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**Die Artes liberales im frühen Mittelalter (5.–9. Jh.). Das Quadrivium und der Komputus als Indikatoren für Kontinuität und Erneuerung der exakten Wissenschaften zwischen Antike und Mittelalter. (German) [The artes liberales in the early Middle Ages (5th to 9th century). The quadrivium and the computus as indicators for continuity and renewal of the exact sciences between classical Antiquity and the Middle Ages]**

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The title and subtitle of the present book notwithstanding, neither the trivium nor music are dealt with. It offers an analysis of the way Macrobius, Martianus Capella, Cassiodorus, Isidore, Bede and Hrabanus Maurus present arithmetic, geometry and astronomy, and investigates extensively the computus treatises of Bede and Hrabanus. It argues that the medieval encyclopedias (Isidore's *Etymologiae*, Bede's *De natura rerum* and Hrabanus's *De universo*) continue a trend inaugurated in the Roman world by similar handbooks (Macrobius's *Somnium Scipionis*, etc.), and that the gradual (but ultimately radical) decline of contents was a natural consequence of the characteristics of the genre, and not a result of ecclesiastical hostility to pagan learning; moreover, that the purpose of the genre was always to disperse a general culture (Bildung) by which the elite could legitimize its social standing. The investigation of Bede's *De temporum ratione* leads to the suggestion that Bede included material which future workers might use to correct the length of the year even though Bede did not draw the conclusion himself—perhaps because he had already once been accused of heresy, perhaps because it would undermine his own argument.

The characterization of the handbook genre is solid but not revolutionary; the analysis of Bede is interesting, though not altogether convincing in the light of other material presented in the book; further assertions are more dubious.

Among these is the repeated denial that the gradual disappearance of substance from the treatises corresponded to declining competence: on p. 474 and elsewhere, for instance, it is claimed that the handbooks were meant as introductions to the reading of more advanced treatises, for whose presence in the early Middle Ages no evidence whatsoever is given (nor known by other historians). Also amazing is the author's identification of the totality of Ancient science with the "static-reductionist reception of pre-existent formulas" that characterized the encyclopedias (p. 476)—the *Almagest* in particular being described as nothing but "a systematic compendium of the precursors" with interspersed refinements. Ancient "ideas about the aims of science" (Wissenschaftsvorstellungen) are purely and simply identified with "the need for conservation of inherited cultural structures" (Bildungsstrukturen) (p. 477).

In spite of the request that the single presentations of the quadrivial disciplines be seen in the light of the full works within which they belong, the author herself often does not look far beyond the chapters she deals with. Thus she explains (p. 472) the omission of geometry from Hrabanus's *De universo* by the closeness of this topic to measure and bodily shape, which would make it

inappropriate as a “demonstration of a theosophical principle”—ignoring that the presentation of number is subordinated precisely to a treatment of measure, and in general overlooking the conflict between her interpretation of Hrabanus’ intentions and his detailed (though bookish) descriptions of agriculture, warfare and armament, construction, etc.

The style is heavily repetitive and convoluted, which obscures the absence of arguments for critical points. One example is the route leading to the conclusion that Hrabanus understood Bede’s possible hints (suddenly turned into an explicit theme on p. 446) that the true year might be shorter than  $365\frac{1}{4}$  days. At first it is implicitly taken for granted; then it becomes a question to be taken up later; next the opposite conclusion would be over-hasty—and then it has become a fact. Obvious counter-evidence contained in the book itself is ignored.

Often, elementary precision is lacking. Thus astronomy is claimed (p. 471) to receive the most bulky treatment in all the encyclopedias considered, as a consequence of its cosmic importance. This is conspicuously false regarding Cassiodorus and Martianus, while neither Bede nor Rhabanus treat the quadrivium as a whole; “all” hence reduces to Macrobius plus Isidore.

The reviewer has presented more exact documentation for these weaknesses of the book elsewhere [Centaurus **37** (1994), no. 4, 355–356].

Reviewed by *Jens Høyrup*

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