

The Frontispiece of Gafori's *Practica Musicae* (1496)

by JAMES HAAR

THE depiction of celestial harmony (fig. 1) used as title page for the first edition of the *Practica Musicae* has been a great favorite among art historians of iconographic bent; Warburg, Panofsky, Sez nec, and Wind have all reproduced and commented on this woodcut at some length.¹ The frontispiece has nothing really to do with the contents of the *Practica*—no more, say, than the Boethian frontispiece of the thirteenth-century Pluteus manuscript has to do with Notre Dame polyphony.² But the illustration was surely Gafori's idea rather than that of his printer, Le Signerre.³ Gafori as a devout Boethian was enamored of myths about cosmic harmony; he expounded Boethius' doctrine of *musica mundana* in the first edition of the *Theorica Musicae* in 1480, expanded upon this treatment in the second edition of that work (1492), and returned to the subject armed with much newly acquired humanistic lore in the *De Harmonia Musicorum Instrumentorum Opus*, published in 1518 though certainly written some years earlier.⁴ In the

¹ Aby Warburg, 'I Costumi teatrali per gli intermezzi del 1589,' *Gesammelte Schriften*, 1 (Leipzig, 1932), 271, 412–414; Erwin Panofsky, 'Titian's Allegory of Prudence: A Postscript,' *Meaning in the Visual Arts* (Garden City, N.Y., 1957), pp. 151–158; Jean Sez nec, *La Survivance des dieux antiques* (London, 1940), Engl. tr. by Barbara F. Sessions (New York, 1953), pp. 140–142; Edgar Wind, *Pagan Mysteries in the Renaissance* (New Haven, 1958), pp. 46–47, 50, 112–113. The woodcut is reproduced in two English translations of the *Practica*, that of Clement A. Miller (American Institute of Musicology, 1968) and that of Irwin Young (Madison, Wisc., 1969); it is briefly described on p. xxix of the latter. The *Practica Musicae*, first printed in Milan in 1496, has been reprinted in facsimile (Farnborough: Gregg International Publishers, Ltd., 1967).

² On the illuminations of the ms. Florence, Bibl. Mediceo-Laurenziana, Pluteus 29, 1, see Rebecca A. Baltzer, 'Thirteenth-Century Illuminated Miniatures and the Date of the Florence Manuscript,' *Journal of the American Musicological Society*, 25 (1972), 1–18.

³ For Guilielmus Signer or Le Signerre, see Claudio Sartori, *Dizionario degli editori musicali italiani* (Florence, 1958), p. 144; Mariangela Donà, *La stampa musicale a Milano fino all'anno 1700* (Florence, 1961), pp. 72–73; Robert Proctor, *An Index to the Early Printed Books in the British Museum*, 1 (London, 1898), 403. For an assessment of Le Signerre's woodcuts see Friedrich Lippmann, *The Art of Wood-Engraving in Italy in the Fifteenth Century* (London, 1888; repr. Amsterdam, 1969), pp. 142f.

⁴ There is a discussion of the relevant passages, and their sources, in the two editions of the *Theorica Musicae* in my 'Musica Mundana. Variations on a Pythagorean Theme,' unpub. diss., Harvard University, 1960, pp. 362–372. Gafori had a trilogy of theoretical works in mind at an early date, and probably wrote versions of all three of his major treatises well before publishing them. On this see Clement A. Miller, 'Gaffurius's *Practica Musicae*: Origin and Contents,' *Musica Disciplina*, 22 (1968), 105–109. A manuscript copy

fourth book of this last treatise the cosmic diagram of figure 1 reappears (fol. lxxiv^v), this time accompanied by Gafori's own explication of its meaning.

Although the *De Harmonia* is a theoretical work, dealing not with musical instruments but with the arithmetical laws of harmonics, it is quite different from Gafori's *Theorica*. The abstract study of proportions comprising a large part of that treatise is not found in the *De Harmonia*, which is always concerned with string measurements or pipe lengths. The role of the *De Harmonia* in Gafori's trilogy may have been clear to its author at an early date;⁵ but the contents of this third treatise could not for the most part have been determined until Gafori had read and absorbed Latin translations of some Greek musical treatises, translations he had had made for his own use in the late 1490's.⁶ The *De Harmonia* is closely modelled on the *Harmonics* of Ptolemy, and its fourth book is greatly indebted to the *Περὶ μουσικῆς* of Aristides Quintilianus. Perhaps Gafori's widened humanistic knowledge led him to commission the woodcut first used for his *Practica*; but as we shall see one of the chief features of this illustration was drawn not from an ancient source, which

of the *De Harmonia* dated 1500 is in the Bibl. Laudense in Lodi (cod. min. xxviii.a.9); see Claudio Sartori, 'Gaffurius,' *Die Musik in Geschichte und Gegenwart*, IV (Kassel, 1955), col. 1240.

For information on another manuscript copy of the *De Harmonia*, one intended for the dedicatee of the printed volume, Jean Grolier, see Franz Unterkirchner, 'Eine Handschrift aus dem Besitze Jean Groliers in der österreichischen Nationalbibliothek,' *Libri. International Library Review*, I (1950-51), 51-57. A colored drawing made after the woodcut under discussion here was included in this manuscript; it is reproduced by Unterkirchner, p. 55. Professor Claude Palisca, who is preparing a study of musical humanism that will include much material on Gafori, very kindly called the existence of this manuscript copy to my attention.

⁵ Even in the 1480 edition of his *Theorica* Gafori speaks of projected 'alia volumina' (v, 8). The idea of a trilogy may have been suggested to him by the three *Dialoghi* (1434) of Giorgio Anselmi of Parma, which he cites abundantly in the second edition of the *Theorica* as well as in his later works. See Jacques Hansdchin, 'Anselmi's Treatise on Music Annotated by Gafori,' *Musica Disciplina*, 2 (1948), 123-140; Georgii Anselmi Parmensis, *De Musica*, ed. Giuseppe Massera (Florence, 1961), pp. 29ff. *et passim*. The frontispiece of the *De Harmonia*, with its inscription 'Fran. Gafuri. Laudensis. Tria de Musicis Volumina. Theoricam. ac Practicam. et Harmoniam Instrumentorum. Accuratissime conscripsit.', had already been used in the *Angelicum ac divinum opus musice*, an Italian condensation of the *Practica* published in 1508 (printed, like the *De Harmonia*, by Gottardo da Ponte in Milan).

⁶ See Gafori's statement to this effect in the dedicatory letter of the *De Harmonia*, fol. i. On the translations commissioned by Gafori, and the scholars who did them, see Alberto Gallo, 'Le traduzioni dal Greco per Franchino Gaffurio,' *Acta Musicologica*, 35 (1963), 172-174.

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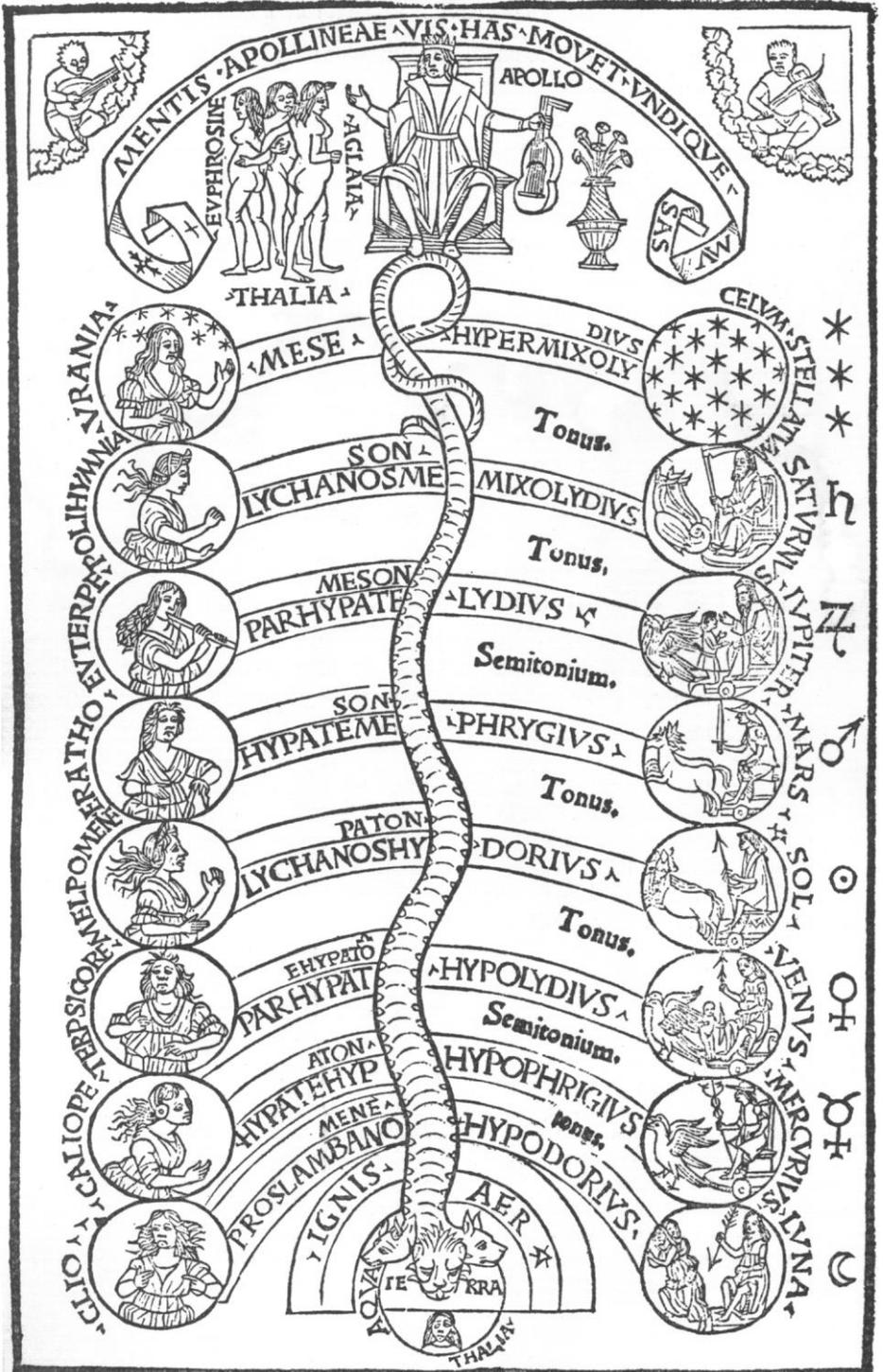


Fig. 1. Gafori, *Practica Musicae* (1496), frontispiece.

Gafori would have acknowledged, but from a contemporary one that he would never have credited.

The fourth book of *De Harmonia*, a discussion of the modes, is what concerns us here. It is unlike the first three, which deal soberly with Pythagorean string measurements, in that Gafori does not expound modal theory; he is intent on parading his erudition, of which he had assembled a whole new stock since writing the *Theorica*. Concentrating on the four modes whose names (Dorian, Phrygian, Lydian, Mixolydian) were given to the ecclesiastical tones, he asserts, following Plato, the superiority of the Dorian (ch. 2). These four modes are linked with octave-species in the traditional medieval order (ch. 4). Gafori concludes his remarks on the 'authentic' modes thus:

And there are those who think the modes themselves to be participants of celestial harmony; for they believe that the star of the sun rules Dorian; that of Mars, however, is ascribed to Phrygian. To Jupiter, Lydian; and to Saturn, Mixolydian.⁷

Three of the plagal modes are next described and allotted to the lower planets (chs. 5–8). To this analogy is joined a planetary scale derived from Cicero's *Somnium Scipionis* and cited by Boethius;⁸ thus *proslambanomenos*, the lowest note of the Greek musical system, is equated with the moon, and the rest go in ascending order. The correlation of mode to planets is further developed:

Therefore Mixolydian (which we have said before is higher than those other modes and is thought more worthy to hold power) is ascribed to Saturn. Hence to the sun may Dorian rightly be compared—Dorian, which, placed in the middle among those seven first modes,⁹ is the link between the tetrachords; for the star of the sun, holding a middle place among the seven planets, confers on the others through its rays either light or heat. Hence the poet sang 'Stationed in the midst, Phoebus embraces all

⁷ *De Harm.*, iv, 5, fol. lxxxvi: 'Sunt et qui coelestis harmoniae modos ipsos participes sentiunt: namque solis astrum dorium regere credunt, Marti vero Phrygium ascripsere. Iovi lydium, ac Mixolydium Saturno.'

⁸ Cicero's order is an undefined tonal descent from the firmament to the moon, the stationary earth being silent though its inhabitants imitate celestial music with voice and instruments; see *Somnium Scipionis*, v, 1. Among all the ancient commentators on this passage Boethius was the most explicit, spelling out a planetary scale identical with that used by Gafori (*De Institutione Musica Libri Quinque*, I, xxvii; p. 219 in the edition of G. Friedlein [Leipzig, 1867]).

⁹ Excluding Hypermixolydian, the added eighth mode taken by Boethius (iv, xvii) from the *Harmonics* of Ptolemy, and discussed by Gafori in the *Theorica* (1492 ed., v, 8).

things.¹⁰ Hypermixolydian, moreover, is attributed to the highest firmament of all, as if a participant of that sublime and divine harmony, and free from corruptible properties.¹¹

So far we have Gafori's account of the correlation between planets, modes, and an octave of the Greek *systema teleion*. The modes despite their Greek names are those of medieval and Renaissance plainchant theory, the octave *proslambanomenos-mese* being the second or Hypodorian, with a range from *A* to *a*. Gafori was thus adding cosmic analogies to musical concepts he thought to be the same for his contemporaries as they were in antiquity; not for another half century was this easy view of the relationship between ancient and modern music to be questioned.¹² As for the analogies themselves, that between planet and individual notes, or lyre-strings, was derived from a classical source (see above); Gafori's parallels between planets and modes, however, are not to be found in any ancient writer known to me.¹³ From figure 1 it would appear that *proslambanomenos* = the Hypodorian mode, which makes no sense. What Gafori meant (explained more clearly by another

¹⁰ 'In medio residens complectitur omnia phoebus.' This line is taken from a poem attributed to the fourth-century Roman poet Ausonius, a little piece in which the Muses and their functions are named. The line preceding that just quoted is 'Mentis Apollineae vis has movet undique Musas,' used as the motto for Gafori's woodcut. For the poem of pseudo-Ausonius see R. Peiper, ed., *Ausonii Opuscula* (Leipzig, 1886), p. 412.

¹¹ *De Harm.*, iv, 9, fol. lxxxviii v: 'Mixolydium igitur (quis & caeteris quos praediximus acutior sit; & meroris imperium tenere existimetur) Saturno ascriptus est. Atque iccirco Dorius soli comparatur quis inter septem ipsos priores modos medius positus singulis proprium saltem tetrachordum communicet, namque & solis astrum medium inter septem planetas continens locum; caeteris vel lucem vel calorem propriis radiis conferre asseverant. Hinc Poeta cecinit In medio residens complectitur omnia phoebus. Hypermixolydium autem omnium acutissimum firmamento attribuunt: quasi illius sublimis ac divinae harmoniae participem: & a corruptibilibus (quas caeteris modulis convenire putant) proprietatibus solutum.'

¹² Glarean was probably the first to criticize Gafori's understanding of modal theory; see the *Dodecachordon* (Basel, 1547), I, xxi. Girolamo Mei, the first Renaissance scholar who properly understood the difference between ancient and ecclesiastical modes, also criticized Gafori for not studying thoroughly the ancient sources at his disposal. See Claude V. Palisca, *Girolamo Mei (1519-1584). Letters on Ancient and Modern Music* (American Institute of Musicology, 1960), pp. 55-56.

In fairness to Gafori it should be pointed out that in the *Practica Musicae* (I, 7; pp. 48-49 in Miller's translation) he speaks of the octave-species, next of the classical modes, then only of the ecclesiastical modes, which are arranged 'so as not to displease the order of ancient authority.'

¹³ Pliny (*Naturalis Historia*, II, xx, 84) and Martianus Capella (*De Nuptiis Philologiae et Mercurii*, II, 199) link Saturn with Dorian, Jupiter with Phrygian; Joannes Lydus adds Lydian-Mars (*De Mensibus*, p. 20 in the ed. of R. Wuensch [Leipzig, 1898]).

Renaissance theorist, as we shall presently see) is this: the Hypodorian mode, as understood in his time, started on the bottom note of the Greater Perfect System, *proslambanomenos* or *A*. The others go in ascending order, but there is a difficulty. *Lychanos hypaton*, or *D*, is the starting point not only for Dorian but for Hypomixolydian, the mode a tone above Hypolydian in chant theory.¹⁴ Gafori avoids this problem by using Boethius' order of modes with Hypermixolydian added at the top.¹⁵ His highest mode is thus one known to his contemporaries by name but not part of the ecclesiastical modal system.

To his explanation of cosmic music Gafori next adds an illustrative poem, a Sapphic ode by his Milanese colleague Lancinus Curtius (Curti),¹⁶ apparently written to order for this purpose. Most of the fifteen stanzas of this poem are about the characteristics of the modes, especially those which accord with the planets they are here associated with; thus the 'fiery Phrygian' goes well with Mars, the 'bilious Mixolydian' with Saturn. In Gafori's opinion the ancient lyric poets sang odes of this kind. He therefore sets a stanza from Curti's poem, carefully observing the lengths of syllables by using only breves and semi-breves so that the music is as quantitative as the verse. His setting is a two-voice one, using Dorian and Hypodorian modes for upper and lower voice.¹⁷ The result has of course nothing classical about it at all; the little song is a *bicinium* in the style of the 1490's, but awkwardly constrained by its quantitative meter. Here again one sees Gafori using classical terminology but thinking in terms of the music of his own time.

A chapter (ch. 12) is devoted to coordinating the Muses with the planetary spheres, the modes, and the octave scale. Gafori refers to a

¹⁴ Greek names were not consistently applied to the ecclesiastical modes until the Renaissance. Their use caused a number of problems then; for an account of some of these difficulties see D. P. Walker, 'Musical Humanism in the 16th and Early 17th Centuries,' *The Music Review*, II and III (1941-42).

¹⁵ See *Practica*, I, 7 (p. 47 in Miller), where Hypermixolydian is described as identical in structure to the mode an octave below (Hypodorian). As for the church mode Hypomixolydian, it is said to be named in imitation of the ancient *hypo*- modes, since there was none by that name in antiquity.

¹⁶ For information on Curti, a rather bizarre figure who imitated the ancients in dress as well as in literary genres, see M. Pesenti Villa, 'I letterati e i poeti,' in F. Malaguzzi Valeri, *La corte di Lodovico il Moro*, IV (Milan, 1923), 154-56. Curti is the author of a long poem, full of praise for Gafori, printed at the end of the 1492 edition of the *Theorica*, and may also be responsible for the verses quoted in *De Harmonia*, IV, 12.

¹⁷ This composition was noticed by the greatest student of the modes in the sixteenth century, Glareanus, who mentions it in the *Dodecachordon*, II, xxxix.

variety of classical sources treating of the Muses: Ovid, Diodorus Siculus, Varro, Hesiod, Fulgentius Planciades, Callimachus, Herodotus, and Aristides Quintilianus.¹⁸ It is odd that after showing all this erudition he does not name Martianus Capella, source of the planet-Muse analogies he uses here. Martianus provides the correspondence of Muses with the eight spheres and the motionless earth; he suggests the musical scale, with Urania sounding a high note, Melpomene a medium one, Clio a low one. And finally, the presence of Phoebus Apollo is mentioned in Martianus' description.¹⁹ Gafori's woodcut is in its musical aspects simply a filling in of detail, most of which we have now examined.

There is a very long tradition connecting the Muses with music; even in Homer the nine Muses chant a dirge, and in the *Theogony* of Hesiod the Muses dwelling on Mount Helicon sang and performed choral dances.²⁰ Occasionally the Muses were depicted as three in number; these were compared by Greek writers to the lyre-strings *hypate*, *mese*, and *nete*, and by Varro to vocal, wind, and string music.²¹ Whether anyone in antiquity made the precise connection of the nine Muses to degrees of a musical scale Gafori does not tell us; he says vaguely that 'some persons' (*nonnulli*) have made the comparison, and quotes a series

¹⁸ See Ovid, *Metamorphoses*, v; Diodorus, ed. C. H. Oldfather et al. (Cambridge, Mass., 1946-), II, 360-365; Varro, *De Lingua Latina*, VII, 20 and 26; Hesiod, opening of the *Theogony*; Fulgentius, *Mitologiarum*, I, xv; Callimachus, fragments of *Aetia*; the titles (each a Muse) of the nine books of Herodotus' *History*; Aristides, *Περὶ μουσικῆς* II, p. 304 in R. Schäfke's ed. (Berlin, 1937).

¹⁹ *De Nuptiis Philologiae et Mercurii*, I, 27-29; pp. 19-20 in the ed. of A. Dick (Leipzig, 1925): 'Superi autem globi orbesque septemplices suavius cuiusdam melodiae harmonicis tinnitibus concinebant ac sono ultra solitum dulciore, quippe Musas adventare praesenserant, quae quidem singillatim circulis quibusque metatis, ubi suae pulsum modulationis agnovérant, constituerunt, nam Uranie stellantis mundi sphaeram extimam concinit, quae acuto raptabatur sonora tinnitu. Polymnia Saturniam circulum tenuit, Euterpe Ioviale, Erato ingressa Martium modulatur. Melpomene mediam, ubi Sol flammanti mundum lumine convenustat. Terpsichore Veneri sociatur auro, Calliope orbem complexa Cyllenium, Clio citimum circulum, hoc est in Luna collocavit hospitium, quae quidem gravis pulsus modis raucioribus personabat. Sola vero, quod vector eius cycnus impatiens oneris atque subvolandi alumna stagna petierat. Thalia derelicta in ipso florentis campi ubere residebat. Interea tractus aërios iam Phoebus exierat, cum subito ei vitta crinalis immutatur in radios, laurusque, quam dextera retinebat, in lampadam mundani splendoris accenditur, fiuntque volucres, qui currum Delium subvehēbant, anhelii flammantis [Lucis] alipedes.'

²⁰ Homer: *Odyssey*, XXIV, 60; Hesiod: see the opening pages of the *Theogony*.

²¹ See Plutarch, *Symposiacs*, IX, 14, a quite full account of the Muses. For Varro see the citation in Augustine, *De Doctrina Christiana*, II, 17 (Migne, *Pat. Lat.*, 34, col. 49). Varro's description is of three statues of Muses in a temple of Apollo (at Delphi?).

of verses on the subject, but gives no source for them. Warburg suggests²² that the verses could be by Gafori himself or by his friend Curti; this latter guess is supported both by the style of the poetry and by the fact that it echoes Gafori's thoughts here just as do the lines of the Sapphic ode referred to earlier. Gafori is not, however, the inventor of the complete scale-mode-planet-Muse analogy. He takes it, without acknowledgement (hence the use of *nonnulli*) from his contemporary, in some senses his arch-rival theorist, Ramis de Pareia, in whose *Musica Practica* of 1482 a diagram (see fig. 2) accompanied by a long explanatory text gives the main elements of Gafori's illustration. Ramis' version of cosmic harmony will be returned to; first the remaining details of Gafori's woodcut ought to be accounted for.

The nonmusical aspects of Gafori's illustration have been treated in some detail elsewhere (see above, and n. 1); here a brief recapitulation, with a bit of added detail not previously described, will suffice. Much of the picture was apparently suggested by passages in the *Saturnalia* of Macrobius;²³ this includes the three Graces dancing at Apollo's right,²⁴ and the three-headed serpent extending from Apollo to the earth.²⁵ This serpent might be seen musically as a bow—not a very well made one—drawn across the celestial lyre-strings; or it might represent the single

²² *Gesammelte Schriften*, I, 413. Warburg assembles the verses, which are scattered over chapter 12 of the fourth book of *De Harmonia*. He points out that they may be found, doubtless taken from Gafori, in Cornelius Agrippa's *Occulta Philosophia* of 1531 (II, 26).

²³ I, xvii, xx.

²⁴ I, xvii, p. 89 in the ed. of F. Eyssenhardt (Leipzig, 1868): 'Apollinis simulacra manu dextera Gratias gestant, arcum cum sagittis sinistra. . .'. The bow and arrow are not at Apollo's left in the illustration; however, in the medallion of the sun in figure 1 is another Apollo with an arrow.

Wind, *Pagan Mysteries*, chs. 2–3, has a good deal of material on the ways in which the Graces were depicted. His fig. 18, from the "Mantegna" *Tarocchi* (ca. 1460) is quite close to the appearance of the Graces in Gafori's woodcut. Wind's explanation (p. 46n) of the vase of flowers in the illustration as representing Macrobius' *crater* through which the divine spirit descends to earth seems overelaborate. The flowers might simply represent the laurel which is one of Apollo's regular appurtenances.

²⁵ *Satumalia*, I, xx (p. 115 in Eyssenhardt). For a discussion of how the Serapian monster described by Macrobius was changed into a serpent identified with Apollo (this version made famous in Petrarch's *Africa*), see Panofsky, *Meaning in the Visual Arts*, pp. 153–158; Seznec, *The Survival of the Pagan Gods*, pp. 170–179. On the presence of the four elements clustered about the heads of the serpent, see Kathi Meyer-Baer, *Music of the Spheres and the Dance of Death* (Princeton, 1970), p. 191.

string of a cosmic monochord, like that depicted in Robert Fludd's *Utriusque Cosmi . . . Historia*.²⁶

We have seen that the inscription above Apollo is from a poem on the Muses ascribed to the late-Roman poet Ausonius (see n. 10 above); the activities of the Muses inside their sphere-medallions may also be taken from Ausonius.²⁷ The planets are shown as *trionfi* within their spheres, following a tradition that was well established by the end of the fifteenth century.²⁸ One detail about the planets, mentioned in Gafori's text but not depicted in the woodcut, is the zodiacal houses they occupy in this cosmic *harmonia*.²⁹ The cupids playing lute and *lira* in the upper corners of figure 1 may have been suggested by Hesiod's statement that Cupid abides with the Graces and the Muses.³⁰ As for Apollo's instrument, it would seem to be a *lira da braccio* even though no bow can be seen (unless one reads the serpent as a World-Bow).³¹

Although the fame of the Spanish theorist Ramis de Pareia rests upon his innovations, suggesting modification of Pythagorean tuning and of the Guidonian hexachordal system,³² he professed himself a follower of Boethius, and the pages of his *Musica Practica* are filled with quotations, exact or modified to suit the circumstance, from the *De Institutione Musica*.³³

²⁶ (Oppenheim, 1617). Fludd's illustration may be seen reproduced in W. Pauli, 'The Influence of Archetypal Ideas on the Scientific Theories of Kepler,' in Jung and Pauli, *The Interpretation of Nature and the Psyche* (London, 1955), pl. v and p. 193. Despite Pauli's remark that Fludd's work is 'in agreement with old Pythagorean ideas' the monochord is full of musical and cosmological oddities: see Haar, '*Musica mundana*,' pp. 489–495. Mersenne, who strongly disapproved of Fludd, nevertheless borrowed this illustration—without acknowledgment—for his *Harmonie universelle* (Paris, 1636), VIII, 49. Several of Fludd's diagrams are reproduced and commented upon in Meyer-Baer, *Music of the Spheres*, pp. 193–202.

²⁷ For a quite different set of Muse-medallions see Wind, *Pagan Mysteries*, fig. 70, taken from the *Melopoiae* of Tritonius (1507).

²⁸ Cf. Seznec, p. 70.

²⁹ This connection of planets and lyre-strings with the zodiac was probably adapted by Gafori from Ptolemy (*Harmonics*, III, 8).

³⁰ *Theogony*, 1, 66.

³¹ See the contemporary *Parnassus* of Raphael, in which Apollo, surrounded by the nine Muses, is shown bowing a *lira da braccio*. The *lira* could be plucked as well as bowed, however.

³² See Gustave Reese, *Music in the Renaissance* (New York, 1954), pp. 586f.

³³ The prologue of the *Musica Practica* (Bologna, 1482; facs. ed. Giuseppe Vecchi [Bologna, 1969]; modern ed. by Johannes Wolf in *Publikationen der internationalen*

Opening with a definition of music and a statement of its triple division as given by Boethius (*musica mundana, musica humana, musica instrumentalis*), Ramis says he will treat *musica mundana* and *humana* in detail in his second and third books. The promise was unfulfilled, but fortunately a discussion of the topics, described by Ramis as 'superficial,' is given in the *Practica*.³⁴ Because he is a good deal concerned with the importance of the octave in musical theory, Ramis approaches the topic of world harmony through Cicero, twice (I, 1, viii; I, 3, iii) quoting the Ciceronian planetary scale as given by Boethius and used by Gafori. Cicero's version of cosmic music, with the earth silent and motionless, gives Ramis another image: in his revision of the Guidonian hand (I, 2, vii) he equates the concave palm of the hand with the place 'where there is silence' since there is no motion proper to this part of the hand just as there is none proper to the earth. The first note is given to the place where the hand joins the wrist; here there is movement, hence sound. Succeeding notes are given the joints of thumb and fingers, not 'sine ratione' as Guido had done, but 'cum maxima rei similitudine,' at each point where there is separate motion, until the entire three-octave range recommended by Ramis is completed.³⁵

The chapter dealing with *musica humana* and *mundana* approaches the subject from the standpoint of differences in *ethos* among the modes. It is not surprising that the Spaniard Ramis, who must often have heard of Arabic musico-medical theories during his youth, should begin by comparing the modes with bodily humors: protus, or Dorian, dominates the phlegmatic, deuterus or Phrygian the choleric, tritus or Lydian the sanguine, tetrardus or Mixolydian the melancholic humor. The authentic modes have each an *ethos* connected with these humors, Dorian being moderate and suitable for all music, Phrygian exciting, Lydian cheerful and pleasant, Mixolydian both resistant to and subject to melancholy. The plagal (hypo-) modes act each in opposition to the

Musikgesellschaft, Beihefte II [Leipzig, 1901]) begins with a compliment to Boethius. Ramis at one point (I, 2, vi [pp. 42-43 in Wolf]) remarks that during his student days at Salamanca he wrote a treatise in the vernacular to confound one 'magister Osmensis' who confused the three Greek *genera* with the three hexachords. Osmensis on seeing the treatise admitted, 'Non sum ego adeo Boetio familiaris sicut iste.' To this Gafori adds the marginal comment (for Gafori and the treatise of Ramis see below) 'Here the author is boasting' (*Hic se multum iactat auctor*).

³⁴ I, 3, iii (pp. 56-60 in Wolf).

³⁵ I, 2, vii (pp. 45-46 in Wolf). An illustration of this revised Guidonian hand is given on p. 47 in Wolf.

authentic ones.³⁶ A good deal of this material on modal *ethos* is taken from the opening chapter of Boethius' *De Musica*. Where Boethius is not detailed or specific enough, Ramis does not hesitate to fill in what he considers the appropriate details, giving to specific modes effects which are mentioned in a general way by Boethius; this is done under the guise of quoting Boethius, and probably gives us an idea of how Ramis must have expounded Boethian theory in the university lectures he is said to have given at Bologna.³⁷

Having shown, through modal *ethos*, the connection between earthly music and *musica humana*, Ramis proceeds to *musica mundana*. The Ciceronian world-scale is given after Boethius (I, xxvii), then expanded upon:

If therefore the moon is *proslambanomenos*, the sun *lichanos hypaton*, it is evident that those planets arrange melody at the interval of a fourth and therefore that the moon is Hypodorian, the sun Dorian. From this it is clear that the moon increases phlegmatic and humid [elements] in man; the sun indeed dries up these elements. Whence these planets, because they are leaders and light-givers, govern the first mode and the second. . . . Dorian, first of the authentic modes, may rightly be compared with the sun, since it holds chief place among the modes as does the sun among planets. For all terrestrial exhalations and sea vapors are raised up by solar rays, from which meteoric impressions are created. Therefore the harmony between sun and moon is clear. The latter shines by night, the former flees the night; Hypodorian induces sleep, Dorian expels it. Therefore they harmonize both in situation and in conformity with the consonance of the diatessaron.

Mercury indeed rules Hypophrygian. For this is the mode of flatterers, wherewith the vicious, the wise, and the upright are alike praised . . . ; such is the nature of Mercury. . . . Mars indeed controls Phrygian; it is wholly choleric and irascible, for with its wrath it attempts to destroy all the good things of the world. Therefore Mercury, either joined with it or in any aspect is just as evil as Mars itself. For the latter wounds with the sword, the former with the tongue.

³⁶ I, 3, ii (pp. 56–57 in Wolf).

³⁷ Compare the following passage as written by Boethius and as quoted by Ramis: Boethius, I, i (pp. 185–186 in Friedlein): ' . . . ut Pythagorici, cum diuturnas in somno resolverent curas, quibusdam cantilenis uterentur, ut eis lenis et quietus sopor inreperet. Itaque experrecti aliis quibusdam modis stuporem somni confusionemque purgabant, id nimirum scientes quod tota nostrae animae corporisque compago musica coaptatione coniuncta sit.'

Ramis, I, 3, iii (p. 56 in Wolf): 'Erant autem pythagoricis in morem, ut cum diuturnas in somno curas resolverent, *hypodorio* uterentur, ut eis lenis et quietus somnus irreperet. Experrecti vero *torio* stuporem somni confusionemque purgabant scientes nimirum, ut ait Boetius, quod tota nostrae animae corporisque compago musica coaptatione coniuncta est.'

Hypolydian indeed is attributed to Venus, who is good fortune; nonetheless feminine in that she sometimes calls forth pious tears. Lydian, since it always denotes joy, may rightly be compared with Jupiter (greater good fortune), who creates men sanguine, benevolent, mild, and jocund. The harmony with Venus [is that] they agree in the diatessaron and in the good fortune of benevolence; nor do they differ except in the range of voices. For the lower voice is not so sweet or so smooth as the higher.

Mixolydian may be attributed to Saturn, since it revolves about melancholy. Hypermixolydian may truthfully be termed *castalian*³⁸ because it is attributed to the starry sphere or firmament. For this mode above all others has a certain ingrafted sweetness and gracefulness. . . .³⁹

Here is the immediate source of the mode-planet correspondence found in Gafori and in the verses of Curti. But this is not all: Ramis, in order to give authority to his words by referring to 'that from which music takes its origin,' compares the Muses to planets, modes, and

³⁸ From *κασταλία*, a fountain on Parnassus sacred to Apollo and the Muses. Reading this may have given Gafori the idea for his woodcut.

³⁹ I, 3, iii (pp. 58–59 in Wolf): 'Si igitur Luna proslambanomenos, Sol vero lichanos hypaton, liquet istos duos planetas in diatessaron specie cantus collocandos atque ideo Lunam hypodorium, Solem vero dorium modum tenere. Ex eo liquido constat Lunam flegmatica et humida homini adaugere, Solem vero ipsa humida et flegmatica desiccare. Inde ergo isti duo planetae, quia principalia et luminaria sunt, primum modum regunt cum secundo. . . . Nam dorius primus autenticorum recte Soli comparatur, quia principatum tenet inter omnes modus sicut Sol inter omnes planetas. Nam omnes exhalationes terrestres et vapores marini solaribus radiis elevantur, ex quibus impressiones meteoricae creantur. Convenientia igitur inter Solem et Lunam clara est. Ista lucet nocte, ille noctem fugit; hypodorius somnum ducit, dorius vero expellit. Concordant ergo et loco et conformitate in diatessaron consonantia.

'Mercurius vero hypophrygium reget. Nam iste modus adulatorum est, qui viciosos et sapientes probosque aequo modo collautum . . . qualis est natura Mercurii. . . . Mars vero phrygium tenet, qui totus colericus est et iracundus; nam omnia mundi bona iracundia sua conatur destruere. Iunctus ergo Mercurius cum eo aut in aspectu quodam ita malus est sicut ipse Mars. Nam ille ense vulnerat, iste vero lingua.

'Hypolydius vero ipsi Veneri est attributus, quae fortuna est, feminea tamen, quia provocat ad lacrimas pias quandoque. Lydius vero Iovi, fortunae majori, quo homines sanguineos et benevolos creat mitesque atque iocundos, recte comparatur, cum semper gaudium notet. Convenientia cum Venere in diatessaron atque in bonitatis fortuna concordant nec differunt nisi vocum differentia. Inferior enim vox non ita dulcis est sicut acuta neque suavis.

'Mixolydius vero attribuitur Saturno, quoniam circa melancholiam versatur. Hypermixolydius vero totaliter ponitur castalinus, quoniam coelo attribuitur stellato sive firmamento. Nam hic modus super omnes alios habet quandam insitam dulcedinem cum venustate. . . .'

The portion of this passage dealing with Hypolydian and Lydian is cited by Edward Lowinsky, 'The Goddess Fortuna in Music,' *The Musical Quarterly*, 29 (1943), 72.

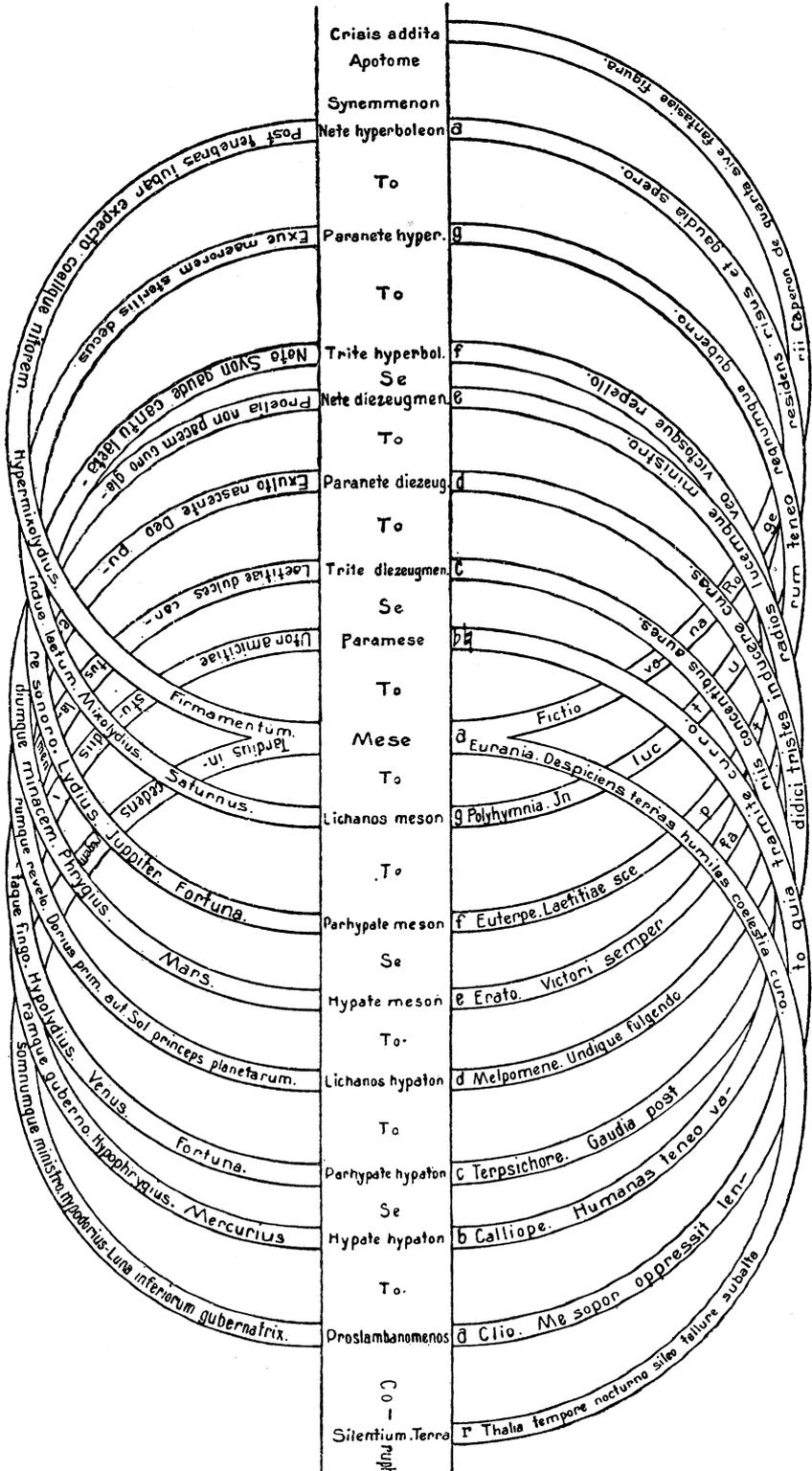


Fig. 2. Ramis de Parcia, *Musica Practica*, ed. Johannes Wolf, p. 61
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scale-degrees, following, he says, Macrobius and Martianus Capella.⁴⁰ The comparison is of course the same as that used by Gafori. Ramis illustrates his idea with the diagram reproduced here as figure 2.⁴¹ He explains the diagram:

When therefore we draw a circle from the first, that is, silence, to the last, and return, running over the whole harmony as far as the second, we create the Hypodorian. In the way that we have done this, we judge the others should be done, so that we should not cease making circles until we arrive at the last Muse—from which further stretching would be superfluous since it would be a replica of an earlier one; this stretching Roger Caperon asserted to be *crisis*, that above *nete hyperboleon*, and the other *coruph*, under *proslambanomenos*. . . . We indeed fear contradicting anything from antiquity; and therefore the first tone will be *proslambanomenos*, the last *nete hyperboleon*.⁴²

There is evidence that Gafori borrowed the *Practica* of Ramis, probably in 1489. The critical marginalia made by Gafori in a copy belonging to a student of Ramis set off the well-known dispute between the two men and their adherents.⁴³ Now it becomes clear why Gafori, usually

⁴⁰ Ramis does not follow Macrobius (*Comm. in Somm. Scrip.*, II, III [pp. 581–582 in Eyssenhardt]), who makes Calliope the leader of all the Muses. His ordering is taken from Martianus, the passage cited in n. 19 above.

⁴¹ Figure 2 is reproduced from Wolf's edition of the *Musica Practica*. In the Bolognese print of 1482 the diagram was printed without text; the copy reprinted in facsimile (see n. 33 above) shows, without editorial comment, this textless form. Another copy, in Bologna, Museo Civico Bibliografico Musicale, shelfmark A 80, has the diagram filled in by hand, with an explanatory rubric describing the lunar-Hypodorian octave on the model of which the other interlocking octave circles are made. The notes of the scale are in the center column, with intervals of tone or semitone marked. The lines describing Muses and planets and modes are not in Ramis' text, though their contents are paraphrased there (I, 3, III).

On the question as to whether there were one or two editions of Ramis' work printed in Bologna in 1482, see the introduction to the facsimile edition cited in n. 33 above, pp. [iv–v].

⁴² I, 3, III (pp. 59–60 in Wolf): 'Cum igitur a prima idest a silentio ad ultimam circulum facimus et ad secundam totum concentum remittentes recurrimus, hypodorium procreamus. Quemadmodum igitur de istis fecimus, de reliquis faciendum esse arbitramur, ita quod spiras facere non cessemus, donec ad ultimam musam perveniamus, a qua superflua, si fiat, erit intentio, quoniam replicatio prioris est, ut Rogerius Caperon assererat esse crisis vocem illam supra neten hyperboleon additam et coruph, quae sub proslambanomeno. . . . Nos vero caveamus ab antiquitate auctore aliquid transvertere. Erit igitur prior vox proslambanomenos, ultima vero nete hyperboleon.'

On Roger Caperon and his terminology, which Ramis uses in his illustration but strongly disapproves of, see my 'Roger Caperon and Ramis de Pareia,' *Acta Musicologica*, 41 (1969), 26–36.

⁴³ For Gafori's having borrowed a copy of Ramis' work, see Wolf's edition of the *Musica Practica*, p. x; cf. Massera, *Georgii Anselmi Parmensis. De Musica*, p. 28, and the plate following p. 32, a page from the *Musica Practica* with annotations in Gafori's hand.

inclined to give his sources as proof of his wide reading, says vaguely that 'some people' have made the sphere-Muse-mode comparison; not above using Ramis' idea, he was nevertheless unwilling to recognize its source publicly.

Thus treatises by the two men who headed opposing camps of musical thought at the turn of the sixteenth century both contain detailed accounts of modal *ethos* derived from *musica mundana*. A certain amount of this modal *ethos* found its way into the writings of later theorists, such as Gioseffo Zarlino, who were not much given to talking about musical cosmology;⁴⁴ whether the actual composition of Renaissance music was affected by these theories is a question too wide-ranging to be answered here.

Edward Lowinsky, in a paper assembling interesting details in support of his thesis that much Renaissance thinking about music was done in spatial terms,⁴⁵ refers to Ramis' use of the Ciceronian world-scale. The illustration reproduced in figure 2 is certainly a spatial conception, as is that of Gafori. Both contain the familiar celestial monochord or lyre-string image, implicit in Plato and Boethius and realized graphically in medieval glosses on Boethius.⁴⁶ In Gafori this is joined to a literal illustration of the hierarchical Aristotelian universe, reaching vertically from the central earth to the abode of divinity. Ramis' diagram, with its circles both returning on themselves and spiralling upwards, suggests at least two other things: one is the image of the serpent devouring its tail, an emblem familiar to Renaissance writers and a figure which could be used to signify the orbital movement of the heavens.⁴⁷ The other is the circular motion of sound, a theory accepted

The controversy is briefly summarized in Reese, *Music in the Renaissance*, pp. 586–587; some interesting details are given in A. Sorbelli, 'Le due edizioni della *Musica practica* di Bartolomeo Ramis de Pareia,' *Gutenberg Jahrbuch*, 5, (1930) 105–114.

⁴⁴ See Book IV of Zarlino's *Le istituzioni harmoniche* (Venice, 1558).

⁴⁵ 'The Concept of Physical and Musical Space in the Renaissance,' *Papers of the American Musicological Society*, 1941 (1946), 57–84.

⁴⁶ An example may be found in Paris, Bibliothèque nationale, ms.lat.7203, an early twelfth-century Boethian gloss. See Jacques Handschin, 'Ein mittelalterlicher Beitrag zur Lehre von der Sphärenharmonie,' *Zeitschrift für Musikwissenschaft*, 9 (1927), 193–208. In this representation a two-octave scale like that in Ramis' diagram is equated with the planets topped by seven of the angelic hierarchies.

⁴⁷ The emblem is contained in the *Hieroglyphica* of Horus Apollo, known in Florence as early as 1419, first printed in 1505. See G. Boas, *The Hieroglyphics of Horapollo* (New York, 1950), p. 29.

Guy le Fèvre de la Boderie's *La Galliae* (Paris, 1578) opens with an image in which

by many Renaissance scholars; in the diagram of Ramis one can almost see the spreading sound-circles of the Vitruvian image.⁴⁸ Much has been made of Renaissance *Augenmusik*, the use of note-patterns that suggest visually the meaning they illustrate. Here one can see the obverse of the coin, which might be termed *Ohrlicht*: space organized in musical terms, a phenomenon at once visible and audible. Only by attempting to understand this blend of sense-perception and Platonic vision can we approach the real meaning of *musica mundana* as a philosophical concept rising from evidence presented by the two 'highest' senses, sight and hearing.

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the firmament is explicitly likened to a serpent devouring its own tail. On this poem see D. P. Walker, *Spiritual and Demonic Magic from Ficino to Campanella* (London, 1958), pp. 122–124.

⁴⁸ Cf. Vitruvius, *De Architectura*, v, iii, 6–7. A passage in Ficino's commentary on the *Timaeus* of Plato (*Opera* [Basel, 1576], p. 1456) describes sound as a series of spiralling ovals, very suggestive of Ramis' diagram.