

BRIAN STOCK

Myth and Science in the Twelfth Century

A Study of Bernard Silvester



PRINCETON LEGACY LIBRARY

MYTH AND SCIENCE
IN THE TWELFTH CENTURY

A Study of Bernard Silvester

MYTH AND SCIENCE
IN THE TWELFTH
CENTURY

A Study of Bernard Silvester

BRIAN STOCK

Princeton University Press

Princeton, New Jersey

1972

Copyright © 1972 by Princeton University Press

ALL RIGHTS RESERVED

LCC 72-38385

ISBN 0-691-05201-8

Publication of this book has been aided by a grant from
the Humanities Research Council of Canada,
using funds provided by the Canada Council.

This book has been composed in Linotype Caslon Old Face.
Printed in the United States of America

for
Béatrice

Contents

Illustrations	ix
Preface	xi
Abbreviations	xv
Introduction	3
Chapter I. <i>Narratio Fabulosa</i>	11
1. Myth, Model, and Science	11
2. Twelfth-Century Approaches to Myth	31
Chapter II. Nature's Complaint	63
1. <i>Natura</i> : Initiator of Cosmic Reform	63
2. <i>Noys</i> : Messenger and Providence of God	87
3. <i>Silva / Hyle</i> : Bernard's Materialism and Its Sources	97
Chapter III. The Creation of the World	119
1. <i>Ornatus Elementorum</i>	119
2. Physics, Motion, and Time	137
Chapter IV. The Creation of Man	163
1. The Heavenly Journey	163
2. <i>Granusion, Physis</i> , and Man	187
Chapter V. Bernard and Twelfth-Century Naturalism	227
1. A Résumé	227
2. Thierry of Chartres, William of Conches, and Daniel of Morley	237
3. Conclusion: Literature or Science?	273
Selected Bibliography	285
Index	299

Illustrations

PLATE I. A copy of the *Cosmographia* annotated by Boccaccio. Firenze, Biblioteca Medicea Laurenziana, MS Plut. xxxiii, 31, f. 59va. Boccaccio refers to the work in his *Comm. alla divina commedia*, lez. 8.

PLATE II. A fourteenth-century "portrait" of Bernard Silvester. Oxford, Bodleian, MS Digby 46, f. iv. Not, of course, a faithful likeness, it nonetheless places Bernard among other well-known "scientific" figures.

PLATE III A. Schematic representations of the four elements, the four humors, and their qualities in the *mundus* and in *homo*. Baltimore, Walters Art Gallery, MS W.73, f. 8r.

PLATE III B. Another symbolic representation of the elements and the humors. Paris, Bibliothèque Nationale, MS lat. 5247, f. 9rb.

PLATE III C. A different schema for interrelating the elements in the creative process; from a *Dragmaticon* of William of Conches. Paris, Bibliothèque Nationale, MS lat. 6415, f. 6rb. This ms, a fourteenth-century copy of an earlier original, also contains the *Cosmographia*.

PLATE IV. *Natura artifex* from a ms of the *Roman de la rose*. Bruxelles, Bibliothèque Royale, MS 11,187A, f. 98v. Jean de Meung's goddess Natura was derived from Bernard Silvester and Alan of Lille. An illustration of Natura was often copied along with the *Roman*.

PLATE V. A Hermetic schema of creation. Paris, Bibliothèque Nationale, MS lat. 13,951, f. 19v. In addition to the four elements and their respective qualities, hot, cold, dry, and moist, the diagram includes the bisexuality of matter (*masculus / femina*), activity and passivity (*agens / patiens*), and the twelve signs

ILLUSTRATIONS

of the zodiac with their influences towards motion or rest (*mobile / quietum*).

PLATE VI. *Homo microcosmus*. Lucca, Biblioteca Statale, MS 1942, f. 9r. An illustration from the *Liber Divinorum Operum* of Hildegard of Bingen, it presents all the general features of the idea of man as a microcosm which became so popular after 1100. The notion occurs most forcefully in the writings of Bernard Silvester, William of Conches, Hildegard, and Alan of Lille; see the discussion in the Conclusion to Chapter V.

Preface

HISTORIANS of literature and of science have in recent decades shown an increasing appreciation of the fascinating borderland that lies between their two disciplines. Renaissance scholars have done much to illustrate the interdependence of science and other rational and irrational activities, while philosophers of science as widely separated in time and method as Duhem and Thomas Kuhn have emphasized, at a more abstract level, that scientific change and the perception of it are complex processes involving other aspects of culture.

The present book is an attempt to extend this type of approach into the twelfth century, a period in which an impressive revival of literature and science took place. The center of focus is the *Cosmographia* of Bernardus Silvestris of Tours, which was written in the 1140s. This work is analyzed from the twin perspectives of philosophic naturalism and the role of innovation upon traditional modes of thought. As early as 1927 Haskins called for a study of this kind when he wrote: "We still lack a detailed study of the range and depth of Platonic influence in [the early twelfth century]; nor do we know . . . what reactions the new knowledge produced on the older habits of thought." Chapters II, III, and IV of the book treat this problem with reference to Bernard alone, while Chapters I and V assess his relation to other students of natural philosophy in the period, including Thierry of Chartres, William of Conches, and Daniel of Morley.

A critical text of the *Cosmographia*, Bernard's chief work, has been completed for some time but is not yet in print. It was prepared by André Vernet and announced in the *Ecole Nationale des Chartes, Positions des thèses . . . de 1937*, pp. 167-74. This edition, which completely super-

PREFACE

sedes the redaction of Barach and Wrobel in 1876, is used throughout. I should like to thank M. Vernet for allowing me to make especially large quotations from his text, which he graciously placed at my disposal over a long period of time.

Vernet's text, on the whole, follows the chapter divisions of Barach-Wrobel; where it does not, I have given both references. In addition, owing to the difficulty of Bernard's Latin, I have undertaken the dangerous activity of translating all my quotations. The translations are intended as guides only. My aim has been to place in the hands of students of philosophy, science, or the vernacular literatures a minimal set of tools, both textual and interpretative, for understanding an author whose place in medieval and renaissance thought is clearly seminal.

In addition to the *Cosmographia*, Bernard was the author of a number of other literary works. Unfortunately the final word on his bibliography has not yet been pronounced. In general I have followed Vernet except where more recent evidence has appeared. It is not widely known that his *remaniement* classifies the commentary on *Aeneid* i-vi (published by W. Riedel, Greifswald, 1924) as an "oeuvre d'authenticité possible" but not certain. A critical edition, now in preparation, may dispel the doubt. Until it appears, however, doubtful must remain not only the Virgil commentary but also the interesting commentary on book one of Martianus Capella, which was recently discovered and published in excerpt by Abbé Jeuneau in *Studi medievali*, 1964. It is tempting to think that Bernard, who was one of the most successful didactic poets of the Middle Ages, was also one of the chief literary theorists. Yet, for the moment, the thought must be resisted; too much work remains to be done on twelfth-century commentaries on classical authors. Another work associated with Bernard is

PREFACE

a short treatise on composition in MS Wien, Nationalbibliothek lat. 246, published by M. Brini Savorelli in *Rivista critica della storia della filosofia*, 1965. For lack of evidence this must be regarded as an anonymous. As presently established, the proven bibliography of Bernard Silvester consists of some minor poems not mentioned in this study, the *Mathematicus*, the *Cosmographia* (also known as *De Mundi Universitate*), and, very possibly, the *Experimentarius*. Vernet argues that the distribution of manuscripts of the last work is unusual for a French author, but Brini Savorelli makes a strong case for Bernard's hand in at least the meters and the introduction in her edition in *Rivista critica della storia della filosofia*, 1959. If Bernard lived, as Vernet suggests, roughly between 1085 and 1178, his three major works may be viewed in the light which the new astronomy shed on the Platonic cosmology of the early twelfth century.

I should like to thank André Vernet, who kindly read the study, as well as a number of other colleagues who have rendered invaluable assistance. Peter Dronke read Chapters III and IV in an inferior state and made more than a few suggestions for improvement. Over the years I have also derived immeasurable benefit from our stimulating conversations. In addition to having written excellent guides to the School of Chartres, Tullio Gregory and Edouard Jeuneau have provided me with encouragement from time to time. It is difficult to find adequate words to acknowledge the debt I owe to the late C. S. Lewis, under whose supervision I began my research. Perhaps a study, however unworthy, devoted to one of his favorite authors, is the most appropriate gesture. I should also like to express my gratitude to George Rigg for the meticulous care with which he has read my translations, and to my col-

PREFACE

leagues in the Institute of Mediaeval Studies, J. Sheridan, E. A. Synan, L. E. Boyle and J. R. O'Donnell, for their generous co-operation. Finally, I should like to thank the Very Rev. L. K. Shook for providing an excellent atmosphere for serious research in the Institute and Princeton University Press for the care they have taken in the production of the volume.

The Master and Fellows of Trinity College, Cambridge, and the Canada Council supported the research which made the volume possible. The Institut de Recherche et d'Histoire des Textes, Paris, saved me much time and labor.

B.S.

Toronto
January 1972

Note: Square brackets in the English translations denote material not found in the Latin originals. Within the Latin texts, the normal conventions for square and pointed brackets are observed.

ABBREVIATIONS

<i>AHDLMA</i>	<i>Archives d'histoire doctrinale et littéraire du moyen âge.</i> Paris, 1926—; cited in the year of actual publication.
Apuleius, <i>De Mundo</i> <i>De Deo Socratis</i> <i>De Platone</i>	<i>Apulei Opera quae Supersunt</i> , ed. R. Helm and P. Thomas, vol. III, <i>Apulei Platonici Madaurensis de Philosophia Libri</i> . Leipzig, 1921.
<i>Asc.</i>	<i>Asclepius</i> , in <i>Corpus Hermeticum</i> , vol. 2, ed. A. D. Nock and A.-J. Festugière. Paris, 1960.
<i>Beiträge</i>	<i>Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters</i> . Münster, 1891—.
<i>Cos.</i>	Bernardus Silvestris, <i>Cosmographia</i> : (1) <i>Bernardi Silvestris De Mundi Universalitate libri duo sive Megacosmus et Microcosmus</i> , ed. C. S. Barach and J. Wrobel. Innsbruck, 1876. (2) André Vernet, "Bernardus Silvestris. Recherches sur l'auteur suivies d'une édition critique de la <i>Cosmographia</i> ." Dissertation, Paris, Ecole Nationale des Chartes, 1938.
Chalcidius, <i>Comm.</i>	Chalcidius, <i>Commentary on the Timaeus</i> , in <i>Plato Latinus</i> , ed. P. J. Jensen and J. H. Waszink, vol. 4, pp. 53-346. London/Leiden, 1962.
Chenu	M.-D. Chenu, <i>La théologie au douzième siècle</i> . Etudes de philosophie médiévale, XLV. Paris, 1957.
<i>CSEL</i>	<i>Corpus Scriptorum Ecclesiasticorum Latinorum</i> . Wien, 1866—.
Gregory	Tullio Gregory, <i>Anima mundi. La filosofia di Guglielmo di Conches e la scuola di Chartres</i> . Pubblicazioni dell'Istituto di Filosofia dell'Università di Roma, III. Firenze [1955].

ABBREVIATIONS

Haskins	C. H. Haskins, <i>Studies in the History of Mediaeval Science</i> . 2nd edition. Cambridge, Mass., 1927.
Macrobius, <i>Comm.</i>	<i>Ambrosii Theodosii Macrobiani Commentarii in Somnium Scipionis</i> , ed. J. H. Willis. Leipzig, 1963.
MGH	<i>Monumenta Germaniae Historica</i> . Berlin and Hannover, 1826-.
MS	<i>Mediaeval Studies</i> . Toronto, 1939-.
PL	<i>Patrologia Latina</i> , ed. J. P. Migne. 221 vols. Paris, 1844-.
SB	<i>Sitzungsberichte</i>
S <i>Med</i>	<i>Studi medievali</i> . Torino, 1904/05-; Spoleto, 1960-.
<i>Tim.</i>	Plato, <i>Timaeus</i> , in <i>Plato Latinus</i> , ed. P. J. Jensen and J. H. Waszink, vol. 4, pp. 5-52. London/Leiden, 1962.
TLL	<i>Thesaurus Linguae Latinae</i>

MYTH AND SCIENCE
IN THE TWELFTH CENTURY

A Study of Bernard Silvester

Poesis uero est scientia claudens in metro orationem. . . .

MSS Cambridge, Trinity College B.14.33, f. 10r,
and University Library Mm.1.18, f. 5va

Introduction

THROUGHOUT the greater part of the Middle Ages, *scientia* referred neither to exact science nor to empirically verifiable fact but to all things knowable. Scientific thought and the language of science were inseparable from mythical modes of explaining how the universe arose and functioned. Scientific ideas frequently underwent evolution within the framework of myth and appeared less often as total revolutions in world-view than as internal, structural changes within the myths themselves. In this sense, the *Cosmographia* of Bernard Silvester was the introduction of a relatively new myth of the creation of the world and of man into European philosophical literature.

During the early twelfth century when it was written, certain intellectual developments took place which, by general historical agreement, facilitated the emergence of a scientific sensibility. Owing to the translation of hitherto unavailable doctrines like the Aristotelian physics and Ptolemaic astronomy, a new emphasis was placed on the *quadrivium*, while, within the European intellectual tradition itself, interest in logical rationalism and in mathematics helped to lay the groundwork for a scientific methodology. At the same time a number of important technological innovations were made, particularly in agriculture and in warfare. These served to increase man's control over the natural environment and, as a result, to alter his perception of his place in the natural order. More generally, there was a growth within medieval culture as a whole of a certain existential naturalism, a this-worldliness which balanced the tendency towards mysticism in the Augustinian tradition. This sensibility makes its appearance in literature, in cathedral sculpture, and indirectly in intel-

INTRODUCTION

lectual debates. Peter Abelard, for instance, generally recognized to have been the most gifted logician of his generation, argued seriously that universals were not merely abstractions but were interrelated with physical reality.

These developments should properly be viewed as parts of a whole. They were made possible, even necessary, by equally deep changes in the institutional fabric of twelfth-century society. In France, where many of the outstanding intellectual and artistic changes originated, the transformation was quite dramatic. During the reign of Louis the Fat, peace and stability returned to the countryside after more than a century of continuous invasion. Despite minor setbacks, the central control of the Capetian monarchy was strengthened throughout the period and a relatively stable atmosphere provided for the expansion of cathedral schools and, later, of universities. The great international political events of the day, the crusades, brought France, as all northern Europe, into renewed contact with the Arab world, whose cultural achievements were in some ways superior to her own. In these conditions it is not surprising that a profound religious and social reorientation took place. Under Bernard of Clairvaux the Cistercians completed the reforms begun by Gregory VII and the Cluniacs in the eleventh century, while at St. Denis and Chartres a new humanism began to take shape. In society at large the hitherto monolithic feudal system began to be broken down into a more diversified social structure. The intense growth in population and the ensuing division of labor helped to provide France with her first urban centers of note since the Roman Empire, while the rise of merchant trading, republican institutions, and a free labor market altered the bonds between men. For the first time in centuries, town and country became the chief axes of class conflict. Lastly, with the birth of the towns a different type

INTRODUCTION

of intellectual and style of educational institution made their appearance.

As economic, social, and institutional factors underwent a metamorphosis, so did *mentalité*. This aspect of change in the period, first treated in depth by Marc Bloch, has been characterized as follows by Fr. Chenu:

The twelfth century was a turning point in medieval civilization; so marked was the transformation that took place in the material conditions of life that it has been possible to speak of a "technological revolution." Encouraged by the breakup of the feudal monopoly of the soil, by the economic and political emancipation of urban artisans organized into guilds, and by the active mobility of men and goods in a market economy, the use and spread of new techniques of production and commerce profoundly altered not only the material side of life but also the modes of perception, sensibility, and representation that pertain to the life of the spirit. Did not Aristotle base his analysis of change and becoming upon the analogy of the artisan and his work?¹

Few better examples could be found in the twelfth century of this phenomenon than the interdependence of literature and science. In both areas the image which man began to draw of himself restored the balance between the active and the contemplative life. Man's physical makeup became, as it had been for Posidonius, an integral part of his divinity. Man's relation to nature, God, and the world was fundamentally altered.

¹ M.-D. Chenu, *Nature, Man and Society in the Twelfth Century*, ed. and trans. J. Taylor and L. K. Little (Chicago, 1968), 39 (= Chenu, 45; page references in this book are to the French edition: see List of Abbreviations).

INTRODUCTION

One perspective through which these intellectual changes may profitably be viewed is that of tradition and innovation, of classical form adapting to the new naturalism. On the one hand, there was a purely classical revival, affecting not only literature but law, theology, and the various sciences. On the other hand, the interest in the visible, empirically definable world insured that naturalism interpenetrated the classical revival in numerous ways. One finds the new relation to antiquity expressed in commentaries on the Bible and classical authors; in encyclopedias designed to embrace the accumulated knowledge of centuries but now including a higher degree of information about the real world; in monumental sculpture, in which the saints and the heroes of antiquity are not eternal archetypes, models of wisdom and of action, but begin to resemble the citizens of medieval towns. In a famous metaphor, Bernard of Chartres is reported to have visualized his contemporaries as "dwarfs, standing on the shoulders of the giants."² By this he meant that his generation was able to see farther than the ancients, not because they possessed better vision, but because the accumulation of knowledge in their time allowed them a novel perspective on tradition. His own age was a continuation of the classical world in faithfully reproducing its concepts, styles, and cultural ideals. But Bernard was prepared to grant that in other respects it had perhaps surpassed even the ancients.

Within the suggested framework of Bernard's metaphor—and not that of a radical break with tradition as in the Renaissance—the classical debate on myth and science, which had really begun with Aristotle's critique of Plato's

² John of Salisbury, *Metalogicon* iii.4; ed. Webb, p. 136, 23-27. On the history of the metaphor, see R. Klibansky, *Isis* 26 (1936), 147-49, and E. Jeuneau, *Vivarium* 5 (1967), 77-99. [See the Selected Bibliography for complete bibliographical data on works cited in the notes.]

INTRODUCTION

Timaeus, was reopened in a new context. The question, first of all, was whether the intellectual forms inherited in tradition could any longer serve as a useful foundation for a scientific understanding of the universe. The responses varied greatly. The tendency towards conservatism in literary format insured that most authors expressed their new ideas in discourses which possessed recognizable links with antiquity. A great many literary forms from the classical and, in particular, the late Latin world were revived for the purpose: the dialogue, the *satira* (or *prosimetrum*), the encyclopedia, the commentary, and, more rarely, the epic and the myth itself. The forms were utilized in ways that often emphasized their distance from antiquity and their relation to literary fashions in their own day. The innovators are frequently called the *moderni*, and the medieval *codices* of such works often contain both the ancient and the modern product. The *Questiones Naturales* of Adelard of Bath are often bound with Seneca's work of the same name,³ and the *Imago Mundi* of Honorius of Autun and the *Philosophia Mundi* of William of Conches are found with the encyclopedias of Isidore or Bede.⁴ Even an apparently uncreative format like the interlinear or marginal gloss could serve as a springboard for original discussion. An example is the commentary of Peter Helias on the grammarian Priscian.

Yet beneath the use of such classical formats for uniting traditional and original ideas lay a deeper problem: whether science, or the individual sciences, would not have to evolve languages which suited their own internal requirements. In particular, as rational modes of thought

³ See Haskins, 41 n. 103.

⁴ E.g., MS Paris, Bibl. Nat., lat. 11,130, containing the *Imago Mundi* i-ii (ff. 1-28v), an illustrated *Philosophia Mundi* (ff. 28v-69r), and Bede's *De Rerum Natura* (ff. 69r-78v). For MSS of the *Philosophia Mundi*, see A. Vernet, *Scriptorium* 1 (1947), 243-59.

INTRODUCTION

became more familiar, and as the natural-philosophic corpus, swelled by translations, increased in size, new approaches began to be made to the chief problem between myth and science: the creation of the world and of man. In general there were two approaches, the historical and the structural. In the historical, the natural order was subordinated to historical genesis; in the structural, history was subordinated to a rational order. According to the historical interpretation, the world had a beginning and, presumably, an end; in the structural, the world underwent transformations, but was in essence eternal. Historical genesis emphasized the role of an omnipotent creator in whose beneficent image both the world and man were created; structural genesis, while not denying the existence of the creator, emphasized the creational modalities of the existing world, its laws and principles of procreation. These two approaches of course developed from positions well known in the ancient world (and not without parallels in modern astronomy). Within the context of the limited source materials available in the period, however, each was indebted to a different classical exemplar. For the historical theory, it was the book of Genesis; for the structural, the *Timaeus* in a variety of interpretations. It is common, moreover, to find both approaches brought together in a single work. A good example is Thierry of Chartres' *Commentary* on the opening chapters of the Bible *secundum litteram et secundum physicam*.

As early as the 1130s, many scientific minds were overtly or covertly advocating a structural approach to creation. The problem was not so much the rejection of Genesis as myth, for the whole period, until about 1150, was dominated by Platonic mythologizing. It was the replacement of one myth by another, which, to their minds, possessed inherently better possibilities for scientific development. After 1150, the issues were somewhat different. "The re-

INTRODUCTION

ception of the Ptolemaic astronomy and the Aristotelian physics, as transmitted by the Arabs⁷⁵ combined with a new emphasis on the *quadrivium* rather than the *trivium* to reformulate the whole question of cosmology. The changes also favored larger university centers like Paris over the more intimate cathedral schools like Chartres. Up to the 1140s, however, a certain balance was achieved between myth and science. While not entirely abandoning the framework of mythical cosmogony, authors like Thierry, William of Conches, and Gilbert Porreta began to introduce scientific elements as they understood them. These did not consist of the verification of facts through experiments, although this is suggested from time to time between the lines. It consisted rather in applying strict, logical rationalism to the problem of natural causality. *Ratio* was not only identified with *kosmos*, the Platonic ordering of the elements into a model of the divine, but with the *ordo naturalis*. The essential components of the renovated Platonic cosmology were mathematical and musical harmony, naturalism, and logical consistency within the cosmic system.

Bernard Silvester stands very near the center of this development. As a Platonist he attempted to achieve a goal inherently more audacious than that of the commentators: to rewrite the myth of the creation of the world and of man. A keen student of contemporary natural philosophy, he tried at the same time to introduce into his myth a number of unique features. The result is not only a reworking of a traditional cosmogony, a primitive myth of creation brought up to date. It also mirrors in many subtle ways the deeper intellectual ferment of the period, its inner preoccupations and moods. To carry out this difficult task of synthesis, Bernard adopted the plastic medium of allegory. Using neoplatonic models as his guides, he created a *mythologische Gesellschaft* to enact the drama of creation. Parts

⁷⁵ Haskins, 90.

INTRODUCTION

of the *Cosmographia*, to be sure, are not free from needless obscurity. Yet it exemplifies perhaps better than many other literary works of the early twelfth century the blend of tradition and innovation implied in Bernard of Chartres' famous metaphor. It was a simple matter for early historians to confuse the author of the *Cosmographia* with Chartres' most renowned humanist.

The method employed throughout the book is the investigation of Bernard's sources, frequently accompanied by direct or indirect manuscript evidence. Yet *Quellenforschung* has not been made an end in itself. Too often medieval authors have suffered unjustly from having their original works reduced to the mentalities of an earlier age or projected into those of a later one. An appreciation of any work of literature implies an acceptance of the period of history in which it was written: its criteria of art, its perspectives on the past, its use of traditional materials in new ways. Until recently, historians have not entirely succeeded in freeing works of the literary imagination in the twelfth century from the Draconian embraces of "the classical tradition" and "scholastic philosophy." The *Cosmographia* is primarily a work of literature, and what is more, the product of a highly individualistic artist. In recognition of this fact, considerable space in what follows is devoted to form as well as to content. The ultimate aim of the study is to use the sources as a key for unlocking the structure of Bernard's myth. For if he was not entirely original as a scientific theorist, his capacity for myth-making was unsurpassed in his time.

CHAPTER I

Narratio Fabulosa

I. Myth, Model, and Science

BERNARDUS SILVESTRIS of Tours very probably wrote his *Cosmographia* sometime between 1143 and 1148.¹ Some seven centuries later an edition based upon only

¹ Manitius-Lehmann, *Geschichte der lat. Literatur des Mittelalters* 3 (München, 1931), suggests, 1145-53, the pontificate of Eugene III, who is mentioned at *Cos.* i.3.55-56. Yet the work was probably in progress from an earlier date. John of Spain, whose abbreviated translation of Abu Ma'shar Bernard may have known, was finished by 1133; Steinschneider, *Die europäischen Übersetzungen aus dem Arabischen*, SB Wien, vol. 149 (1904), 47. Hermann of Carinthia, possibly Bernard's associate, completed his *De Essentiis* and his translation of Ptolemy's *Planisphere* by 1143; Haskins, 47-48. By this time as well his translation of the longer version of Abu Ma'shar was well advanced; Haskins, 45, and in greater detail, R. Lemay, *Abu Ma'shar and Latin Aristotelianism in the Twelfth Century* (Beirut, 1962), 9-19. The *terminus a quo* for the *Cosmographia* may therefore be as early as the 1130s. The *terminus ad quem* is possibly the winter of 1147-48. R. L. Poole, *Eng. Hist. Rev.* 35 (1920), 328, cites the following gloss for *Cos.* i.3.55 from Bodleian MS Laud. Misc. 515, f. 188v: "*Eugenius*. Iste Eugenius fuit papa in cujus presencia liber iste fuit recitatus in Gallia et captat ejus benivolenciam." But is this gloss to be trusted? There are at least two reasons to doubt that it should. First, the ms was written after 1250, a somewhat late witness for the event. We must assume that it was taken from an earlier copy, now lost. Moreover, if one reads the whole gloss instead of isolating this statement, it emerges as a highly unintelligent commentary on the *Cosmographia*, showing no very great understanding of the book's sources or meaning. Why then should it be trusted without question on the problem of dating? Lastly, is the *Cosmographia* not somewhat lengthy to be *recitatus*, and would the faithful who attended the Council of Reims in 1148 not have been offended by its astrology?

two unreliable manuscripts² was put into print by C. S. Barach and J. Wrobel. Both immediately after its appearance in the Middle Ages and after its publication in 1876, the encyclopedic myth made a considerable impact on the learned literary scene. The editor of the critical text, André Vernet, has counted dozens of manuscripts, and historians have been able to trace Bernard's influence on a wide variety of medieval and renaissance authors, including Hildegard of Bingen, Vincent of Beauvais, Dante, Chaucer, Nicolas of Cusa, and Boccaccio—whose annotated copy of the work we possess³ [Plate I]. Yet critics have been unable to agree on an interpretation. Abbé Clerval, one of the earliest to study the myth, described it as “un des poèmes philosophiques les plus curieux du XII^e siècle,”⁴ while more recently Fr. Chenu has referred on more than one occasion to its “ambiguity.”⁵ Perhaps more than any other work of the period, the *Cosmographia* has been capable of inspiring partisan interpretations.⁶ At the same time, all

² Wien, Nationalbibl., lat. 526 and München, Bayer. Staatsbibl., Clm. 23,434. The *Cosmographia* was, in fact, partially published in three earlier editions: V. Cousin, *Ouvrages inédits d'Abélard pour servir à l'histoire de la philosophie scholastique en France* (Paris, 1836), 627-36; B. Hauréau, *Histoire de la philosophie scholastique* I (Paris, 1872), 407-17; W. Stubbs, *Radulfi de Diceto decani Lundoniensis opera historica* II (London, 1876), lxxviii-ix. In the introduction to his edition (p. 141) Vernet notes wryly that while Cousin's readings were inexact, “la ponctuation est en général excellente et C. S. Barach aurait été bien inspiré de la suivre,” a sentiment that has doubtless been shared by many a modern reader of Bernard.

³ Firenze, Bibl. Med. Laur., MS plut. xxxiii,31, f. 59va. Cf. F. Munari, *Philologus* 104 (1960), 279, n. 3.

⁴ *Les écoles de Chartres au moyen âge du Ve au XVI^e siècle* (Chartres, 1895), 171.

⁵ *AHDLM* 22 (1956), 76; Chenu, 114-15.

⁶ These are summarized by T. Silverstein, *Modern Philology* 46 (1948-49), 92-116, esp. 92-93, and more briefly by M. McCrimmon, “The Classical Philosophical Sources of the *De Mundi Uni-*

who have studied it agree that it is an important book: under the veil of allegory it presents a synthesis of central doctrines in the medieval and renaissance philosophy of nature, man, and the world.

Although we know little of Bernard's life, contemporary and later witnesses record his success as a teacher of the humanities [Plate II]. Typical of them is Matthew of Vendôme, who recalls learning to compose Latin verse under Bernard's supervision at Tours, presumably between 1130 and 1140.⁷ Bernard refers to the region of Tours twice in the *Cosmographia*.⁸ He is therefore assumed to have taught there for a period of his life. His only other literary associations are with Chartres. Most medieval copies of the *Cosmographia* contain a letter of dedication to Thierry, who became Chancellor of Chartres in 1141. Yet, as Poole points out in his summary of the evidence, "there is nothing to suggest that he was ever connected with Chartres"⁹ as a student or teacher. Bernard's dedicatory epistle merely asks Thierry for his approval of the *Cosmographia* before he publishes it under his own name. Hermann of Carinthia, with whom Bernard may have collaborated in the *Experimentarius*, also sent to Thierry his translation of Ptolemy's *Planisphere*.¹⁰ Bernard's letter is really only evidence that he attempted to win the favor of a powerful yet liberal figure, widely known for his in-

versitate of Bernard Silvestris" (diss., Yale Univ., 1952), and P. Dronke, *SMed* 6 (1965), 415-16.

⁷ Me docuit dictare decus Turonense magistri
Silvestris, studii gemma, scholaris honor.

Ed. Wattenbach, *SB München, philos.-philolog. und hist. Kl.*, 2 (1872), 581, lines 69-70; cited and discussed by E. Faral, *SMed* 9 (1936), 70.

⁸ *Cos.* i.3.261-62 (= Vernet, 264-65); i.3.351-52.

⁹ *Eng. Hist. Rev.* 35 (1920), 331.

¹⁰ Haskins, 47.

terest in science and for his occasional defense of unpopular theses. Whether Bernard is connected directly to Chartres or not, however, historians have been essentially correct in interpreting his humanism within its cultural ideals.¹¹ Bernard belonged very much to the generation of Thierry, William of Conches, Gilbert Porreta, and John of Salisbury. In his mind, as in theirs, an interest in new ideas went hand in hand with a rediscovery and fresh reading of the classics.

The *Cosmographia* is possibly the most complex literary product of the early twelfth century. As it is clearly a composite form, it may be useful at the outset to isolate the individual elements in it and to discuss them separately. These may then be reunited and the work better appreciated as a whole. In general, two distinct structures are at work. There is both a dramatic *myth*, enacted by a group of allegorical personifications, and a resulting *model* of universal order, relating the macro- to the microcosm. In other words, there is both a story of the creation of the world and of man and a resulting design whose parts are analyzed in relation to each other. While it is not always possible or desirable to separate these elements—Noys, for instance, is both an actress in the drama and a principle in the model—a rough division between them allows one to perceive the interplay between form and content and to better comprehend Bernard's dexterity of composition.

First, then, the myth. Bernard prefaced the *Cosmographia* with an *argumentum*, but it must be followed with caution.¹² It tells us that "in the first book, called *Megacosmus*, Natura complains in tears to Noys, God's providence,

¹¹ See in particular Gregory, 175-278; Chenu, 19-51, 108-41.

¹² Bernard's preface is inaccurately called the *breviarium* by Barach and Wrobel. Unfortunately, it has also been accepted by historians as an accurate guide to the work. In point of fact, the brief summary omits for the most part *Cos.* i.4, ii.5-9, and ii.12-14.

about the confusion of *hyle* or prime matter and implores that the worldly order be brought to a more attractive conclusion."¹³ The remainder of i.1, written in hexameters (an unusual verse form for Bernard), consists of Nature's complaint: it describes in vivid detail the turmoil of chaos before the harmonious stability of the four elements is established. In i.2, in prose, Noys continues the dialogue with Natura. She agrees in principle to fulfill the request, theorizes about her relation to God, then turns to the practical business of creation, separating the four elements and moulding them into a stable structure for the world's body. After a digression in which Noys, never modest, discourses on her own powers, the world-soul, *endelichia*, descends in emanation from the heavens. The union of body and soul takes place under Noys's guidance, completing i.2.

Once the body and soul of the universe are "married," its contents unfold before the reader in i.3 in elegiacs. Noys, who is presumably presiding over this event as well, is nonetheless mentioned in the catalogue of all things in the world. The reader is thus given the impression—maintained throughout the *Cosmographia*—of astrological determinism operating in co-existence with a certain amount of free will. Bernard sets forth the nine orders of angels, the zodiac, the divisions of the earth, and its contents, including mountains, rivers, trees, fruit, spices, paradises, domestic vegetables, flowers, fish, and birds. When this little encyclopedia is finished, he presents, in i.4, an explanation of how the universe runs. The cosmic globe possesses an eternal source of life-giving power which flows down from the heavens in the form of heat and light. The cosmos itself is eternal, a notion which he defends by uniting, not altogether successfully, material from a number of different sources. In the hierarchy of *genii* or *numina* that transmit ideas,

¹³ Ed. Barach-Wrobel, p. 5, lines 16-20.

principles, and life-forces from above, primacy of place is given to Noys. Then follow *mundus*, the living creature of the world itself, *endelichia*, the world-soul, *Natura*, and *imarmene*, fate. These are all interrelated in a syncretistic fashion.

Book one may thus be divided into three sections: i.1 and i.2, on creation itself; i.3, on the contents of the universe; and i.4, on the quasi-scientific processes by which the cosmos functions.

In *Microcosmus*, book two, Noys promises to create man as the summation of her work. In ii.3, she first bids *Natura* seek out two other goddesses whose help will be indispensable: *Urania* and *Physis*. *Natura* searches for *Urania* in the heavens and finds her, not too surprisingly, indulging in astrology. *Urania* agrees to co-operate and explains to *Natura* some of the difficulties which the individual soul will encounter, as well as the diverse properties it will acquire, in descending to inhabit temporarily the human frame. In ii.5-9, *Urania* leads *Natura* on a long journey through the stars. After visiting a mysterious, neoplatonic palace called *Tugaton*, they descend to earth through the planetary spheres. At ii.9, just below the lunar sphere, they pause at a place called *Granusion*, where they encounter *Physis* with her two daughters, *Theory* and *Practice*. While *Physis* conducts what appear to be experiments into the natures and causes of phenomena, Noys arrives on the scene. After delivering an oration on the dignity of man (ii.10), she proceeds to supervise the work of the other three goddesses in creating man as a microcosm (ii.11-12). *Physis*, now raised to an important role in the drama, first complains about the inherent difficulty of making man from the left-over elements; then, aided by *Urania* and *Natura*, she puts man together rather like a mechanical fabrication. In ii.13-14, man, the *fabrica Nature primipotentis*, is described in

detail, thus providing a literary balance to the poetic unfolding of the *megacosmus* in i.3.

In general, then, book two may be divided into two major acts, dealing respectively with the astral journey and the creation of man. It is also possible to divide the last act into two scenes, one treating man's actual formation from the elements, the other the manner in which he functions.

This, in brief, is Bernard's myth. Clearly, within it, a model of the universe and of man is envisaged, but, as suggested above, this model is inseparable from the manner in which it is presented. Moreover, within the myth two different types of source material may be distinguished, each contributing in a different way to the ultimate result. The first is the story of creation itself. For this Bernard's chief source was Plato's *Timaeus*. The second is the philosophical and scientific information that fills out the skeletal model of the *Timaeus*. For this Bernard turned to a wide group of classical and contemporary authors.

To deal first with Plato: Bernard drew from the *Timaeus*, which he read in the late third-century translation of Chalcidius, not only many essential ideas, but, more importantly, the conception of myth imbedded in the dialogue. Bernard did not entirely assume, as did Plato, that "the world is only a likeness of the real," but he did clearly support the view that "any account of it can be no more than a 'likely' story."¹⁴ To put the matter slightly differently, there are in the *Cosmographia*, as in the *Timaeus*, two senses of myth. In the first, just mentioned, it is assumed that

no account of the material world can ever amount to an exact and self-consistent statement of unchangeable truth. In the second place, the cosmology is cast in the

¹⁴ F. M. Cornford, *Plato's Cosmology* (London, 1937), 28.

form of a cosmogony, a 'story' of events spread out in time. Plato chooses to describe the universe, not by taking it to pieces in an analysis, but by constructing it and making it grow under our eyes. . . . Some have regarded the mythical character of the dialogue as a 'veil of allegory' which can be 'stripped off,' and have imagined that they could state in literal terms the meaning which Plato has chosen to disguise. . . . [Yet] there remains an irreducible element of poetry, which refuses to be translated into the language of scientific prose.¹⁵

Like Plato, Lucretius, and, most appropriately, Manilius, Bernard Silvester is a cosmic poet. The *Cosmographia* cannot be reduced to a mere summary of the doctrines it contains if its artistic structure is to be left intact. Like the *Timaeus*, it must be considered an attempt to build a cosmic order before the reader's eyes.

The attitude towards myth in Bernard and his contemporaries will be discussed at greater length in the second part of this chapter. With regard to the model of universal order presented in the *Cosmographia*, it may be useful at the outset to point out certain broad similarities. Like Plato, Bernard conceived the ordering of the world to be based on the action of a beneficent creator and his vicegerents who were also gods. He saw genesis essentially as a problem of Intelligence (Noys) and Necessity (Natura, Urania, Physis, etc.). Within this framework, he developed some of Plato's favorite themes: the idea of man as a microcosm of the universe, the union of the world-soul and the earth, the interrelation of motion, time, and eternity, the notion that the soul undergoes a type of education before it enters the body, and, based upon the above, a group of parallels between man's configuration and the

¹⁵ *Ibid.* 31-32.

world's. Yet, in spite of these obvious points of comparison, the *Cosmographia* is in some fundamental ways unlike the *Timaeus*. One reason is that it is based on a translation which breaks off abruptly at 53B, near the beginning of Plato's second account of creation "from a different point of view." Another, more important reason is that Bernard often intermingles Plato's views with those of his interpreters. The latter often reflect attitudes and opinions quite different from Plato himself.

If there is a single characteristic which unites Bernard's other sources besides Plato, it is that they are all encyclopedic. Moreover, they may be thought to represent a stage of cosmological thought which, coming after the mythical cosmogony, attempts to explain in scientific terms what it means. In this sense, their works may be called *structural encyclopedias*, since the structure of the cosmogony—proceeding from fundamentals like matter and form to the immense diversity of the universe—often lurks just beneath the surface. Chalcidius' *Commentary* on the *Timaeus*, perhaps Bernard's major single source, is a good example. The work is an encyclopedic treatise based upon the original and, like it, divided into two major topics, Intelligence (chapters 8-267) and Necessity (268-355). Under these headings however Chalcidius does not construct the universe before the reader's eyes. Rather he takes it apart. His commentary is a comprehensive exposition of the *Timaeus*, taking each separate theme in the myth as a topic for synthesizing the thought of a number of ancient schools. The reader is thus presented with an entirely different literary form from the original. While based upon the idea of myth, the commentary turns the notion around and presents instead a demythologization. Throughout the Middle Ages, moreover, Chalcidius' commentary was thought to be an indispensable tool for understanding Plato. The two structures, the myth and the demythologization,