotelianism as there were people who wrote about Aristotle.⁹ Instead, taking natural philosophy as a whole, I have asked why Melanchthon chose to follow Aristotle, Galen or Plato on certain points, and modify or ignore them on others. My concern was thus to understand why Melanchthon chose to write natural philosophy in the particular way that he did, and why he needed natural philosophy at all. It is, I believe, by paying attention to the immediate context in which Melanchthon wrote his words that we can understand the significance of natural philosophy for

⁶ Christian humanists are defined as those 'who applied their classical scholarship to biblical and patristic studies and who adopted and defended in their writings some tenets of Christian religion or theology', in Kristeller (1988a), 133.

⁷ Kristeller (1988a), 113f. For a study of the religiosity of several Italian humanists, see Trinkaus (1970).

⁸ For an estimation of the extent of Melanchthon's debt to Aristotle, see Petersen (1921), 48–108; Melanchthon's Platonism receives ample examination in Maurer (1967–9), 1, and Belluci (1988); and for Melanchthon's use of Galen, see Rump (1896).

⁹ For a recent assessment of Ficino's Platonism, see the essays in *Marsilio Ficino e il ritorno di Platone* and *Ficino and Renaissance Neoplatonism*; for the various forms of Aristotelianism, see Schmitt (1983).

Melanchthon and the uniqueness of his use of authors. As a result, we may arrive at an understanding of what was in fact a much stronger bond between Melanchthon's scholarship and his faith – Melanchthon in fact used classical as well as contemporary authors in such a way as to render his natural philosophy *Lutheran*. That is, Melanchthon transformed traditional natural philosophy into a natural philosophy new and different from its predecessors *because* he believed in a faith which was also new and different.

I shall be arguing in this study that Melanchthon's natural philosophy was a *Lutheran* one to the extent that his use of authors and his aim in writing natural philosophy textbooks can be accounted for through his Lutheran conviction: Melanchthon saw in natural philosophy a potent response to issues which he believed to be seriously jeopardizing Luther's cause; he reinterpreted classical and contemporary authors along Lutheran principles; and he made natural philosophy an integral part of a pedagogy which was aimed at establishing and consolidating Luther's message. This understanding of natural philosophy enables us to see for the first time how disparate fields of study such as human anatomy, astrology, mathematics, geography and botany all formed a unity at Wittenberg in achieving a single goal: the knowledge of the Providence of God in this world. It is precisely for this same reason – to know the Providence of God – and not because he wanted to be 'progressive', that Melanchthon also adopted the findings of Vesalius and of Copernicus in the particular way that he did.

Modern scholars are ambiguous in their assessment of the authenticity of Melanchthon's 'Lutheran' faith. Some have underlined the importance of Melanchthon's humanistic skills for Luther's reading of the Bible, while others, including his contemporaries, have questioned the Lutheran orthodoxy of his stance on the Eucharist and other doctrinal matters.¹⁰ Yet, the morphology of Lutheranism itself owes as much to Melanchthon as it does to Luther. At times, as Erasmus would say, Melanchthon was 'more Lutheran than Luther himself'.¹¹ Whatever their differences, we should therefore remem-

¹⁰ For studies on the relationship between the two, see Lohse (1983), Pauck (1984), 41–65, Green (1980) and Hildebrandt (1946). An erstwhile student, Mathias Flacius Illyricus, attacked Melanchthon and his followers for pusillanimously compromising the original teachings of Luther. For Flacius, see Olson (1981) and for the dissension within the Lutheran camp, see Stupperich (1966), 133–45.

¹¹ '... est [Melanchthon] ipse, pene ut ita dixerim, ipso Luthero lutheranior'. Erasmus to John Lasky, 5 March 1534, Erasmus (1956–68), x, 363, no. 2911. My interpolation.

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ber the large overlap of interests and concerns of Luther and of Melanchthon, most significant of which was the pursuit of Reform in order to establish the teaching of justification by faith alone. They pursued this Reform through their respective vocations: Luther the dynamic and charismatic preacher who heard the Word of God; Melanchthon the irenic scholar and teacher who wanted to see the Providence of God in nature. It is Melanchthon pursuing this vocation whom we see creating a new kind of natural philosophy.

This work is about Melanchthon as well as natural philosophy. Because Melanchthon lived a life in which faith mattered, this book is as much about religion as it is about natural philosophy. I wish to stress, however, that I do not want to depict this natural philosophy as something between 'science and religion'. Modern interpretations of the historical relationship between 'religion and science' vary tremendously: some claim that religion (Puritanism in particular) actively promoted and developed 'modern science' and others argue that religion was a hindrance to the formation of 'modern science'. There are also those who take an 'indifferent' stance that religion had no decisive impact on the development of 'modern science' either way.¹² It was not my aim to take any side in this debate. We have recently been shown, in fact, how and why this particular theme of 'science and religion' is riddled with problems: not only do the variety and complexity of each historical case defy any attempt to reach a simple generalization about the relationship of 'science and religion', but also historical exposition on this theme has been confused by the partisan interests of modern historians and further complicated by the inherent artificiality of the pairing of the concepts 'science' and 'religion', whose definitions seem equally confused.¹³ The problem of historical interpretation of 'science and religion', it thus seems, is essentially a problem created by historians who have tried to find elements of 'science and religion' in something that may have had a different identity altogether.

What I have attempted in this study is to understand natural philosophy as a whole, as something with a distinct identity of its

¹² For representative works on the positive contribution of religion to 'science', see Merton (1970), Mason (1962) and Hooykaas (1972); the conflict thesis was most famously presented in Draper (1875) and White (1955); and for a stance between these two positions, see Deason (1985). For a recent re-examination of the Merton thesis, see the collection of essays in vol. 3-1 (Spring 1989) of *Science in Context*. For a critical and comprehensive survey of the secondary literature on 'science and religion', see now Brooke (1991), 348-403.

¹³ Brooke (1991), esp. 1-116.

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own. It was inherent in the discipline of natural philosophy that it was to be about nature understood as a Creation of the Christian God; that its arguments could elucidate points about God and the Christian Church; and that it was part of learned knowledge produced in universities, often in the service of orthodoxy or the status quo.¹⁴ Melanchthon was by no means the first or the last to espouse this view of natural philosophy. The significance of Melanchthon's endeavours, as I hope to show, was that he transformed a traditional natural philosophy into a peculiarly Lutheran one.

In this study I have focused rather sharply on Melanchthon's natural philosophy. My immediate aim was to offer a picture of Melanchthon's natural philosophy which seemed less fragmented or blurred. The picture, I nonetheless hope, will further illustrate the importance for historians in general to take stock of the identity of natural philosophy,¹⁵ and to ask, therefore, a different kind of question about the natural philosophy of the past.

¹⁴ For universities as religious authorities, see Lytle (1981).

¹⁵ The necessity to understand natural philosophy as something *sui generis* was first argued in Cunningham (1988) and (1991).

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CHAPTER I

The way of the Schoolmen

Just as for the people of God there was an exile in Babylon while Jerusalem was their homeland, so ignorance is the exile of the inner man though *sapientia* is his homeland . . . The route from this exile to the homeland is *scientia*, for *scientia* deals with earthly matters, while *sapientia* is concerned with divine matters. One should pass along this route not by steps of the body, but by desires of the heart. Indeed this route leads to the homeland through the ten directing arts and through the books cleaving to the way and serving it like so many towns and villages along a route.

*On the exile of the soul and on its homeland, or, On the arts,*¹
Honorius of Autun (c. 1156)

The University of Wittenberg was founded in 1502. By then, men in the universities had been learning, teaching, disputing upon and writing about natural philosophy for at least three hundred years. Natural philosophy was firmly embedded in the arts curriculum and had become an integral part of medieval learning. Its standard texts were Aristotle's *libri naturales*, such as the *Physica*, the *De caelo*, the *De generatione et corruptione*, the *De anima*, the *Meteora* and the *Parva naturalia*. These were tackled following a set of logical procedures and recognized authorities. Together with logic and metaphysics, natural philosophy formed the core of learning undertaken in medieval universities. The University of Wittenberg began by inheriting the kind of learning characteristic of late fifteenth-century German universities. It is this learning, including natural philosophy, that

¹ 'Sicut Populo Dei exsilium erat in Babylonia, Jerusalem vero patria, sic interioris hominis exsilium est ignorantia, patria autem sapientia . . . De hoc exsilio ad patriam via est scientia, scientia enim in rebus physicis: sapientia vero consideratur in divinis. Per hanc viam gradiendum est non passibus corporis, sed affectibus cordis. Haec quippe via ducit ad patriam tendentes per decem artes, et libros sibi adhaerentes, et quasi per totidem civitates et villas sibi servientes.' *De animae exsilio et patria alias de artibus*, Honorius of Autun (1854), 1243.

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Luther violently objected to, in person at Wittenberg and more generally in print. I shall therefore begin with a summary of how the medieval Schoolmen dealt with natural philosophy.

Medieval university learning had a unitary character in that, despite certain recognizable disciplinary boundaries, areas of study were closely related to each other. Amongst Northern European universities where faculties of theology dominated, the arts curriculum was mainly orientated towards theology.² The seven liberal arts were considered propaedeutic or instrumental to the study of theology.³ Logic was the fundamental procedure of intellectual discourse, and the *quaestio* method was originally developed as a technique to resolve seeming contradictions and inconsistencies when reading the Bible.⁴ 'Nature' in natural philosophy was frequently identified with God's Creation and moral philosophy dealt with the happiness of a Christian man.⁵ Metaphysics dealt with the mode of being in its highest abstracted form and had the status of 'divine science' in which some aspects of the Divine Being were considered.⁶ Thus, as a whole, studies in the arts faculty could contribute in one way or another towards knowledge of the Christian God.

Medieval natural philosophy was orientated towards theology in a variety of ways. For instance the thirteenth-century Dominican interest in a natural philosophy based on Aristotelian causation and the Franciscan interest in the nature of light and *perspectiva*, it has been shown, can best be understood as a Christian enterprise whose origins can be traced to the personal experiences and senses of mission of the founders of these orders, St Dominic and St Francis respectively.⁷ Although the process by which Aristotle's *libri naturales*

² For the difficulty, in fact, of separating theology and philosophy in this period, see Vignaux (1959), 9–16 and Marenbon (1987), 83–90.

³ This is understood as a continuation of the role of liberal arts as propaedeutic to scriptural wisdom in cathedral schools in McInery (1983).

⁴ Marenbon (1987), 13f. and 35–49, 80–2 for the importance of logic in theology. Cf., however, the case of Henry of Langenstein who rejected the universality of Aristotelian logic as applicable to theological tenets such as the Trinity, in the wake of his failure to convert the Jews in Vienna, Shank (1988).

⁵ See for instance Albertus Magnus' treatment of Aristotle's *Physica* as pertaining to Christian Creation in Lang (1992), 125–60. For Christian happiness in medieval moral philosophy, see Wieland (1982b).

⁶ For various ways in which the subject matter and theological orientation of metaphysics were defined in the Middle Ages, see Wippel (1982).

⁷ I am grateful to Dr Andrew Cunningham and Dr Roger French for allowing me to read an earlier draft of their forthcoming book, *Before Science: The Friars' Natural Philosophy*.

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were established as canonical texts of natural philosophy needs further investigation, especially in the light of the condemnation of 1277, natural philosophy continued to be taught and learnt in arts faculties.⁸ In the fourteenth century, topics which closely reflected contemporary theological concerns were developed and expounded upon in natural philosophy. For instance, William of Occam's analysis of the concept of quantity was developed in order to overcome (in Occam's eyes) the inadequate explanations of Christ's quantity in the Eucharist by Aquinas and Scotus, and studies of measuring motion closely reflected contemporary theological attempts to 'measure' the relationship between God and His Creation.⁹

Natural philosophical arguments were also frequently and extensively used in theological discussions, such as on the power of God in the Sentences commentaries, on Creation in the Hexaemeron commentaries, and on transubstantiation in Eucharist treatises.¹⁰ Although as philosophy, or human rational knowledge, natural philosophy was never sufficient for a theologian to deal with divine matters, it was a powerful means by which some parts of Christian doctrine could be elucidated, developed and maintained. It was an integral part of learning for university men who increasingly saw themselves as 'professors of orthodoxy' and saw the universities as a universal authority on a par with that of the Pope and of the Emperor.¹¹

Natural philosophy was taught in universities in the form of lectures, exercises and disputations, though the extent to which these academical exercises were required for degrees varied.¹² By the end of the fourteenth century, it generally seems to have been the

⁸ Marenbon (1987), 67. For the limited impact of the condemnation of 1277 on arts teaching, see Hissette (1977), 316–18; for a synthetic account of modern scholarship on the Parisian condemnations, see Wippel (1977); for the introduction of Aristotle to the West see Steenberghen (1955) and Weisheipl (1964).

⁹ For Occam, see Sylla (1975), 361–72 and now Tachau (1988) for the relationship between his optical theory and theory of knowledge. For studies of measurement, see Murdoch (1975), 289–97.

¹⁰ For Hexaemeron literature, see for instance Steneck (1976) for Henry of Langenstein, and Southern (1986), esp. 205–19, for Robert Grosseteste. For an overview of the doctrine of transubstantiation, see McCue (1968).

¹¹ For the 'authority' of professors and universities, see Lytle (1981); for the medieval triadic division of authorities, see G. H. Williams (1962b), 166–83. For clerical control over issues in natural philosophy in the later Middle Ages, see Lohr (1988b).

¹² For the variety of degree requirements at different universities, see Rashdall (1936) and Thorndike (1975).

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case that students wishing to obtain arts degrees were required (amongst other things) at least to have heard lectures on most, if not all, of Aristotle's *libri naturales*. Students usually first heard lectures on logic, followed soon after by lectures on natural philosophy and finally on Aristotle's *Metaphysica*.¹³

Logic was the starting point and building block of scholastic learning in universities. It provided the means by which most subjects were discussed in commentaries or in disputations. It is, in fact, the logically rigorous procedure of exposition which has been regarded as one of the distinctive features of medieval learning.¹⁴ Mastery of logic was therefore essential before proceeding to philosophy.

Natural philosophy was thus expounded in a rigorously logical way. For instance, commentaries on natural philosophy frequently followed the *quaestio* form.¹⁵ A section of a commentary began with a disjunctive question about the meaning of Aristotle's text. It was followed by a list of arguments found in Aristotle or other commentators which seemed to support the view opposed to the favoured answer. These (opposing) arguments were then refuted or resolved one after another into the favoured view by way of syllogistic reasoning, utilizing logical distinctions and definitions from Aristotle or other commentators. By way of logical reasoning, the question was eventually resolved into the favoured view. This kind of logical reasoning, which reconciles various authorities and the teaching of the Church, is representative of the procedure of the 'scholastic method'.¹⁶ Thus, whilst some historians have called medieval natural philosophy a 'handmaiden' to theology,¹⁷ others have called it a natural philosophy 'without nature', because of its rigorously analytical character.¹⁸

The centrality of logic and the unitary character of university

¹³ For the order of learning at Paris, see Rashdall (1936), I, 439–54; for Oxford, see Fletcher (1984), 376–86 and for Cambridge, see Leader (1988), 89–107, 155–69. For the relatively late establishment of metaphysics in the arts faculty, see Gabriel (1963).

¹⁴ Ueberweg (1926–8), II, 152–7.

¹⁵ A concise introduction to the *quaestio* technique can be found in Marenbon (1987), 25–34, whom I follow here.

¹⁶ A standard definition of the 'scholastic method' is that it is 'essentially a rational investigation of every relevant problem in liberal arts, philosophy, theology, medicine and law, examined from opposing points of view, in order to reach an intelligent, scientific solution that would be consistent with accepted authorities, known facts, human reason, and Christian faith', *New Catholic Encyclopedia*, XII, 1145.

¹⁷ Cf. an examination of the extent of interdependence between natural philosophy and theology in Sylla (1975).

¹⁸ The characterization is from Murdoch (1982).