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*The Art, Science, and Technology of Medieval Travel* edited by Robert Bork and Andrea Kann

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The medieval millennium is not normally considered a great age of travel. We look back at it across 500 or so years of European global expansion, a period characterized by systematically pursued exploration, trade, colonization, missionary activity, emigration and immigration, grand tours, and tourism, not to mention the mass displacements caused by war, famine, and ethnic cleansing. Yet, even leaving aside the large-scale medieval movements of peoples ('Germans', Vikings, Magyars), one can say that, despite genuine differences in scale and scope, people travelled a great deal in the medieval world and more than a few of them did so extensively, sometimes even in considerable numbers. Not just pilgrims, but also missionaries, scholars, and merchants made their way by land, river, and sea to destinations both far and near.

Marco Polo is only the most famous medieval traveller nowadays, but there were others who made remarkable journeys of their own: Margery Kempe from England to Jerusalem, Rome, Compostella, and Prussia in the early 15th century, for example; or Friar Odoric of Pordenone from Italy to Khanbaliq (Beijing) in the early 14th century; or Leifr Eiriksson from Norway to Vinland around the year 1000. Nor should one forget the great Muslim travelers like Ibn Battuta and Ibn Jubayr, or the Jewish travelers like Abraham ben Jacob and Benjamin of Tudela. Many medieval practices, technological developments, and attitudes, moreover, persisted into the early modern period—for instance, travel to the Holy Land, the portolan chart and the magnetic compass, and various degrees of Christian hostility to non-Christians—and these helped shape those travels that

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radically altered the world at the end of the 15th century, when the post-Viking European encounter with the Americas exploded the old geography shared by the Ancients and medieval Christians, Muslims, and Jews alike.

There have been studies of many elements and modes of medieval travel, especially of pilgrimage; but an integrated history of (Christian) European travel from the time of the Bordeaux Pilgrim's and Egeria's religious journeys in the fourth century to the era of Portuguese and Spanish expansion, or even from the First Crusade to just before the scientific voyages of the later 18th century, remains to be written. While waiting for such ideal studies to appear, anyone interested in medieval travel will find the present book of value, even though travel as such is only one of its concerns and the quality of its contributions is somewhat uneven. Specialist readers will no doubt take issue with specific claims, details, or arguments in individual essays; but the collection as a whole gives a fair indication of the richness and complexity involved in studying travel in the medieval era, and is perhaps most useful as an overview of the issues that one might confront in thinking about medieval travel. In the words of its editors, the essays gathered here 'offer a series of complementary perspectives on the practice of medieval travel, with particular emphasis on artistic, scientific and technological developments' [7].

Following a general introduction, the book's 13 'complementary perspectives' are arranged in four parts: 'Medieval Vehicles and Logistics' (four essays), 'Medieval Travel and the Arts' (three essays), 'Medieval Maps and Their Uses' (four essays), and 'Medieval Navigational Instruments' (two essays). This arrangement neatly frames the visual within the practical and the theoretical; but a strong case could be made for placing navigation first or second, then proceeding to the maps and ending with the arts, since that would have moved book and reader alike through theory and practice to representation, with maps providing a polyvalent bridge between the more distant parts. Despite the title and the claim just quoted above, artistic developments receive the least attention in this collection, since maps and buildings are not really considered in their artistic dimensions.

Robert Bork and Andrea Kann's introduction begins with a brisk overview [1-7] of travel in the medieval world, discussing practices, attitudes, and documents, then proceeds to summarize the individual contributions [8-13] to show how this collection reveals 'the

[medieval] dialog between theories and practices of travel' [7]. The latter part of the introduction, although it largely recapitulates the book, is in fact the more helpful of the two introductory sections, since its concise summaries allow the reader both to see the collection as a whole and to consider the various ways in which the different essays complement one another. The potted history of travel, in contrast, even though it does its job, requires more space to be effective.

Bernard S. Bachrach's erudite 'Carolingian Military Operations: An Introduction to Technological Perspectives', an extended footnote to his debated *Early Carolingian Warfare* [2001], opens the collection by raising the central issues of concern in the first four essays: technological constraints on travel and the variable influence of economic, political, cultural, and ideological factors on the technology of travel. In raising these issues, Bachrach turns to a form of travel not usually discussed as such: the coordinated movement of military forces. Roads, mapping, vehicles, and centralized bureaucratic control are all shown here to be crucial to Carolingian military success, which built on Roman legacies but put them to specifically Carolingian uses. In Bachrach's view, the combined weight of disparate evidence from sources such as the capitularies allows one 'to begin to think that Charlemagne was pressing an agenda of standardization' [29] that encompassed weights, measures, containers, and vehicles (especially the *basternae* or heavy-duty carts used to supply the troops) and thus allowed him to make effective use of the Roman inheritance of roads and military mapping based on written itineraries. In this reading of the evidence, then, the creation of the Carolingian Empire can be seen as a practical, indeed technological, achievement as well as an ideological one, and an achievement to which innovation and conservation alike contributed significantly.

Vehicle design, an important part of the complex Carolingian military system, is explored at length in the second essay, John E. Dotson's informative 'Everything is a Compromise: Mediterranean Ship Design, Thirteenth to Sixteenth Centuries'. Focusing on 'that archetypical Mediterranean vessel, the galley', Dotson shows 'how competing design demands, along with technological and natural limitations, shaped <its> evolution' [31]. Like the previous essay, this contribution asks its readers to think about what is overlooked or taken for granted in thinking about travel: in this case, the practical

meaning of speed in the usual distinction between warships and merchant ships. Concluding that speed in the present-day understanding would have been ‘an almost unimaginable, and likely irrelevant, concept for a medieval seaman’ [32], Dotson argues persuasively that a combination of military, technological, and practical or economic factors (the cost of skilled oarsmen, for example, *versus* that of cargo) shaped the late 13th-century ‘revolution in galley design’ [35] that saw the trireme replace the bireme. Like Bachrach’s contribution, this essay shows that the technology of travel cannot be understood as ‘merely’ technological and that planning and design—whether of a campaign or of a warship—are almost always subject to multiple, competing influences.

Julian Munby’s detailed ‘From Carriage to Coach: What Happened?’ returns from the much-studied subject of sea travel to the lesser-known one of road transport. In a revealing contrast to the first two studies, though, this essay shows that social and technological change can also happen entirely independently of each other—an insight that has implications for the ways in which we might generalize about the technology of travel. Briefly, Munby argues that between the 13th and the 16th centuries no significant technological changes occurred in carriage technology—despite the introduction of a carriage suspended body—but that an important sociological transformation occurred nevertheless. Travel by carriage, which ‘had largely been an aristocratic and feminine domain’ [42], was rapidly taken up by men, especially after the appearance of the coach in late-15th-century Hungary (the vehicle took its name from its Hungarian context, deriving from Kocs, a small town between Budapest and Vienna). Even an old technology, then, ‘whose foundations were laid in the Bronze Age’ [53], is subject to changing uses that are sometimes independent of technical considerations. In this context in particular, Munby’s essay serves as a salutary reminder of the complex relations between the history of technology and other historical domains.

The final contribution to the opening section, David H. Kennett’s ‘Caister Castle, Norfolk, and the Transport of Brick and Building Materials in the Middle Ages’, is another helpful re-examination of the obvious: in this case, the assumption that heavy building materials were necessarily delivered by water rather than land. Using documents associated with the construction of a mid-15th-century brick house ‘set on relatively higher ground among the marshes and creeks

of <Norwich's> River Bure' [55], Kennett notes that four different words were used to record the transportation of building materials ('carriage', 'carting', 'freight', and 'freightage'). While some materials (plaster of Paris and Caen stone, for instance) were brought by water; others, such as timber and bricks, may well have been brought by land. Moving outwards from Caister Castle, this study provides complementary documentary evidence for both water and land transport in order to argue that 'the transport of bricks on medieval roads' is 'much more common than might be first considered', given the potential hazards of water travel [67]. Influencing decisions about transport were factors such as local topography and the practicalities of loading and unloading vehicles, whether waterborne or land-based. As so often in the medieval world, whatever the domain, one finds widespread practices being adapted to specifically local conditions and demands.

From this stimulating cluster of essays on the complex intersection of technological, practical, economic, and ideological elements affecting both travel and transport, a reader would do well to turn to the book's last section, 'Medieval Navigational Instruments', since it is most closely linked to the first. In contrast to the development of vehicles, though, that of navigational tools shows theory weighing more heavily than practice until the 15th century. The first of the two useful essays gathered here is Richard A. Paselk's 'Medieval Tools of Navigation: An Overview'. After a concise, informative discussion of the compass, which includes an account of the Chinese as well as the western development and uses of an instrument that marked 'the greatest single advance in navigation' [170], Paselk turns to the navigational tools for measuring altitude (the quadrant, the mariner's astrolabe, and the cross-staff), focusing on their development first in the Portuguese context in the 15th century under the sponsorship of Prince Henry the Navigator and then in northern Europe during the 16th century. Politics and ideology were highly important here, as instruments were developed so as to allow sailors greater freedom from expert local knowledge, thereby enabling imperial exploration. Like the discussion of the compass, this concise account is also highly informative for the non-specialist who wants to understand how medieval tools both developed and were used.

Sara Schechner's concluding essay on 'Astrolabes and Medieval Travel' is more narrowly focused on one instrument but even more

informative, considering the tool's Muslim as well as Christian uses and tracing its development from costly astronomer's implement to shipboard essential. After an impressively clear presentation of the nature and uses of a device that was 'both an observing instrument . . . and a portable analogue computer . . . used to solve astronomical, astrological, and geometric problems' [181], and that also served 'as a teaching tool' [184], Schechner takes up the question of whether this widely travelled instrument was itself used by travelers. Examining material remains along with textual and visual sources, she concludes that there is little evidence of the astrolabe in use on the road or at sea until the late 15th century when a 'new sea astrolabe' was developed by the Portuguese. Stripping the instrument 'of all its non-essential and most costly parts' [207], scholars and sailors developed a device that could be readily used aboard a rocking, windy ship. This more practical astrolabe was an important tool in all the major voyages of expansion from the 1490s on and was further refined for ease of use—a development showing once again the ways in which technological developments are variously linked to economic, political, and ideological factors.

A different sort of navigational tool was provided by medieval maps, whose form and uses varied much more than those of devices like the astrolabe or the compass, and maps are the focus of the four essays in part three of this collection. Nigel Hiscock's 'Mapping the Macrocosm: Christian Platonist Thought behind Medieval Maps and Plans', which draws on the author's recent book, *The Symbol at Your Door: Number and Geometry in Religious Architecture of the Greek and Latin Middle Ages* [2007],<sup>1</sup> briskly examines maps, *rotae*, and plans within the framework specified by its title. This is the weakest essay in the book, leaping in its 12 well-illustrated pages from the *Timaeus* to the Ebstorf *mappamundi* and other related maps to Vitruvian man and cruciform church design. The complex spatial theories discussed here receive no consideration as possibly influential on travel, and that is the question that one would really like to have seen taken up. Did anyone, for instance, leave any evidence whatsoever of having moved through a landscape or a church mindful of a Christian Platonist sense of space? How far did such theoretical concerns actually impinge on individual or collective experience?

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<sup>1</sup> Reviewed in *Aestimatio* by Indra Kagis McEwen [2008].

The ‘parallel ideas’ linking various forms in relation to each other as macro- and microcosmic analogues, says Hiscock, ‘*must have* provided people with an appreciation of being an integral part of the universe . . . that can only be envied today’ [126, emphasis added]. Hiscock’s casual concluding ‘must have’ avoids precisely what should be the central question: the historically possible uses of specific ideas, texts, tools, and buildings.

Fortunately, historically possible practices are the subject of the next essay, Dan Terkla’s much more satisfying ‘Informal *Catechesis* and the Hereford *Mappa Mundi*’; and the frustrated reader is able to turn to a genuine historical and theoretical engagement with the medieval evidence *in situ*. Like Schechner and unlike Hiscock, Terkla does not simply assume use of any sort, and his essay undertakes to argue for his claim that the famous Hereford world map could have been used as a ‘teaching tool’ in a very specific spatial context (a familial mortuary complex within the Hereford cathedral). The third of a planned series of five essays on this encyclopedic map, ‘Informal *Catechesis*’ investigates

what . . . it mean<s> to say that a medieval viewer *read* a mural or word-and-image hybrid like the Hereford, Ebstorf, or London Psalter maps. [129, emphasis in the original]

Such an investigation entails thinking systematically not only about medieval maps and medieval theories of text-picture relations, but also about the physical evidence itself, right down to individual scratches on the map’s surface. Acknowledging that there is ‘nearly’ no ‘hard evidence’ that the map was explained to visitors by trained clergy, Terkla nevertheless persuasively puts together a plausible case for the ways in which the map might well have been mediated for pilgrims as a complex ‘semiotic enclave’ [129] capable of creating various ‘emotional, mnemonic, and intellectual’ responses [141].

If scholars are uncertain how medieval audiences might actually have used Christianized world maps like the Hereford *mappamundi*, the same is no less true of more modern-looking cartographic documents. Nick Millea’s ‘The Gough Map: Britain’s Oldest Road Map, or a Statement of Empire?’ thus begins by acknowledging that ‘very little is known of <the map’s> creation, its purpose and its audience’ [143]. Essentially a report on the current state of scholarship on the

oldest surviving road map of Britain (made *ca* 1360), this essay offers an inventory of the document's topographic and cartographic features so as to discuss the research opportunities that its recent digitization for the Bodleian Library have made available to scholars.<sup>2</sup> These include geo-rectification to analyze the nature and extent of the map's accuracy. Despite its eastern orientation, this map is a remarkably accurate representation of the British Isles south of Scotland; and its practice of naming, Millea suggests, makes it look very much like a secular document made for English administrative, possibly even imperial, purposes. Indeed, it may even be a kind of palimpsest, the different hands suggesting that it was 'regularly updated' [154] by clerks with local knowledge.

From a single map with unknown uses and users, the collection turns to a single medieval literary figure with a professed interest in maps whose works include a travel guide to the Holy Land almost exactly contemporary with the Gough Map. While considering her 14th-century Italian author's 'geographical consciousness' [163] generally, Evelyn Edson's 'Petrarch's Journey between Two Maps' focuses especially on what can be learned from the text of his pilgrim's guide, speculating on the types of maps that he might have consulted in writing it. The guide itself, written for his friend Giovanni Mandelli, contains no maps and there is no evidence that Petrarch actually drew on any maps for his information. From the text itself, though, and making inferences from remarks in Petrarch's letters and other writings, Edson comes to the conclusion that his sense of geography shares something with both the Christianized *mappaemundi* and the portolan charts. This is hardly a surprising conclusion, and since the same thing can also be said about the unknown author of *The Book of John Mandeville* (*ca* 1360) and even about Columbus as well, this essay in effect demonstrates how widely shared certain basic geographical ideas were in the later Middle Ages. Yet even if this genial tour of Petrarch's interest in geography tells us little about the possible uses of medieval maps, it does show a distinctively medieval side to the work of a poet more often celebrated as a renaissance man responsible for transforming the ways in which the educated thought about ancient authors.

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<sup>2</sup> <http://www.bodleian.ox.ac.uk/users/nmj/goughmap.htm>.

Besides the Holy Land, to which Petrarch's guide was partly devoted, Rome and Compostella were the other major medieval sites of Christian pilgrimage; and travelers to them had to pass through many variously less important sites *en route*. One of these was Siena, whose location on the Via Francigena, the principal route from northern Europe to Rome, ensured that it saw considerable pilgrim traffic. Michelle Duran-McLure's 'Pilgrims and Portals in Late Medieval Siena' examines the ways in which civic officials after 1287 worked to link their city visually with its patron saint, the Virgin Mary, so as to make it seem a type of the New Jerusalem. Art and architecture, particularly the city gates, were consciously used to give the city 'a unified aesthetic' [74]; and festivals like the Feast of the Assumption were directed towards creating a unified religious and civic community. Thus, on Duran-McLure's reading of the evidence, spatial analogies of the sort discussed by Hiscock were in fact put into practice in the later medieval world, but in highly specific, locally shaped ways.

Annette Lermack's 'Spiritual Pilgrimage in the *Psalter of Bonne of Luxembourg*' likewise shows something similar at work in northern Europe, but this time in the domain of virtual pilgrimage. The program of texts and images in an early 14th-century devotional work [Metropolitan Museum of Art, New York, Cloisters Collection MS 69.86] made for the Duchess of Normandy can be interpreted, she argues, as 'designed to lead readers on a repeatable spiritual journey' that culminated in 'the contemplation of relics' [97]. Lermack focuses in particular on three devotional miniatures—an allegory of the Six Degrees of Charity and two visualizations of Christ's wounds—to show how they develop the metaphor of pilgrimage so as to move the soul affectively rather than the body physically. The wound imagery in particular can be read as appealing especially to women, whose experience of childbirth could be linked to Christ's suffering. Emotion, in other words, can be thought of as a virtual form of travel, and it may well be that virtual travel was at least as important for medieval Christians as actual movement through physical space.

More potentially conflictual modes of travel are the subject of Anne McClanan's 'The Strange Lands of Ambrogio Lorenzetti', which focuses on two frescoes painted by Lorenzetti in Siena: one known as 'Good Government in the Countryside' (1337–1340); the other, as the 'Martyrdom of the Franciscans' (1335–1345?). The latter shows

friars before what may be a Mongol khan, while the former shows apparently Asian wayfarers in the Sienese countryside. McClanan uses these two paintings to discuss 'one particularly fecund way in which identity was constructed for the Sienese through their visual culture' [83]: the setting of the local in relation to the foreign. 'Good Government', McClanan argues, recalls the importance of slaves in 14th-century Tuscany and its landscape may even suggest Ilkhanid influence. Against this presence of the foreign in the local, the essay sets its antithesis, the local in the foreign, as found in the 'Martyrdom'. In both cases, McClanan suggests, we can see 'many of the same key markers of establishing identity', a fact which suggests that 'illustrating heterogeneity was a way of rendering the vitality of the commune' [95]. Thus, if Duran-McLure's essay suggests that communal identity might be enhanced through a program of unification, McClanan's complementary study speculates on the ways in which a program of differentiation might also serve the same end. Neither essay tells us much about travel as such, and each is linked to different modes of travel (pilgrimage *versus* missionary and mercantile travel); but taken together, the two studies, along with Lermack's on the *Psalter*, reveal how influential travel could be both imaginatively and ideologically.

The value of this collection, its editors assert, is that, in addition to demonstrating the physical and other constraints on medieval travel itself, it makes clear 'the importance of travel in catalyzing fruitful medieval developments in artistic, scientific, and technical fields' [13]. That claim seems a fair assessment. For every Margery Kempe, Marco Polo, or Bartolomeu Dias, there were countless others who would have journeyed no farther than their local shrine or fair; but even their local worlds could not have escaped the changes wrought by the influence of travel and travelers. Uneven though its case studies are, and as limited in certain respects as the whole collection is (the 14th century and the Mediterranean loom especially large), the book makes clear how fruitful interdisciplinary, international collaboration can be and could be in helping scholars understand the importance of travel and its manifold legacies in the pre-modern world.

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