

BACCHIUS GERON'S *INTRODUCTION TO*
THE ART OF MUSIC

Otto Steinmayer

INTRODUCTION

From music's art Old Bacchius did cull
Tones, tropes, tunes, melodies, and consonance.
With him concordant Dionysius writes
And shows th' all-greatest Emperor Constantine
A wise and ardent lover of the arts:
For it ill befits a man who has been seen
A seeker out and patron of all wise culture
To be a stranger to this art of music.

Here translated are some verses introducing a treatise by one Dionysius that, in several manuscripts, follows the treatise by Bacchius. Apart from the ascription in the title, they are the only evidence that Bacchius existed, that he wrote on music in such a way that involved selecting and editing, and that he lived during the reign of Constantine (who died in 337 A.D.).

This *Eisagōgē tekhnēs mousikēs*, or "Introduction to the art of music," compiles definitions and general doctrine on music from many

sources. Doubtless the aged Bacchius first put the treatise together. Nevertheless, internal inconsistencies, contradictions, obscurities of expression, vague and changing use of terms, repetitions—all show Bacchius' treatise to have been revised and supplemented by not very careful editors before it reached the form preserved in our manuscripts.

Karl von Jan, the latest editor of Bacchius' Greek text, divides the treatise into four parts. Two separate treatises on music theory (sec. 1-58 and sec. 67-88), he says, are joined by a selection of miscellaneous definitions (sec. 59-96), and a section on metrical doctrine is tacked on at the end. According to von Jan, the writer of the first of the two treatises on music theory followed Aristoxenian doctrines; the writer of the second treatise opposed them. But even within the Aristoxenian first treatise conflicts of opinion occur.

In brief, the treatise is a melange of definitions and doctrines chosen from many sources by many persons and represents the teaching of no one school. It is impossible to say exactly what Bacchius himself wrote or believed. The reader who wants more details about this confusion should consult von Jan's introduction to the Greek text, as well as his articles.

In form, the Bacchius *Eisagōgē* is a dialogue, or rather catechism, presumably between master and pupil. The master asks a question, the pupil replies with the correct answer. This style of question and answer may ultimately have its origin in the philosophical dialogue—Plato's are our best examples—but here it serves only to organize the material. The treatise shows no literary pretensions and no effort at elegance of expression. Much of its language is simply excerpted from earlier handbooks. The *Eisagōgē* is the script for an ancient orals examination.

For this first translation into English, I have used the text of Bacchius contained on pages 292-316 of Karl von Jan's *Musici scriptores graeci*, noting where I depart from his readings. The section numbers in the text are von Jan's.¹

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INTRODUCTION TO THE ART OF MUSIC

by Bacchius Geron

1. What is the art of music?

—The knowledge of song and of what is necessarily involved with song.

Who is a musician?

—One who knows what is necessarily involved with melody.

2. How does [music] exist?

—Partly by nature, partly through our practice.

What sort of things by nature?

—Height and depth of pitch and the intervals.

What sort of things by practice?

—The rendering of emotion² through use of the pitches.

3. Out of what is music itself made up?

—Out of melodic pitches and scales.

4. Pitch in general, what is it?

—The falling of a melodic sound upon one tension. When a single tension in sound is achieved, it results in a melodic pitch.

5. What is a scale?

—That which is made up of more than two pitches and employed in melody.

6. What is an interval?

—The difference of two pitches unlike in height and depth.

7. What is the least of the things used in melody?

—A pitch.

8. Which is the smallest of the intervals?

—The diesis.

What is a diesis?

—The smallest degree we can by nature melodically relax or tense the voice.

What is twice a diesis?

—A semitone.

What is twice a semitone?

—A tone.

9. What is a tone?

—The interval by which the consonance of the fifth is greater than that of the fourth.

10. What is consonance?

—A mixture of two pitches unlike in height and depth, in which the music of the lower pitch appears no more prominently than that of the higher, or that of the higher more than that of the lower.

11. How many types of consonances, then, are there in the complete scale?

—Six.

What are they?

—The fourth, the fifth, the octave, the eleventh, the twelfth, and double octave.

What are some pitches which show these types?³

—A fourth is shown by [proslambanomenos] $\zeta \vdash$ and [the diatonic lichanos hypatōn] ΦF ,

A fifth by [proslambanomenos] $\zeta \vdash$ and [hypatē mesōn] CC,

An octave by [proslambanomenos] $\zeta \vdash$ and [mesē] I < ,

An eleventh by [proslambanomenos] $\zeta \vdash$ and [nētē synēm-menōn] UZ,

A twelfth by [proslambanomenos] $\zeta \vdash$ and [nētē diezeugmenōn] $\Theta \uparrow$,

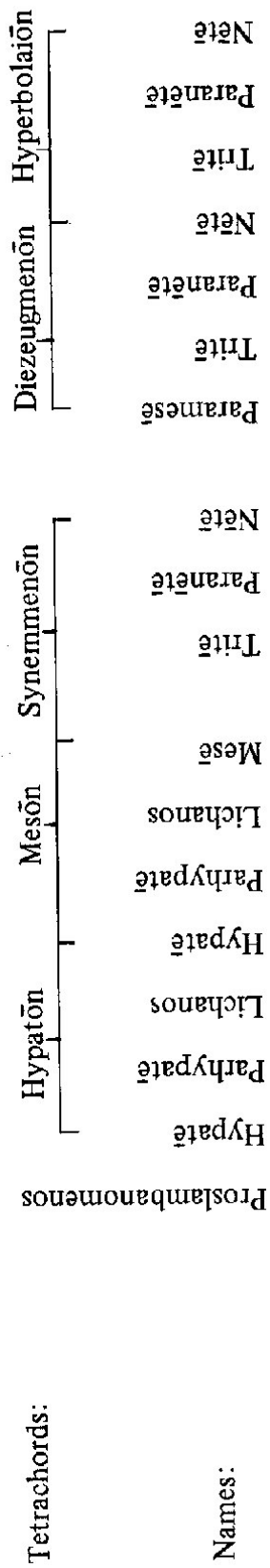
And the double octave is shown by [proslambanomenos] $\zeta \vdash$ and [nētē hyperbolaiōn] I' < '.

12. The fourth is made up of how many tones?

—Two and a half.

Larger and Smaller Complete Scales With the Signs for the Notes According to Alypius

(Diatonic genus)



vocal notation: 7 T R Φ C P M I Θ Γ U Z E U Θ λ M' I'

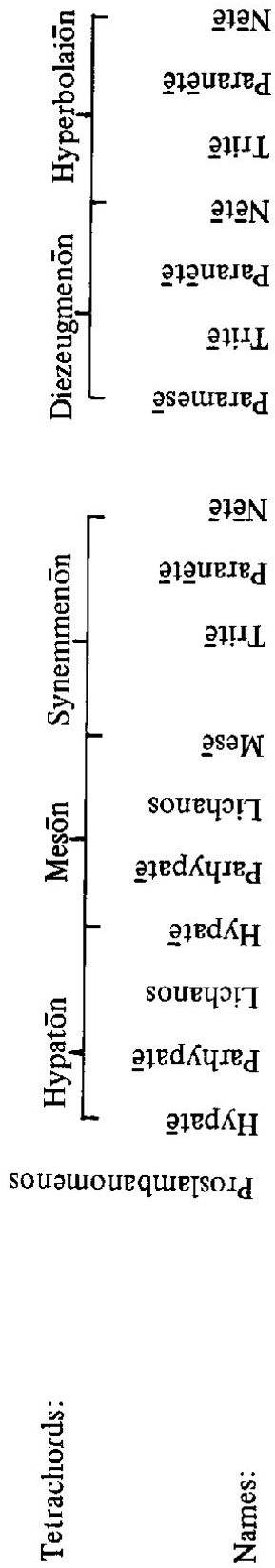
instrumental notation: ♮ Γ L F C C ♮ T < V N Z ♮ Z M ♮ π' <'

The names of the tetrachords ("hyperbolaion" etc.) are genitive plurals. The full name of any note is the name as it functions within a tetrachord plus the name of the tetrachord, e.g. *hypatē hypatōn* means "bottom note of the bottom tetrachord," and so forth.

Diagram 1

The Larger and Smaller Complete Scales With the Signs According to Alypius

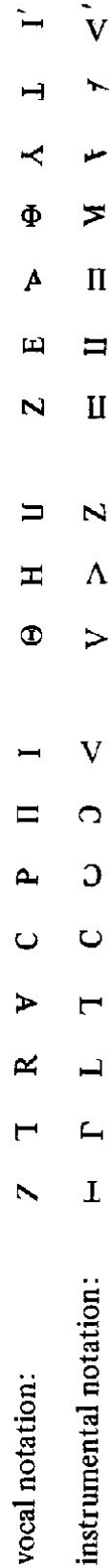
(Chromatic and Enharmonic genera)



Names:



The sign x indicates the note is raised by a quarter tone.



The sign X indicates the note is raised by a quarter tone.

Diagram 2

The fifth?

—Three and a half.

The octave?

—Six.

The eleventh?

—Eight and a half.

The twelfth?

—Nine and a half.

The double octave?

—Twelve.

13. How many intervals of the fourth are there?

—Twelve.

What are they?

—First is the one from $Z\text{E}$ to ΦF ,
Second that from $\Gamma\Gamma$ to CC ,
Third that from RL to $P\cup$,
Fourth that from ΦF to $M\Gamma$,
Fifth that from CC to $I\angle$,
Sixth that from $P\cup$ to ΘV ,
Seventh that from $M\Gamma$ to ΓN ,
Eighth that from $I\angle$ to $U Z$,
Ninth that from $Z\equiv$ to ΦH ,
Tenth that from $E\text{II}$ to ΛV ,
Eleventh that from $U Z$ to $M'\text{H}'$,
Twelfth that from ΘH to $I'\angle'$.⁴

14. How many fifths are there?

—Ten.

What are they?

—First the one from $Z\text{E}$ to CC ,
Second that from RL to $M\Gamma$,
Third that from ΦF to $I\angle$,
Fourth that from CC to $Z\equiv$,
Fifth that from $P\cup$ to $E\text{II}$,
Sixth that from $M\Gamma$ to $U Z$,
Seventh that from $I\angle$ to ΦH ,

Eighth that from ΘV to $\Lambda \forall$,⁵
 Ninth that from $E\Gamma$ to $M' \Gamma'$,
 Tenth that from $\cup Z$ to $I' <'$.

15. How many octaves are there?

—Eight.

What are they?

—First is the one from $Z\Gamma$ to $I <$,
 Second that from $\Gamma\Gamma$ to $Z\equiv$,
 Third that from RL to $E\Gamma$,
 Fourth that from ΦF to $\cup Z$,
 Fifth that from CC to $\Theta \forall$,
 Sixth that from $P\cup$ to $\Lambda \forall$,
 Seventh that from $M\Gamma$ to $M' \Gamma'$,
 Eighth that from $I <$ to $I' <'$.

16. How many elevenths are there?

—Five.

What are they?

—First is the one from $Z\Gamma$ to $\cup Z$,
 Second that from $\Gamma\Gamma$ to $\Theta \forall$,
 Third that from RL to $\Lambda \forall$,
 Fourth that from ΦF to $M' \Gamma'$,
 Fifth that from CC to $I' <'$.

17. How many twelfths are there?

—Three.

What are they?

—First is the one from $Z\Gamma$ to $\Theta \forall$,
 Second that from RL to $M' \Gamma'$,
 Third that from ΦF to $I' <'$.

18. How many double octaves are there?

—One, that from $Z\Gamma$ to $I' <'$.

19. What is music?

—Relaxation and tension⁶ coming to be through melodic pitches.

20. What is a pycnum?

—That which is made up of the two smallest intervals in each genus.

21. What is genus?

—The difference that comes to be in a tetrachord.

How many genera are used in music?

—Three.

What are they?

—The enharmonic, the chromatic, and the diatonic.

22. How is the enharmonic⁷ formed in music?

—Going towards the high note, by diesis, diesis, and ditone; going towards the low note, in the opposite way.

23. How is the chromatic formed in music?

—Going towards the high note, by semitone, semitone, and trisemitone; going towards the low note, in the opposite way.

24. How is the diatonic formed in music?

—Going towards the high note, by semitone, tone, and tone; going towards the low note, in the opposite way.

25. According to us the diatonic is not formed in music with anything having the function of a pycnum.

—Why?

Because a pycnum is called that which has two intervals which together are smaller than the one remaining.

26. What is a tetrachord?

—An arrangement of pitches in melodic sequence one after the other whose outer pitches are consonant with one another by a fourth.

27. How many species, then, are there of tetrachords?

—Three.

What are they?

—First is the species bounded by barypycna;
Second that bounded by mesopycna;
Third that bounded by oxypycna.

28. How many tetrachords are there in the unmodulating scale?

—With respect to number, there are unlimited tetrachords; but with respect to function, there are five.

What are they?

—The tetrachords hypatōn, mesōn, synēm̄menōn, diezeugmenōn, hyperbolaiōn.

29. How many notes are there in the unmodulating scale?

—Eighteen.

What are they?

—ΖϞ, ΤΓ, ΡΛ, ΦϞ, CC, ΡΩ, ΜΤ, Ι<, ΘV, ΓN, ΠZ, ZϞ, ΕΠ, ΠZ,
Θϣ, ΛϞ, Μ'Τ', Ι'<'.

30. How many of these are fixed?

—Eight.

Which ones?

—ΖϞ, ΤΓ, CC, Ι<, ZϞ, ΠZ, Θϣ, Ι'<'.

31. How many are movable?

—Ten.

Which ones?

—ΡΛ, ΦϞ, ΡΩ, ΜΤ, ΘV, ΓN, ΕΠ, ΠZ, ΛϞ, Μ'Τ'.

32. How many are the lowest notes of pycna?⁸

—Five.

Which ones?

⟨—ΤΓ, CC, Ι<, ZϞ, Θϣ.

32a. How many are the middle notes of pycna?

—Five.

Which ones?⁹

—ΡΛ, ΡΩ, ΘV, ΕΠ, ΛϞ.

33. How many are the highest notes of enharmonic pycna?

—Five.

Which ones?

— $\forall\Gamma, \Pi\Delta, \text{H}\delta, \delta\equiv, \text{L}\gamma$.

How many are the highest notes of pycna constructed chromatically?

—Five.

Which ones?

— $\forall\Gamma, \Pi\Delta, \text{H}\delta, \delta\equiv, \text{L}\gamma$.

[How many are the highest notes of diatonic pycna?

—Five.

What are they?

— $\Phi\text{F}, \text{M}'\Gamma, \Gamma\text{N}, \Pi\text{Z}, \text{M}'\Gamma'$.] ¹⁰

34. How many notes do not belong to a pycnum?

—Three.

What are they?

— $\gamma\text{L}, \Pi\text{Z}, \text{I}'\langle'$.

Note that *mesē* seems to have some difference from the rest, for in conjunctions it is a barypycnum, but in disjunctions, it does not belong to a pycnum.

35. Why do we say that pitches are “fixed?”

—Because the tetrachords and pentachords are bounded by them.

36. Movable notes we call those bounded by the fixed. Through these kinds of notes all intervals can be constructed, up and down, except two.

37. What are they?

—The *eklysis* and the *ekbole*.

How?

—The *eklysis* goes down, the *ekbole* goes up.

In what genus?

—In the enharmonic, and in no other.

38. How many conjunctions do you say exist in all these notes?

–Three.

Which ones?

–The ones for which there is sharing on a pitch. I mean it this way: whenever a pitch is shared by both of two tetrachords of the same species and is the highest note of the lower tetrachord and the lowest note of the higher.

So how many pitches are there that make the conjunction between tetrachords?

–CC joins hypatōn and mesōn tetrachords, I< joins mesōn and synēmmenōn, and Θ₁ joins diezeugmenōn to hyperbolaiōn.

39. What is disjunction?

–Whenever there is a tone between two barypyncnum pitches.¹¹

How many disjunctions do we say there are?

–Two.

What are they?

–That of mesōn and that of synēmmenōn.

The disjunction of mesōn and diezeugmenōn is made by which notes?

–By I< and Z≡.

And the disjunction of synēmmenōn and hyperbolaiōn by which notes?

–By UZ and Θ₁.

40. How are tetrachords of similar type consonant with one another in the scale?

–Conjunct tetrachords are consonant by a fourth, and disjunct tetrachords by a fifth.

41. What is an *eklysis*?

–Whenever three dieses descend from some note of the enharmonic system, as from EII to H>.

42. What is an *ekbolē*?

–Whenever five dieses rise up from some note of the enharmonic system, as from EII to UZ. The *eklysis* is formed by relaxation, the *ekbolē* by tension.¹²

43. How many types of notes are there?

—Three.

What are they?

Hypatoeidē, parhypatoeidē, and lichanoeidē notes.

What sort of note do we say the hypatoeidē is?

—The lowest note of the pycnum.

And the parhypatoeidē?

—The middle note of the pycnum.

And the lichanoeidē?

—The highest note of the pycnum.

44. How many regions of the voice do we say there are?

—Three.

What are they?

—High, middle, and low.

45. How many things do we say can happen in melody?

—Four.

What are they?

—Relaxation, tension, persistence, and stasis.

What is relaxation?

—The movement of musical phrases from higher pitch to lower.

What is tension?

—Tension is the movement of musical phrases from lower pitch to higher.

What is persistence?

—Whenever many words are set to music on the same pitch.

What is stasis?

—Stasis is the presence of a melodic pitch.

46. The singers who sing three *tropoi*, which ones do they sing?

—The Lydian, the Phrygian, and the Dorian.

Those who sing seven, which are the *tropoi* they sing?

—The Mixolydian, the Lydian, the Phrygian, the Dorian, the Hypolydian, the Hypophrygian, the Hypodorian.

47. Of these *tropoi*, which is the highest?

—The Mixolydian.

Which is its neighbor?

—The Lydian.

By how much is it lower?

—By a semitone.

Which is lower than the Lydian?

—The Phrygian.

How much lower?

—A tone lower, and a trisemitone lower than the Mixolydian.

Which is lower than this?

—The Dorian.

Lower by how much?

—Than the Phrygian by a tone, than the Lydian by a ditone, than the Mixolydian by a fourth.

Which is lower than this?

—The Hypolydian.

By how much?

—By a semitone.

How much lower is the Hypolydian than the Phrygian?

—By a trisemitone, than the Lydian by a fourth, than the Mixolydian by a tritone.

Which is lower than the Hypolydian?

—The Hypophrygian.

Lower by how much?

—By a tone, and lower than the Dorian by a trisemitone, than the Phrygian by a fourth, than the Lydian by a fifth, than the Mixolydian by four tones.

Which is lower than the Hypophrygian?

—The Hypodorian.

By how much?

—By a tone, and lower than the Hypolydian by a ditone, than the Dorian by a fourth, than the Phrygian by a fifth, than the Lydian by four and a half tones, than the Mixolydian by five tones.

48. What is a *tropos*?

—A pattern of melodic construction.

49. What is the music of such a construction?

—The music that comes to be through the use of notes close together, whether the melody goes down, or when it goes up.

50. How many types of mutation¹³ do we say there are?

—Seven.

What are they?

—Mutation of scale, of genus, according to *tropos*, according to emotion, according to rhythm, according to the way the rhythm leads, according to the structure of the rhythmic composition.

51. What is the mutation of scale?

—Whenever the melody departs from the scale which has obtained and goes over to another, providing itself with another *mesē*.

52. What is the mutation of genus?

—Whenever the melody changes from genus to genus, as, for example, when it changes from enharmonic to chromatic or some other such thing.

53. What is mutation according to *tropos*?

—Whenever the melody changes from Lydian to Phrygian or some one of the others.

54. The mutation according to emotion?

—Whenever the melody changes from humble to grand, or from quiet and thoughtful to excited.

55. That according to rhythm is what?

—Whenever the rhythm changes from trochees to dactyls¹⁴ or another one of the rest.

56. That according to the way the rhythm leads is what?
 –Whenever the rhythm arises from the arsis or the thesis. (sc. “Whenever the rhythm arises from the arsis rather than the thesis, or vice versa.”)
57. That according to the structure of the rhythmic composition is what?
 –Whenever the whole rhythm goes by *bases* or by dipody.
58. What is mutation?
 –A becoming different of what has obtained, or the transposition of something to a place where it becomes unlike what it was.¹⁵
59. What is dissonance?
 –Whenever two unlike pitches are struck at once and the music of the lower note prevails, or that of the higher.
60. What is homophony?
 –Whenever two pitches are struck together and are neither higher nor lower than each another.
61. What is paraphony?
 < * * * * *
- 61a. What is consonance?)
 –Whenever two unlike pitches are struck and the music of the lower pitch does not prevail any more than that of the higher.¹⁶
62. What is a diagram?
 –An illustration of a scale; alternatively, thus: a diagram is a scheme drawn on a line, according to which the intervals of every genus are adjusted. We use diagrams in order to make things which are difficult to grasp by hearing apparent to the eyes of learners.
63. The synēmmenōn is a *how-many*-chord?
 –A heptachord.
 The diezeugmenōn?
 –An octochord.

64. What in general do we say a composite interval is?

—One that is divided.

What do we call an incomposite interval?

—One that is not divided.

65. We say that there are several definitions of *mesē*: first, whatever note is the highest of the midmost of three conjunct tetrachords. Others define *mesē* in this way: (a) *mesē* is the note which lies between the tone and the incomposite ditone; (b) also, whatever note is a fourth lower than the highest note of three tetrachords lying one after the other; (c) also, the note above which one can find a fourth and a fifth consonant with it; (d) also, as the note above which stand the tone and the *pycnum*; (e) also, as the note where there can be either conjunction or disjunction; (f) also, as the note from which one can rise an octave and also fall an octave.¹⁷

66. How many dieses does a tone have?

—Four.

How many semitones?

—Two.

67. What is the first element of what concerns music?

—Note. This is the tensing of the voice to a single station in song. Every note has a sign, a name, and a function.

68. In how many senses do we say *tonos* exists in music?

—In two senses: one in terms of height of pitch, the other in terms of interval.

What is *tonos* in terms of height of pitch?

—That one person sings higher or lower than another, or that a higher or lower instrument relates to the tuning of another by some interval, whatever it may be.

What is *tonos* in terms of interval?

—The degree by which the consonance of the fifth is bigger than that of the fourth.

69. How many types of pitch do we say there are?

—Two. Some of these we call “melodic,” others we call “pedestrian.”

What are melodic pitches?

—Those which singers and instrumentalists use. If this type of pitch did not exist it would be impossible to set up any art and science of music.

What are pedestrian pitches?

—Those which orators use and with which we ourselves converse with one another. Also, melodic pitches have defined intervals, pedestrian pitches undefined.

70. How many types of notes do we say there are?

—Three.

Which ones?

—Farthest note, middle note, leading note.¹⁸

71. How many types of consonances?

—Three.

Which ones?

—From a farthest note to a farthest note, from a middle note to a middle note, from a leading note to a leading note.

72. Interval itself, then, is it perceived by the mind or by the ear?

—By the mind; for if it were perceived by the ear, then even a person unlearned in the art would know the intervals just by listening to persons playing auloi or stringed instruments or singing. According to some authorities interval is perceived both by the mind and by the ear, since it is impossible for someone to understand interval who cannot hear it.

73. In what sort of magnitude is interval recognizable?

—In the tone, the semitone, in height and depth of pitch.¹⁹

[What is rhythm?

—The measuring out of time that happens along with any kind of motion.]²⁰

74. How many complete scales are there in the unmodulating scale system?

—Two.

What are they?

—The *synēmmenōn* and the *diezeugmenōn* scales.

What are their differences?

—The *synēmmenōn* scale contains an eleventh, the *diezeugmenōn* a twelfth.

75. How many species of tetrachord are there?

—Three. In the diatonic genus the first species is that where the semitone is at the bottom, the second is where it is at the top, the third is that where the semitone is bounded (*sc.* by the two tones).

76. Of the fifth there are four species. The first is that where the tone (*sc.* of disjunction) is first at the top, as in the pentachord defined by *hypatē* and *paramesē*; the second is that where the tone is second from the top, as in the pentachord of *parhypatē* and *tritē*; third is that where the tone is third, as in the pentachord of *lichanos* and *paranētē*; fourth is that where the tone is fourth, as in the pentachord of *mesē* and *nētē*.

77. Of the octave there are seven species:

The first is that where the tone is first at the top, such as the octave defined by the *hypatē hypatōn* and *paramesē*. This was called *Mixolydian* by the ancients.

Second, where the tone is second from the top, as that of *parhypatē hypatōn* and *tritē diezeugmenōn*. This was called *Lydian*.

Third, where the tone is third from the top, as that of *lichanos hypatōn* and *paranētē*, and was called *Phrygian*.

Fourth, where the tone is fourth from the top, as that of *hypatē mesōn* and *nētē*, and was called *Dorian*.

Fifth, where the tone is fifth from the top, as in that of *parhypatē* and *tritē hyperbolaiōn*, and was called *Hypolydian*.

Sixth, where the tone is sixth, as in that of *lichanos* and *paranētē hyperbolaiōn*, and was called *Hypophrygian*.

Seventh, where the tone is seventh, as in that of *mesē* and *nētē hyperbolaiōn*, and was called *Hypodorian*, or “common,” or *Locristi*. [The *lichanoi*, therefore, and the *paranētai* have equal power with the diatonic (strings).] ²¹

Here, then, is the total number of species of the consonances used in the art of music, on which all musical composition is based.

78. What is music?

—That which is made up of notes, intervals, and time.

79. What is genus?

—A certain complete and evident emotional character of music, which contains within it divers ideas.

80. The arrangements of tetrachords by which music is defined are seven: conjunction, disjunction, subdisjunction, adjunction, subconjunction, paradisjunction, superdisjunction. Of these, four are defined, and three are undefined. Conjunction, disjunction, and subdisjunction are undefined; adjunction, subconjunction, paradisjunction, and superdisjunction are defined. The undefined arrangements of the tetrachords have this difference with respect to the defined: whenever the same melody in the unmodulating scale is capable of occurring in another place (*sc.* than where it was originally), such a melody is called undefined.

81. What is conjunction?

—There is conjunction whenever there is a note common to two tetrachords lying next to one another and this note is the highest note of the lower tetrachord and the lowest note of the higher tetrachord, and when notes of the same types (*sc.* within each tetrachord) produce the consonance of the fourth with one another. There are three conjunctions: *mesōn* is conjunct with *hypatōn*, *synēm̄menōn* is conjunct with *mesōn*, and *hyperbolaiōn* is conjunct with *diezeugmenōn*. *Hypatē mesōn* joins *hypatōn* and *mesōn* tetrachords because it is a note common to both. *Mesē* joins *mesōn* and *synēm̄menōn* according to the same principle. Likewise *nētē diezeugmenōn* joins *diezeugmenōn* and *hyperbolaiōn*.

82. What is disjunction?

—There is disjunction whenever there is a tone between two tetrachords and the notes of the same types within the tetrachords are consonant with one another by a fifth. There are two disjunctions: the *mesōn* tetrachord is disjunct from the *diezeugmenōn*, and the *synēm̄menōn* is disjunct from the *hyperbolaiōn*.

83. What is subdisjunction?

—There is subdisjunction whenever the consonance of the fifth is placed between two tetrachords, whose notes then are consonant with one another by an octave. There are two subdisjunctions: the *hypatōn* tetrachord is subdisjunct from the *diezeugmenōn*, and *mesōn* is subdisjunct from *hyperbolaiōn*.

84. What is adjunction?

—There is adjunction whenever three tetrachords one after another are in composition by conjunction, for example (sc. the sequence) hypatōn, mesōn, synēmmenōn.

85. What is subconjunction?

—There is subconjunction whenever the consonance of the fourth occurs between two tetrachords and the notes of similar type (sc. in the tetrachords) are arranged together against one another at the distance of five tones. The tetrachord hypatōn is subconjoined to the synēmmenōn.

86. What is paradisjunction?

—There is paradisjunction whenever notes of the same type (sc. in two different tetrachords) produce the interval of a tone with one another. The synēmmenōn tetrachord is paradisjunct to the diezeugmenōn.

87. There is superdisjunction whenever the consonance of the octave exists between two tetrachords. The tetrachord hypatōn is in superdisjunction with the hyperbolaiōn.²²

88. How many causes (of mutation) do you say there are?

—Four.

What are they?

—Region, *tonos*, scale, the composition of the melody. Sometimes all of these (together) are the causes of mutation, sometimes just the first or the second or the third.

89. All the kinds of meters and mixed rhythms are measured out by syllables, feet, and catalexes.

90. What is a syllable?

—The “taking-together” of two or more letters, one of them always chosen from the vowels.

What is a word?

—A sound uttered by the voice, capable of being written down and presenting a portion of sense.

91. What is a *basis*?

—The arrangement together of ⟨two⟩ feet or of a foot and a catalexis.²³

92. What is a catalexis?

—The final syllable that completes all uncompleted metra.

93. What is rhythm?

—(a) The measurement of time which happens along with any sort of motion. (b) According to Phaedrus, rhythm is the measured positioning of syllables lying against one another in some manner. (c) According to Aristoxenus, it is time divided at any one of the points which can be ordered in rhythm. (d) According to Nicomachus, it is the well-ordered motion of time. (e) According to Leophantus, it is the composition of quantities of time which respect equal measure among themselves according to a principle of proportion. (f) According to Didymus, it is the giving of figure to any kind of sound; so, when sound is given figure in some way or other, it brings forth rhythm. Thus it seems to be in the case of words, or of song, or of bodily movement.

94. Out of how many quantities of time is rhythm composed?

—Three.

What sort of quantities of time?

—The short syllable, the long syllable, and the irrational syllable.

95. What is a short?

—That quantity of time which is smallest and does ⟨not⟩ reduce to parts.²⁴

What is a long?

—Twice a short.

What is an irrational?

—That quantity of time which is longer than a short, but shorter than a long. The amount by which it is shorter or longer is impossible to express in ratio, and from this circumstance it is called “irrational.”

96. How many combinations of these quantities of time occur in rhythms?

—Four. A short can be combined with a short, a long with a long, a long with a short, a long with an irrational.²⁵

97. [Every note has a sign, a name, and a function.
What is a sign?

—The distinguishing mark that gives identity to the letter (<sc. which marks a note.>)

What is a name?

—That which is placed next to the sign. Function is the sounding out of each of these notes on instruments.]²⁶

98. What do we call an arsis?

—Whenever the foot is in the air because we are about to begin a step.

What do we call a thesis?

—Whenever the foot is on the ground. It is not worth while to inquire into the time between the arsis and the thesis, because it in some way belongs in part to both. Through its brevity it escapes the notice of both sight and hearing. [They show that foot also is the least combination of rhythmic elements].²⁷

99. Of rhythms, some are simple, others are complex.

100. How many rhythms are there?

—Ten.

What are they?

—The hēgemōn, iamb, choreius, anapest, orthius, spondee, paeon, bacchius, dochmius, and enoplius.

How many of these are simple?

—Six: the hēgemōn, iamb, choreius, anapest, orthius, and spondee.

How many are complex?

—Four: the paeon, bacchius, dochmius, and enoplius.

101. Which stands at the beginning of the simple rhythms?

—First is the hēgemōn. This is composed of two of the smallest quantities of time. It begins on the arsis and spends one short on this, likewise on the thesis. We say that an example of this rhythm is the word “lōgōs.”²⁸

What is the second?

—The iamb. It is composed of a short and a long quantity, and begins on the arsis, for example, “thěōn.”

What is third?

—The choreius. It is composed of a long and a short quantity, and begins on the thesis, for example, “pōlōs.”

Fourth is the anapest, made up of two shorts in the arsis and a long in the thesis, for example, “bășlěus.”

Fifth is the orthius, composed of an irrational arsis and a long thesis, for example, “ōrgē.”

Sixth is the spondee, composed of a long arsis and a long thesis, for example, “spěndō.”²⁹

Seventh is the paeon, combined from a choreius and a hēgemōn, for example, “eūplōkāmě.”

Eighth is the bacchius, combined from a hēgemōn and a spondee, for example, “thěōdōrō.”³⁰

Ninth is the dochmius, combined from an iamb and an anapest and a paeon of the form used in *bases*, for example, “ēměněn ēk Trōiās khrōnōn.”³¹

Tenth is the enoplius, combined from an iamb and a hēgemōn and a choreius and an iamb, for example, “hō tōn pītŷōs stěphănōn.”³²

WORKS CITED

- Von Jan, Karl. ed. *Musici scriptores graeci*. Leipzig: B. G. Teubner, 1895.
- , “Die griechische Musik, II: Die Excerpte aus Aristoxenus.” *Philologus* 30 (1871): 398–419.
- , “Die Metrik des Bacchius.” *Rheinisches Museum für Philologie* 46 (1891): 557–576.
- , “Bakchios Geron.” *Real-Encyclopädie der classischen Altertumswissenschaft*. Stuttgart: T. B. Metzlerscher Verlag, 1896. 2:2790–1.
- Meibom, Marc. ed. “Bacchii senioris introductio artis musicae,” *Antiquae musicae auctores septem*. Amsterdam: Elzevir, 1652.
- Ruell, Charles-Emile. trans. *Bacchius l’Ancien*. Paris: Firmin-Didot, 1895.
- Solomon, Jon. “*Ekbole* and *Eklusis* in the Musical Treatise of Bacchius,” *Symbolae Osloenses* 55 (1980): 111–126.

NOTES

1. I would like to express my thanks to Claude Palisca for suggesting this translation and for help and encouragement in preparing it.
2. Rendering of emotion, *ἠθοποιία*: so read the MSS. In his edition of the text, von Jan proposes and prints instead the reading *μελοποιία*, “composition of melody.”
3. All the MSS include the musical notation, but only *M* accompanies these signs with the names of the notes. Von Jan doubts that the names are original and therefore brackets them. I have left the names in one section, simply so that the reader may have one chance to see them along with the notation.

According to the Alypian signs Bacchius employs, he has chosen a “Lydian form of the complete scale to illustrate the intervals of music. It makes no difference that these signs are specifically “Lydian” rather than something else; they represent the relative pitch arrangement of the theoretical scale. The “Lydian” was likely used as the basic paradigm; the anonymous writer of the theory treatise first published by Bellermann also uses the “Lydian” scale as an introduction to notation. I have taken over von Jan’s tabulation of the signs and names from his edition of the Alypius guide (contained in *Musici scriptores graeci*), and his rendering of them into modern notation. Diagram 1 illustrates the “Lydian” scale in its diatonic genus. Diagram 2 illustrates its chromatic and enharmonic genera.
4. The ninth through eleventh examples of fourth are given only in MS *P*. Meibom first restored them in his edition.
5. This “Y” appears in upright form in the MSS, and so von Jan prints it. I have preferred to turn it back down to make it conform with the sign as generally as written elsewhere, as in Diagram 1. I have silently corrected a few other such problems with the signs.
6. Relaxation, tension: these are the words used by the Greeks to describe moving down in pitch (“slacking, relaxing”) and moving up (“tensing”).

7. Enharmonic: the word in the Greek is actually "harmonic." Where *harmonia* or any adjective derived from it refers to the enharmonic genus, I have altered it to the accepted English technical term.
8. Lowest notes: the MSS read *βαρύτονοι*, "low-tuned, low-sounding," and this is the reading which von Jan adopts. I have preferred to follow Meibom here and read *βαρύτατοι*, "lowest (*sc.* pitches)."
9. Here there is some confusion in the text. In the MSS, the question of section 32, "Which notes (are the lowest notes of pycna)?" is answered by the Alypian signs RL, P \cup , Θ V, and so forth. Consulting the Alypian tables, one can see that the signs do not mark bottom notes of pycna at all, but rather middle notes. Meibom, therefore, in his edition added the correct signs in response to question 32, and also composed a question 32a (Ruelle's designation for it) on middle notes of pycna to stand before the signs the text gives. What appears between angular brackets is a translation of Meibom's reconstruction.
10. Section 25 above asserts that there is no such thing as a diatonic pycnum, which is in contradiction to this part of section 33. Von Jan retains this question and answer and rejects the conflicting section 25. I prefer to follow Ruelle in retaining section 25 and considering this question on diatonic pycna to have been inserted by a foolish editor who wanted to keep the symmetry of a pycnum for each genus.
11. This definition is nonsense. There is always either a fourth or a fifth between the lowest notes of two adjacent tetrachords, that is, between two barypycnum pitches. Ruelle suggests that this definition refers to the disjunction of *mesē* and *paramesē*; but in the scale where *diezeugmenōn* follows on the *mesōn* tetrachord, *mesē* has no share in the pycnum (section 34), and it would be wrong to call it a barypycnum. If, too, it is important to the definition that the notes be barypycna, why does Bacchius give an example in which one note, $\cup Z$, is never a barypycnum?
12. In the MS *V* the phrase *ἐπὶ τοῦ ὀξυπύκνου*, "towards the oxypycnum," appears in the definition of the *eklysis* in section 41. Both Meibom and von Jan exclude it from the text; Meibom calls it a gloss. Nonetheless, this phrase does offer support for emending the second pair of Alypian signs from the MSS reading Θ V to $H>$. Meibom is responsible for this emendation.
13. The word "mutation" is Palisca's suggested rendering of *μεταβολή*. Meibom used *mutatio* in his Latin version.
14. Dactyls: this is von Jan's emendation. In place of this word, *V* has a blank space, *M* and *P* read *ιαμβον*, "iamb(s)." A mutation in which trochees switch to iambs would serve too well as an example of the mutation according to the way the rhythm leads, as defined in section 56. Perhaps this example in fact belongs to section 56, but has found its way to the previous section.
15. As Ruelle notes, this section would be more in place before section 50.
16. Paraphony, *παραφωνία*: this word appears once, here only, in surviving Greek literature. Ruelle wishes to make the answer associated in the MSS with section 61 refer to a question on consonance which has dropped out of the text, because the definition given is nearly the same as the definition of consonance already put forward in section 10 above. It is clear, too, from the way "Longinus," the writer of the treatise *On the Sublime*, speaks of paraphonous pitches (28.1), that their sound was heard as subordinate to the sound of the main melody.

17. Ruelle would emend the first sentence of this section to have it take the form of a question.
18. It is unclear what the names of the notes define. This is what Meibom has to say on this passage: "He asks how many types of notes there are; but there should have been added here for the sake of clarity 'notes, regarded within the tetrachords.' The answer is, three: for example, hypatē, parhypatē, and lichanos. Hereupon one may justly doubt which type of note is 'farthest,' which first; or, whether the numbering should begin from the low end, or from the high end, for our Authorities are at variance. But it is my firm opinion that Bacchius, as Aristides Quintilianus (*De musica* 1.6, Winnington-Ingram ed., p. 9, line 18), understands by 'farthest' the note farthest in the direction of height of pitch." (Quderit quot sint sonorum species. hīc addendum fuerat perspicuitatis gratia, in tetrachordis spectatae. Respondetur, Tres: exempli causa, hypate, parypate, lichanos. Hīc jam dubitari possit, quatenam soni species sit ultima, quae prima. seu, num à gravi numerare incipiat, an ab acuto. Interdum enim Auctores variant. At omnino censeo, Bacchium sicut Aristides Quintil. pag. 12. v. 6. per ἔσχατον intellegere ultimum in acumen.)
19. Von Jan would remove this answer from the text.
20. What is enclosed between brackets is also the first part of the question in section 93 and clearly out of place here.
21. Von Jan puts this sentence between brackets. The sense seems to be: "the notes lichanos and the two paranētai possess the same function," but the text is garbled and the statement itself out of place.
22. Von Jan posits that a general question on mutation should be here but is missing.
23. Westphal added the "two" before "feet."
24. "Not" is omitted from the text in MSS *V* and *P* and was first supplied by Meibom.
25. In place of "a long with a short" the MSS read "an irrational with a short." The emendation adopted here is due to Cäsar.
26. This section repeats material found in sections 67 and 71. It is out of place here, and therefore von Jan brackets it.
27. Von Jan would remove this from the text. Perhaps a marginal note in someone's copy crept into the text.
28. The hēgemōn is more commonly known by the name of "pyrrhic." Likewise what is called a "choreius" is better known as the trochee.
29. After this section I postulate that a question of the form "what now are the complex rhythms?" has dropped out of the text. It is most curious that there is no mention of the dactyl, which, as the basis of heroic and elegiac verse from Homer up to the very end of antiquity, one would have thought deserved a place among any list of metrical feet.
30. *P* reads "theodōrō"; *V* reads "tethrēkō," and *M* "ho noēmōn." The name "bacchius" is more commonly given to the metrical foot of shape $\cup - -$. Here is the only place where the bacchius is defined as the foot of shape $\cup\cup - -$, whose name in all other places is "ionic a minore."
31. "Dochmius" is the accepted name of a foot with shape $\cup - - \cup - -$, but here it is applied to a much different and otherwise unknown metrical sequence. The definition and the example can be made to correspond if one takes "Troias"

as a trisyllabic word scanning $\cup\cup-$, but this scansion is unusual, occurring in only three places (Sappho 16.9 *Poetarum Lesbiorum Fragmenta*, ed. Lobel and Page, and 898.2, 899.2 in *Poetae Melici Graeci*, ed. Page). Normally the word scans as a spondee. This is only the beginning of the mysteries in this section, where the text of both definition and example seem to have been severely mangled.

It is very odd that the anapest should be included among the elements of the dochmius. In another ancient author's definition of the normal dochmius (Choeroboscus, *Commentary on Hephaestion*, p. 239, line 14 ed. Conbruch) it is said to be "composed of an *antispastic* (of shape $\cup--\cup$) and a (<sc., long> syllable." If Bacchius originally included a definition of the normal dochmius, it is possible that the textual trouble began when someone copied down *ἀνάπαιστον* (anapest) instead of *ἀντισπαστόν* (antispastic). But there is also trouble with the example. Blass (referred to in von Jan's article on the metric of Bacchius), noticed that Bacchius' example of the dochmius very closely resembles half a line from Euripides' *Helen* (651). As it appears in the MSS of the plays, this half line is a dochmius in its form where the first long is resolved into two shorts. If "anapest" were omitted from Bacchius' definition, it would fit the example as it stands in the *Helen* (because "Troias" can also be scanned $\cup-$, as at Sophocles *Ajax* 1190). Yet we *do* have "anapest" in our text, and its presence possibly as a corruption of "antispastic" suggests that originally Bacchius may have offered two alternative definitions of the dochmius, one describing the basic form, and another describing the resolved form illustrated. And then there is the "khronon" tacked on the end of the *Helen* tag. This is a variant to Euripides' text recorded in Bacchius only. Perhaps it was originally a gloss on the "polyetē" of the succeeding half line, perhaps it is only a fudge after the definition was mutilated.

In my opinion "antispastic" undoubtedly stood where "anapest" now stands. But to bring Bacchius' definition into conformity with the recognized definition of the dochmius, we would need to add "syllable" after "antispastic," and to pair "paeon" with "iamb" (and eliminate "khronon"). These are drastic measures. Far too many inexpert hands have patched this bit of text to permit any sure emendation now.

32. The enoplius is mentioned by Aristophanes (*Clouds* 651), Xenophon (*Anabasis* VI.1.11), and Plato (*Rep.* 400b). There is some confusion as to what the term "enoplius" stood for in antiquity. For a brief discussion, see M. L. West, *Greek Metre* (Oxford: Clarendon Press, 1982), p. 195.