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ANALECTA MUSICA

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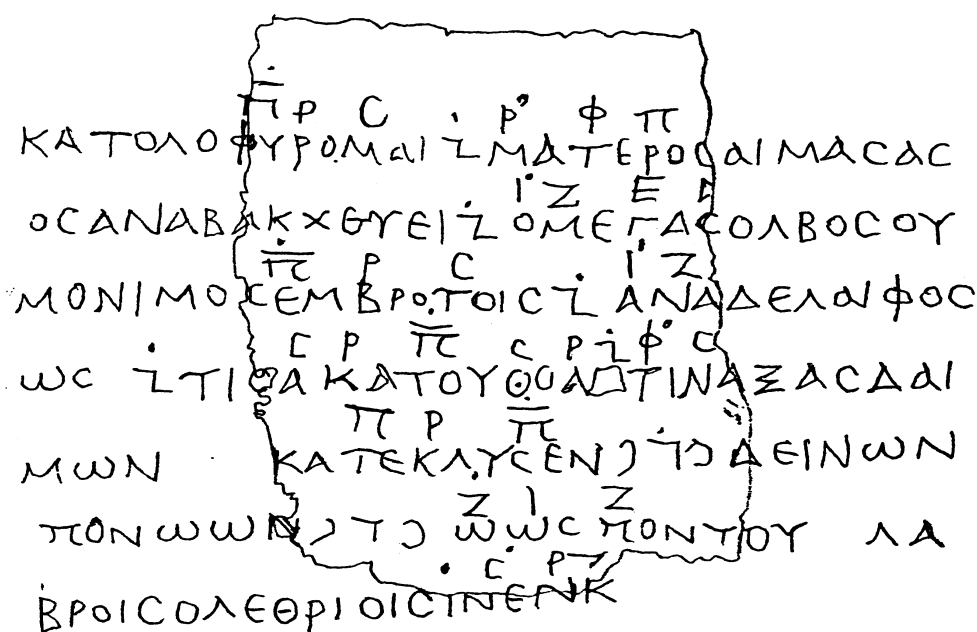
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# ANALECTA MUSICA

## I. ON THE TEXT OF THE GREEK MUSICAL DOCUMENTS

1. The Orestes fragment (P. Vindob. G.2315; E. Pöhlmann, *Denkmäler altgriechischer Musik*, No. 21; Eur. Or. 338-44).



The reconstruction shows that the word πόνων must have been written with doubled ω, indicating division between two notes. The same applies to δαίμων, unless there were two instrumental notes following it, and quite possibly to ὥς in the line above (cf. ὥς before πόντου), though the space there is not quite so wide. There must also have been something written between πόντου and λάβροις: most likely ἰ, but if no instrumental note, then πόντουου.

A new transcription of the piece (and of most of the other surviving musical documents) will appear in my forthcoming book *Ancient Greek Music* (Oxford 1992).

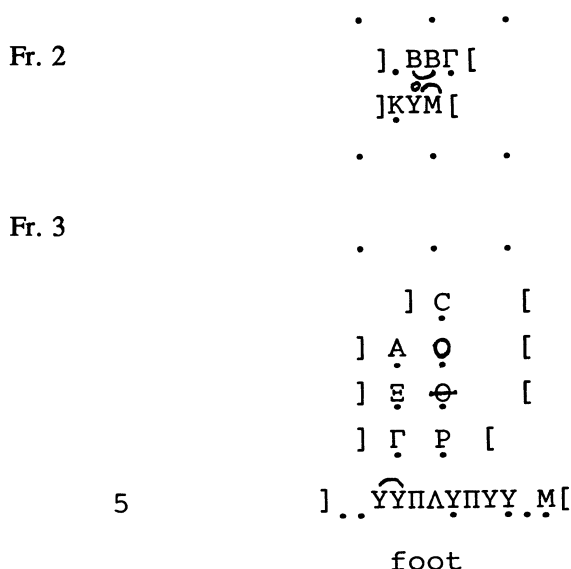
## 2. P. Hibeh 231 (British Library Pap. 2996)

These small fragments, which include some vocal notation, were published (after a fashion) by E.G. Turner in 1955,<sup>1</sup> but they were overlooked by Pöhlmann and have received no attention. They date from the mid third century BC, and apparently come from some treatise on music with examples in notation. Here is a transcription made from the original. The papyrus has of course no accents, and no other lectional signs.

Fr. 1

		κα[.]ναται...[
		.ρε.[
		[.]αλτη[.].[
5	τα υ]ποκει	.....[
	μ]ενα	γαλου.ν.ν[
	α]φριστα	με[.]αγυμ.[
	ει]ναι	
		της δε λυδιστ[ι
		....
10		εν ταυτα[ι]ς συγ[
		abraded
		κατ αναπα[ι]στ
		κα καθηκ[
		ταυτη[
		τα[.]ταγ[
		foot

<sup>1</sup> The Hibeh Papyri, II 152.



Fr. 1. 3 If the letters are correctly read, perhaps some case of ψάλτης or ψαλτήριον. 4-6 The marginal note (supplemented by Turner) may relate to the preceding column. (4-) 5 Possibly με]γάλου 6 Possibly -μέ[v]α γυμν[

Fr. 2. These note-series, and that in fr. 3. 5, are evidently melodic sequences, not mere extracts from scales. 1 ] : the lower part of an upright. Γ[ : Π[ is also possible, though in fr. 3 Π has a top extending further to the left and hooked over. The notes BΓ (or BΠ) are at home in the Dorian/Hyperdorian and Hyperphrygian systems. The superior and inferior tie-marks linking notes here and below presumably had some significance for phrasing. In later texts an inferior tie (hyphen) is commonly used to link notes in a divided time-unit; it is not found, however, where the notes are the same, other signs being employed in such cases (κομπισμός, μελισμός, or τερετισμός). 2 ]Κ : the tips of the arms are visible. Turner read ]C, but the lower trace seems almost diagonal. Musically, C is awkward in a scale containing Y and M, whereas K sits easily beside them: Hyperphrygian chromatic lichanos - parhypate hypaton - hypate, or Hypodorian chromatic paranete hyperbolaion - trite - nete. The small circle above Y may be intended for a stigme marking the arsis.

Fr. 3 The column of paired notes (1-4) is in smaller writing than line 5. The positioning of the brackets to the left in 2-4 is notional; I can not tell how much is blank writing surface and how much is abraded. It is not easy to explain the significance of the pairs of notes, and the readings cannot be guaranteed; I have particular misgivings about the P. Γ might be a cursive N. If the readings are correct, it may be observed that the three preserved pairs, A O, E Θ (recumbent phi, not theta), and Γ P, yield successively the intervals falling fifth, rising sixth, falling fifth. The second note of each pair taken with the first of the succeeding one, C A, O E,

⊕ Γ, gives successively a rising sixth, a rising semitone, and a falling major third. It cannot be a tuning sequence, as the notes do not all belong to the same key. Possibly they represent a series of modulations:

C A	Aeolian parhypate - paranete = Hypoaeol. paranete hyperb.
A O	Hypoaeol. paranete hyperb. - trite = Ionian mese
O Ξ	Ionian mese - trite synemmenon = Hyperionian parhypate
Ξ ⊕	Hyperionian parhypate - paranete = Hyperlyd. paramese
⊕ Γ	Hyperlyd. paramese - lichanos = Lyd. paranete synemmenon
Γ P	Lydian paranete synemmenon - parhypate.

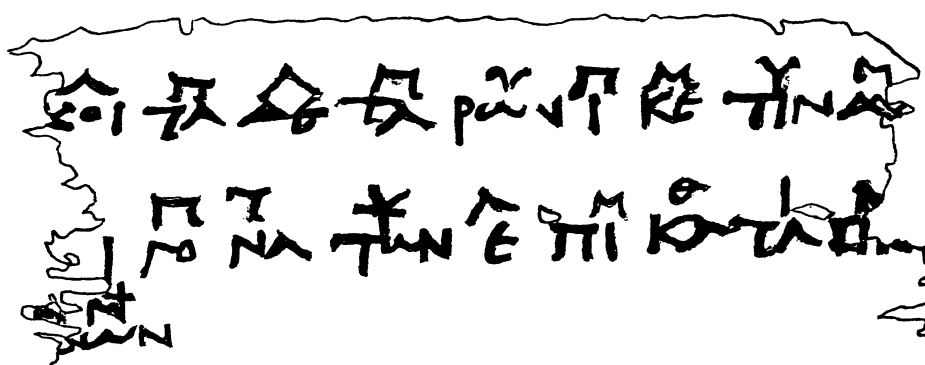
In modern notation: a - f<sup>♯</sup> - b - c' - a' - f' - bb...

### 3. P. Zenon 59533 (Pöhlmann, No. 35; Trag. adesp. 678)

Although Kannicht and Snell in their section 'Chartae musicae', TrGF II 264-80, do not print the musical notation of the fragments included, they often give the poetic texts in an improved form compared with Pöhlmann's edition. Their text of this fragment reads

]σοι τάδ' ἐτάρων ἰκέτιν αὖ  
 ] . γονάτων ἔπι κατασπο-  
 ]δων

There ought to be brackets at the ends of lines 1-2, as the papyrus is broken off. But other improvements can be made too. Here is a disegno:<sup>2</sup>



<sup>2</sup> For photographs see JHS 51, 1931, pl.V; C. C. Edgar, Zenon Papyri IV, Cairo 1931, pl. II; C. del Grande, La metrica greca, Enciclopedia classica II. v. 2, Torino 1960, 442; Die Musik in Geschichte und Gegenwart XVI, facing 642.

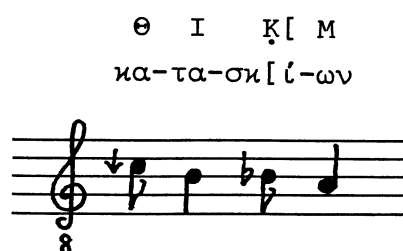
I read:

]κοι τάδ' ἐτάρων ἰκέτιν αὐ[  
 ] ι γονάτων ἐπὶ κατασκ[ίων  
 ]εων [

2 The σ has a square appearance. It is seemingly followed by a vertical (1) and the foot of another (2), and then by a trace on the line sloping slightly downwards (3). (1) and (2) have been seen as the feet of π, but it would be unnaturally squashed up to the σ. I suspect that (1) is random ink or discoloration. (2) and (3) may then be combined as κ[.

The metre may be paeonic, as Kannicht - Snell suggest, but dochmiacs are perhaps more likely. The context is evidently one of supplication. The knees will be those of the person or persons supplicated, possibly those of divine statues. κατασκ[ίων 'shaded' by the suppliant boughs; cf Aesch. Supp. 346 πέφρικα λεύσσω τάσδ' ἔδρας κατασκίους, 354 ὀρῶ κλάδοισι νεοδρόποις κατάσκιον ἱνέονθ' ὅμιλον τῶνδ' ἀγωνίων θεῶν, 656 τοιγὰρ ὑποσκίων ἐκ στομάτων ποτάσθω φιλότιμος εὐχά.

The chromatic downward glide in the melody surely continued to M, the focal note in the context:



The note Ι (here transcribed as B-flat), like the T on the second syllable of γονάτων, is a decorative passing-note interpolated into the basic scale. This basic scale is an interesting structure of conjunct tetrachords, soft diatonic over tense diatonic (to use Aristoxenus' terms), as in the 'tropoi' tuning listed by Ptolemy, Harm. 2. 15-16. In other words, the scale intervals below the focal Μ are tone, tone, while above it they are semitone, 3/4-tone. The melody does not extend further in either direction in the preserved fragment.

#### 4. P. Vindob. G 13763 and 1494 (Pöhlmann, Nos. 28/29)

In line 3 of 13763 Pöhlmann transcribes the fourth note as  $\bar{\Sigma}$ , but from the plate (Denkmäler, Abb. 24) it seems to be a clear  $\bar{\text{K}}$ . Similarly in line 6 his  $\text{X}$  is rather a  $\text{K}$ .

In line 3 of 1494 the second note is perhaps  $\text{X}$ .





Ι.<sup>6</sup> One could devise a series of supplements one letter longer (e.g. 22 |εφρ|ουουρει instead of ε|φρ|ουουρει). But then 18 would have 36 letters, exceeding the normal range of 30-35 letters.<sup>7</sup>

We need a verb. We also need a second-person pronoun, to prepare for the second-person verbs in 20-21 (restored) and 23. I propose:

ὁ δὲ [τεχνι-  
τωῶν πρόπας ἐσμὸς Ἀθθίδα λαχὼ[ν ἀγλα-  
ί]ζει κλυτὸν παῖδα μεγάλου [Διός· σοὶ γὰρ ἔ-  
πο]ρ' ἀκρονιφῇ τόνδε πάγον, ἀάμ[βροτ' ἀψευδέ'  
20 ο]ῦ πῶσι κτλ.

The next lines are commonly presented thus:

τρ]ίποδα μαντειεῖον ὡς εἰεῖ[λεις, ἐχθρὸς ὃν ἐ-  
φρ]ουούρει δράκων, ὅτε τε[οῖσι βέλεσιν ἔ-  
τρ]ηησας αἰόλον ἐλικτὰν [φυάν, ἔσθ' ὁ θῆρ συχ-  
25 ν]ᾶ συνρίγμαθ' ἰεῖς ἀθώπε[υτ' ἀπέπνευσ' ὁμῶς·  
ὡς] δὲ Γαλαταᾶν ἄρης [κτλ.

If we take the supplements in 22-24 (and in 18-20 above) as fixing the left margin, then 21 τρ]ίποδα is a full letter too short, and 25 ὡς] a full letter too long. Read therefore 20-21 λόγι|α τρ]ίποδα, 25 ὦ]δε. This gives 36 letters in line 21, but the total can be reduced by adopting J. Diggle's supplement (CR 34, 1984, 71) εἰεῖ[λεις, ὃν μέγας ἐ-.

In 22-23 ἔτρησας, 'you perforated', is a most implausible verb. I propose ὅτε τέ[κος Γαᾶς ἀπέ[στ]ηησας. Cf. Limenius 27 παῖδα Γα[ᾶς] τ' ἔπεφνες ἰοῖς. The second note over ]ηησας is rightly emended from O to Θ; the mason has accidentally put the dot of Θ in ]ουουρει above.

At the end of 23, πυκ|ν]ᾶ would be preferable to Reinach's συχ|ν]ᾶ, a word which so far as I can see is unknown to elevated poetry.

25-27 ἄρης [βάρβαρος, τάνδ' ὃς ἐπὶ γαῖ-  
α]ν ἐπέρασ' ἀσέπτ[ως χιόνος ὤλεθ' ὑγραῖς βολ-  
αῖ]ς.

<sup>6</sup> For the form of zeta to be expected (there is no other zeta preserved in the piece) see the accompanying Paean of Limenius, lines 33-4; photo in Pöhlman, Abb. 21.

<sup>7</sup> The physical length of lines on the stone is quite variable. The mason was evidently following the lineation of his exemplar, which had 30-35 letters per line.

Crusius' supplement in 25 is satisfactory; cf. Limen. 32 ὁ βάρ]βαρος ἄρης. Pöhlmann's in 26 is modelled on Limen. 33 ὅλεθ' ὑγρᾶι χι[όνοϛ ἐν ζάλαι, but the line-division βολ|αῖ]ϛ is of course impossible. βολαι|εῖ]ϛ would make 26 too long (37 letters), and in any case the final note of a sentence is always an undivided diseme in these Paeans. There is not room for a consonant + long vowel at the beginning of 27, so presumably -αι]ϛ, -ω]ϛ, etc., on a stem ending with a vowel, e.g. (χιόνοϛ ὅλεθ' ὑγρᾶιϛ) χο|αῖ]ϛ.

#### 6. An inscription from near Mylasa

In 1945 Louis Robert reported on some musical fragments inscribed upon blocks from a sanctuary of the Carian deity Sinuri near Mylasa, probably of the first century BC.<sup>8</sup> The out-of-the-way publication only recently came to the attention of students of Greek music. Pöhlmann did not know of it when he compiled his *Denkmäler* (1970), but he notices it in his recent *Beiträge zur antiken und neueren Musikgeschichte* (1988), p. 11. The text is not very exhilarating, for although it extends over many lines, no more than four letters per line are preserved, with not a single complete word. Robert provided no transcription, so I offer a provisional one here, made from the photograph in his volume.

A		B
top		] . υϛ[
ζ		] αμα[
] ια. [		μ'
] . δ[		] ιν[
] ζεγ[		ξ
] σεε[		] ι [
5 ] ροε[	5	] [

<sup>8</sup> Le Sanctuaire de Sinuri près de Mylasa. Première partie: les inscriptions grecques. (*Mémoires de l' Institut Français d' Archéologie de Stamboul*, VII), pp. 104-6 No. 81 and pl. I.

	$\overset{\cdot}{\Xi}\overset{\cdot}{\Theta}$		
	]ηυρμ[		] [
	$\overset{\cdot}{\kappa}$		
	]θαιμ[		] [
	$\overset{\cdot}{\epsilon}$		
	]νιυα[		] [
	$\overset{\cdot}{\epsilon}$		
	]λακ[	10	] [
10	$\overset{\cdot}{\Lambda}$		
	]νεγγ[		]ρει[
	$\overset{\cdot}{\kappa}$		$\overset{\cdot}{\Lambda}$
	]νοε[		]τρα[
	$\perp$		
	]ον[		]μ[
	$\overset{\cdot}{\Lambda}$		
	]δεγ[		]ων[
	$\overset{\cdot}{\epsilon}$		
	]ανα[	15	]πο[
			]υι[
			]η[
			]..[
			]υο[
		20	]..[

A 1  $\overset{\cdot}{Z}$  : or  $\overset{\cdot}{\Xi}$ ?  $\overset{\cdot}{\Delta}$ ?      3 above  $\zeta$  :  $\overset{\cdot}{\Lambda}$  or similar?      4  $\overset{\cdot}{\kappa}$  :  $\overset{\cdot}{X}$  or  $\overset{\cdot}{\Lambda}$ ?      6 Perhaps ]μυρμ[  
7  $\overset{\cdot}{\kappa}$ : or  $\overset{\cdot}{R}$       9  $\overset{\cdot}{\epsilon}$  : or  $\overset{\cdot}{\Xi}$ ?      10 Perhaps  $\overset{\cdot}{\Lambda}\overset{\cdot}{\Upsilon}$   $\epsilon\gamma\gamma$ [  
B 3  $\overset{\cdot}{M}$  : or  $\overset{\cdot}{U}$ ?      5  $\perp$  : or  $\perp$ , E?      11-20 It is not certain that there are any musical signs  
in these lines.

A point of some interest is the appearance at A 6 of a long syllable divided among three notes, and in association with this the articulatory notation of dicolon (certainly) and hyphen (perhaps). This is the earliest document to show these features, which are common in the papyrus texts of the Roman period.<sup>9</sup>

#### 7. The hymns of Mesomedes (Pöhlmann, Nos. 2-5)

Mesomedes' melodic lines generally respect the word accents. In his careful survey of the evidence known up to 1955 on the relation of melody and accent in Greek music, R. P. Winnington-Ingram counted in the Helios and Nemesis hymns some fourteen breaches of the principle that the accented syllable is set on a note at least as high as any other in the same word.<sup>10</sup> But several of these instances disappeared in the improved text edited by Pöhlmann. It seems worth considering whether others are susceptible of emendation.

Helios 11-14      περὶ νῶτον ἀπείριτον οὐρανοῦ  
                          ἀκτῖνα πολύστροφον ἀμπλέκων.  
                          αἴγλας πολυδερχέα παγάν  
                          περὶ γαῖαν ἅπασαν ἐλίσσων.

The melody falls from the first to the second syllable of παγάν. The manuscripts in fact give πάγαν paroxytone, but we cannot believe that Mesomedes accented this familiar word in such an anomalous way. πάγαν is, I suggest, a corruption of πάναν (= πήνην), which is a better fit with the surrounding imagery (πολύστροφον ἀμπλέκων ... ἐλίσσων); 'winding the thread of radiance round the whole earth'.<sup>11</sup>

                         P M I  
 16                    τίκτουσιν ἐπήρατον ἀμέραν.

The melody rises on the three syllables of τίκτουσιν. There is no reason to suspect the verb; in any case no substitute verb could be accented on the final syllable. What about the melodic line? A three-note rising figure is very common at the beginnings of lines in these hymns. So probably we should accept the Akzentbeugung. The only viable alternative would be to change P to E, comparing Nemesis 12 for the melodic pattern.

<sup>9</sup> But cf. above on P. Hib. 231 for the hyphen.

<sup>10</sup> Symb. Osl. 31, 1955, 69 f.

<sup>11</sup> For parallels to the idea of the sun as a weaver see R. Eisler, *Weltenmantel und Himmelszelt*, 1910, 226 f.; my *Early Greek Philosophy and the Orient*, 1971, 54 f.

I M M

Nemesis 4      ἐπέχεις ἀδάμαντι χαλινῶι

This one could be solved by assuming the loss of a single stroke: I M ⟨I⟩ M. The note I is assumed to have fallen out also in Helios 10 and 16. This would mean that the final syllable νῶι was divided between the notes I M: cf. Helios 11, 13, Nemesis 5, 9. I M ⟨I I⟩ M is also possible, i.e.



R Φ P P

10      γαυρούμενον ἀύχένα κλίνεις

As in Helios 16, the tendency to a rising sequence at the start of the line might be held to justify the overriding of the accentual pattern. But R Φ R R is an easy emendation.

I I Z M

15      Νέμεσι πτερόεσσα, βίου ροπά.

I I Z M

One could transpose ροπά βίου, except that this line repeats the first line of the hymn, and it may be doubted whether Mesomedes would have varied the word order. On the other hand the notes can hardly be changed; the final M brings us back to the tonic at what seems to be the end of the composition. (The following five lines appear to be a separate little hymn, or an extension added subsequently.) Probably this is another case where melodic necessity prevailed over the claims of accent.

One further conjecture on this text may be ventured.

13      ζυγὸν μετὰ χεῖρα κρατοῦσα

is the only verse in either hymn which begins ◡— rather than ◡◡— or ——. There are four parallels in a twenty-line inscriptional poem in this metre, IG 2<sup>2</sup>. 4514, but Mesomedes' practice was evidently stricter. To write ζεύγλην would import another conflict between melody and accent. Hermann proposed ζυγὸν ⟨εὔ⟩. Perhaps ⟨τὸ⟩ ζυγόν. For initial ζ failing to lengthen the preceding syllable in Hellenistic and later verse see my Greek Metre, 17.

$\phi$  ς οε̄ο ὀ :φϙ̄  
 παι αν ω παι α γ[... ]ι[]ρω ν[  
 $\dot{\epsilon}$  :ΙΖ ζ υ [:]ΑΥΑ Α  
 τον δα λου τερ πει τας [  
 .. ζ :υ-υ υΑ Α  
 λω γ και δει ναι ξανθου[  
 :ΑΥνζ υ :υΑ ι ΙΞ  
 λω ν πα γαι τι cμη νο[  
 [ ] ε̄ν̄ Ξ' :ΙΖ ι Ξϙ  
 5 ευ[ ]τα παι α ν ocμου ca[  
 z ε̄ν̄ :zΑ īō z' zi  
 κρα να c υ μνω ν ε ξαρ [  
 ὀ ς :ocήφ z' :ΑΥZ  
 ξας φω να νοc πυρ β[  
 A zi ι' ≡ ήφ Ξ' :ΙΖ  
 χαι ται c cτε ψα cλα του [  
 o Ξϙ ι īή z' θ  
 μα τροc λω βα ν κλη δω ν α[

[illegible]

1 The new fragment contributes ] [ ρω<sup>ξ</sup>ν[. The first trace is a hook slightly below line level. It might be taken for the nose of α, but I am more disposed to see it as the finish of a descender. Compare the iotas in 3 (δεινα)ι, 4 παγαι τ' ἱσμηνοῦ; also the tau in 17 το, and the second instrumental F in 13. The next trace is a longer descender curving slightly forward: rho looks the likeliest interpretation. There is a gap between the two traces which may have been occupied by a musical note at the higher level.

2 The new fragment contributes  $\tau \alpha \dot{c}$  [ . The  $\tau$ , previously on the edge, was misread as  $\pi$  [ .

3 No traces can be made out after λω.

4 The first letter has been read as δ, but this is unlikely.

5 εϣ very uncertain. Schubart read κρ, but the length of the descender favours ϣ over ρ, and the κ would be rather cramped (compare κρ in 6).

11 Unequivocal traces of α at the end.

14 The cruciform sign in the suprascript is hardly a cancelled Γ (Pöhlmann). I cannot elucidate it.

16 There is a hole just above :l' Ω which might have consumed a diseme sign or a stigme.

18 No stigme on the leimma.

19 [Λ'] : [Λ'] (Wagner) cannot be ruled out. The following l' is fairly clear. I cannot see that it has been cancelled (Wagner).

20 The third \ appears crossed by a thin diagonal stroke going the other way. Perhaps parts of both are to be combined as Ω, the remainder being dirt.

23 ΤΥΩ: so (Schubart), rather than ΤΧΩ (Wagner) or : ΤΧΩ (Pöhlmann) On α(πο) certainly Α' not Χ. The final Κ['] very uncertain, but I cannot reconcile the traces with Pöhlmann's †[].

E. Heitsch, *Griechische Dichterfragmente der römischen Kaiserzeit* I 169 f., records several scholars' attempts to supplement the missing portions of the poetic text of the Paean (= pap. lines 1-12). They are mostly too short by one syllable in each line. But the new readings lend support to previous conjectures at one or two points. In line 1 the traces match Reinach's Παϊὰν ὦ Παϊὰν [χα]ῖρ' ὦν[αξ ... very nicely, if one assumes a space between the final ν of Παϊὰν and χαῖ (cf. 6 after ὕμνων, 8 after χαίταις, 9 after κληδών; other noteless gaps are less relevant, as they coincide with verse-end). The falling notes ♭ over the ω suit a circumflexed vowel. At the end of the Paean ξα[νθοὶ --- καρ]ποί looks extremely probable (Reinach again). Reinach supplied τέλλονται as the verb; one could also think of τίκτονται, comparing Synes. Hymn. 3. 24 σοὶ καὶ τίκτονται καρποί; or βρίθουσιν or βρίθονται.

In line 2 τας is probably the article, introducing an epithet of Δάλου.

In line 5 it is uncertain whether a syllable is lost between εϣ and τα. The space might have been filled by a string of four musical symbols, or it might accommodate e.g. Εὐ[ῖ ρώ]τα.

# 10. P. Oxy. 3705

The papyrus presents part of an iambic trimeter with four alternative musical settings, perhaps to illustrate different styles. The editor, M. W. Haslam, prints the verse as

τοῦ δὴ τόπου τι μνη[



with the note 'if iambic, μνῆμα or μνημονευ-, and probably τι rather than τί'.<sup>12</sup> I find it difficult to invent a plausible Greek sentence with such a beginning, and prefer to take both τοῦ and τί as interrogatives:

τοῦ δὲ τόπου; τί μνη[

The main musical problem is the repeated appearance among the notes of the abnormal symbol ♯. Haslam considers and rejects various hypotheses as to its identity. I notice that in manuscripts of Aristides Quintilianus pp. 19-20 W.-I., ♯ or ♯ appears for ♯, and that in those of Gaudentius, p. 363 Jan, ♯ appears for instrumental ♯ or ♯. The latter case, at least, cannot help us, because in P. Oxy. 3705 we are dealing with vocal notation. ♯, on the other hand, has the merit of being a Hypolydian note, like the rest in our text. But it has the disadvantage of being the chromatic lichanos, whereas the other notes are from the diatonic series; and it lies outside their range, being a minor third below the lowest of them. Transcription with ♯ interpreted as ♯, therefore, would yield results that are musically quite unconvincing.

More attractive results are obtained by positing that the mystery symbol stands for K, even though K is extraneous to the Hypolydian key. It will represent the semitone step between M and I in the Hypolydian synemmenai. If we use the conventional translation of the mese C as equivalent to our note a, then K = c♯ and the sequences in which it appears are:

- (1) c♯' e' d' d' e' c'
- (2) c' c♯' e' d' c' e' d' c' b d' c'
- (3) c' c♯' c♯' e' e' c♯' c♯' c' c' d' d'

<sup>12</sup> The Oxyrhynchus Papyri LIII, 1986, 47 f.

## II. ALCIDAMAS (?) Κατὰ τῶν ἁρμονικῶν

One of the most important texts of classical date for the history of Greek music and musical theory is P. Hibeh 13, recovered from two early Ptolemaic mummies who were sharing it, and published by Grenfell and Hunt in 1906 under the title ‘Hippias (?), Discourse on Music’. The ascription to Hippias, proposed by Blass and supported by Ruelle, was immediately questioned<sup>13</sup> and since then has been generally rejected. More recently an attractive case has been made for identifying the author as Alcidamas.<sup>14</sup> I have supplied Κατὰ τῶν ἁρμονικῶν as the appropriate title. I present a revised text, a disegno to illustrate the commensurability of supplements for column ii, commentary, and bibliography. For a photograph see Plate II.

- Col.i Πολλ]άκις ἐπῆλθέ μοι θαυμάσαι, ὦ ἄνδρες [᾿Αθηναῖοι,  
εἰ ἀ]λλοτρίας τιν[ἐς] τὰς ἐπιδείξεις τῶν οἰκείων τε-  
χν]ῶν ποιοῦμεν[οι] λανθάνουσιν ὑμᾶς. λ[έγοντες γὰρ  
ὅ]τι ἁρμονικοὶ εἰσι καὶ προχειρισάμενοι ὡ[ιδίας τινας  
5 ταύτας συγκρίνουσιν, τῶν μὲν ὡς ἔτυχεν  
κατηγοροῦντες, τὰς δὲ εἰκῇ ἐγκω[μιάζ]οντες.  
καὶ λέγουσι μὲν ὡς οὐ δεῖ αὐτοὺς οὔ[τε ψ]άλτας  
οὔτε ὠιδούς θεωρεῖν· περὶ μὲν γὰρ τ[αὐτ]α ἑτέροις  
φασιν παραχωρ[ε]ῖν, αὐτῶν δὲ ἴδιον [εἶ]ναι τὸ θε-  
10 ωρητικὸν μέρος· φαίνονται δὲ περὶ μὲν ταῦτα  
ὧν ἑτέροις παραχωροῦσιν οὐ μετρίως ἐσπουδακό-  
τες, ἐν οἷς δὲ φασιν ἰσχύειν, ἐν τούτοις σχ[εδιά]-  
ζοντες. λέγουσι δὲ ὡς τῶν μελῶν τ[ὰ] μὲν  
ἐγκρατεῖς, τὰ δὲ φρονίμους, τὰ δὲ δικαίους,  
15 τὰ δὲ ἀνδρείους, τὰ δὲ δειλοὺς ποιεῖ, κακῶς εἰδότες ὅτι  
οὔτε χρῶμα δειλοὺς οὔτε ἁρμονία ἂν ἀνδρείους  
ποιήσειεν τοὺς αὐτῇ χρωμένους. τίς γὰρ οὐκ οἶδεν  
Col. ii Αἰτ]ωλοὺς καὶ Δόλοπας καὶ πάντας τοὺς θύ]οντας Θερμο-  
πύλ]ηισι διατόνῳ μὲν τῇ μουσικῇ χρω[μένους,  
20 πολὺ] δὲ τῶν τραγωιδῶν ὄντας ἀνδρειο[τέρους τῶν διὰ  
πα]γτὸς εἰωθότων ἐφ’ ἁρμονίας αἰδεῖν; [ὥστε δῆλον ὅτι  
οὔτε] χρῶμα δειλοὺς οὔτε ἁρμονία ἂν [ἀνδρείους ποιήσειεν.  
εἰς τοσ]οῦτο δὲ ἔρχονται τόλμης ὥστε χ[ρόνον πολὺ]ν κ[ατα]-

<sup>13</sup> K. Fuhr, Berl. phil. Wochenschr. 26, 1906, 1413; W. Crönert, Hermes 44, 1909, 512.

<sup>14</sup> A. Brancacci in: A. Brancacci et al., Aristoxenica, Menandrea, Fragmenta Philosophica (Accad. Toscana, Studi XCI), 1988, 78-84. Crönert, art. cit. 519 f., had already considered Alcidamas but rejected the idea. He suggested Drakon, a pupil of Damon's, said to have taught Plato.

- 25 τρίβ]ειν ἐν ταῖς χορδαῖς, ψάλλοντες μὲν [πολὺ χ]εῖ[ρον τῶ]ν  
 ψαλ[τῶν, ᾄδοντες δὲ τῶν ᾠδῶν, συγκρίνοντες δὲ καὶ  
 τοῦ τ]υχόντος ῥήτορος, πάντα πάντῳ[ν χεῖ]ρον ποιοῦντες·  
 καὶ π]ερὶ μὲν τῶν ἁρμ[ο]νικῶν καλουμ[ένω]ν, ἐν οἷς δὴ  
 φ[ασι]ν διακεῖσθαι πῶς, οὐθ' ἦντινα φων[ήν] ἔχοντες λέγειν,  
 ἐν[θο]υσιῶντες δέ, καὶ παρὰ τὸν ῥυθμ[ὸν] . . . ]παίοντες  
 30 τὸ ὑποκείμενον σανίδιον αὐτοῖς [ἅμα τοῖς] ἄπ[ὸ] τοῦ  
 ψ[αλ]τηρίου ψόφοις· καὶ οὐδὲ αἰσχύν[ονται ἀξιο]ύ[μ]ε[ν]οι π]ερὶ  
 τῶ[ν] μελῶν, τὰ μὲν δάφνης ἔξιν [ἴδιόν] τι, τὰ δὲ κιτ[τ]οῦ·  
 ἔτ[ι] δὲ ἐπερω[τῶντες] εἰ οὐ φαίνεται [ἡ μελ]ω(ι)δία ἐπὶ τῇ[ς]  
 ἑ[λ]ικος κι]γείσθαι, καὶ οἱ σάτυροι πρὸς [τὸν λην]ὸν χορεύον[τες]

ΑΙΤΩΛΟΥ ΚΑΙ ΔΟΛΩΣΤΑΕ ΚΑΙ ΤΑΥΤΑ ΤΟΥ ΕΥΟΝΤΑ ΘΕΡΜΟ  
 ΣΤΑΗΚΙ ΔΙΑ ΤΟΝΩΙ ΜΕΝΤΙ ΜΟΥΣΙΚΗ ΧΡΩΜΕΝΟΥΣ·  
 20 ΤΟΛΥΔΕ ΤΩΝ ΤΡΑΤΩΙΔΩΝ ΟΝΤΑΣ ΑΝΕΓΕΙΤΕΡΟΥΣ ΤΩΝ ΔΙΑ  
 ΤΑΝ ΤΟ ΣΕΙΩΘΩ ΤΩΝ ΕΦΑΡΜΟΝΙΑΣ ΑΙΔΕΙΝΣ ΩΣΤΕ ΔΗΛΟΝ ΟΤΙ  
 ΟΥΤΕ ΧΡΩΜΑ ΔΕΙΛΟΥΣ ΟΥΤΕ ΑΡΜΟΝΙΑ ΑΝΑΝΑΡΕΙΟΥΣ ΤΟΙΣ ΚΕΙΕΝ:  
 ΕΙΣ ΤΟ ΣΟΥΤΟ ΕΡΧΟΝΤΑΙ ΤΟΛΜΗΣ ΩΣΤΕ ΚΡΟΝΟΝ ΤΟΛΥΝ ΚΑΤΑ  
 ΤΡΙΒΕΙΝΕΝΤΑΙ ΧΟΡΔΑΙΣ: ΦΑΛΛΟΝΤΕΣ ΜΕΝΤΙ ΤΟΛΥ ΧΕΙΡΟΝ ΤΑΝ  
 25 ΦΑΛΤΩΝ ΑΙΔΟΝΤΕΣ ΔΕ ΤΩΝΩΙΔΩΝ: ΣΥΝΚΡΙΝΟΝΤΕΣ ΔΕ ΚΑΙ  
 ΤΟΥ ΤΥΧΟΝΤΟΣ ΡΗΤΟΡΟΣ ΠΑΝΤΑ ΤΑΝ ΤΗΝ ΧΕΙΡΟΝ ΤΟΥ ΓΥΝΗΤΕΣ  
 ΚΑΙ ΠΕΡΙ ΜΕΝ ΤΩΝ ΑΡΜΟΝΙΚΩΝ ΚΑΛΟΥΣ ΜΕΝΕΝΟΙ ΚΑΙ  
 ΦΑΣΙΝ ΔΙΑΚΕΙΘΑΙΣΤΩΣ ΟΥΘΗΝ ΤΗΝ ΑΦ΄ ΗΝ ΗΝΟΧΟΝΤΕΣ ΛΕΓΕΙΝ  
 ΕΝΘΟΥΣ ΚΥΝΤΕΣ ΔΕ· ΚΑΙ ΤΑΡΑ ΤΟΝ ΡΥΘΜΟΝ ΚΥΜΑΙΟΝΤΕΣ  
 30 ΤΟΥΤΟ ΚΕΙΜΕΝΟΝ ΣΑΝΙΔΙΟΝ ΑΥΤΩΙΔΩΝ ΑΠΟΙΣ ΑΧΟΤΟΥ  
 ΤΑΙΣ ΤΡΙΟΦΟΦΟΙΣ ΚΑΙ ΟΥΔΕ ΑΙΣΧΥΝΟΝΤΑΙ ΑΞΙΟΥ ΜΕΝΟΙ ΠΕΡΙ  
 ΤΩΝ ΜΕΛΩΝ ΤΑ ΜΕΝ ΔΑΦΝΗΣ ΕΞΕΙΝ ΙΔΙΟΝ ΤΙΤΑ ΔΕ ΚΙΤΤΟΥ  
 ΕΤΙ ΔΕ ΕΣΤΙΝ ΤΩΝ ΤΕΙΟΥ ΦΑΙΝΕΤΑΙ ΕΠΙ ΜΕΛΩΣ ΔΙΑ ΕΤΙ ΤΗΣ  
 ΕΛΙΚΟΣ ΚΙΝΕΙΣΘΑΙ: ΚΑΙ ΟΙ ΣΑΤΥΡΟΙ ΠΡΟΣ ΤΟΝ ΛΗΝΟΝ ΧΟΡΕΥΟΝΤΕΣ

## Commentary

1. This is the beginning. The author starts with a rhetorical cliché of the period. Cf. Isoc. Paneg. 1 (incipit) πολλάκις ἐθαύμασα τῶν τὰς πανηγύρεις συναγαγόντων ... ὅτι ...; Helen 1-2; Soph. 12 θαυμάζω δ' ὅταν ἴδω τούτους μαθητῶν ἀξιουμένους οἱ ποιητικοῦ πράγματος τεταγμένην τέχνην παράδειγμα φέροντες λελήθασι σφᾶς αὐτούς; Xen. Mem. 1. 1. 1 (incipit) πολλάκις ἐθαύμασα τίσι ποτὲ λόγοις Ἀθηναίους ἔπεισαν οἱ γραψάμενοι Σωκράτην; Lys. 12. 41 πολλάκις οὖν ἐθαύμασα τῆς τόλμης τῶν λεγόντων ὑπὲρ αὐτοῦ.

Crönert's suggested supplement [Ἀθηναῖοι seems likelier than [Ἑλληνας of ed. pr., which was probably conditioned by the idea of Hippias' authorship and of his attested discourses at Olympia.

2-3 Sophistic attacks on those who claimed to be specialists in some τέχνη became almost a minor genre. They are particularly associated with Protagoras; see Pl. Soph. 232d, Prot. 318d, Arist. Metaph. 997b32 ff.; also Hippocr. π. τέχνης 1, εἰσὶ τινες οἱ τέχνην πεποιήνται τὸ τὰς τέχνας αἰσχροεπεῖν ... ἱστορίας οἰκείης ἐπίδειξιν ποιέόμενοι.

4. ἁρμονικοί: there are many references in fourth-century literature to self-appointed experts going under this name. But it covers more than one kind of creature, and not all writers apply it in the same way. For Aristotle (Anal. Post. 79a1, cf. 87a34, Top. 107a15, Phys. 194a8, Metaph. 997b21, 1077a5, 1078a14) it covered both those who calculated interval ratios mathematically and those who judged them by ear. But Theophrastus (fr. 89 W.) contrasts those who give a mathematical account of intervals with 'the ἁρμονικοί and those who judge by sense-perception'. Cf. Pl. Rep. 531ab, Phaedr. 268de, Charm. 170c. The Athenian citharist and wit Stratonikos is said to have been the first to teach τὰ ἁρμονικά and to construct a diagram in which modal scales were systematized (Phainias fr. 32 Wehrli). He will have been among the ἁρμονικοί mentioned in vague but critical terms by Aristoxenus as his own predecessors (Harm. 1. 2, 5, 7, 28; 2. 37, 40). Other references: Theophr. Char. 5. 10; Chamaeleon fr. 25 Wehrli = 28 Giordano; Duris FGrH 76 F 23.

The ἁρμονικοί targeted in the present discourse are not mathematicians, but they are not of the Aristoxenian feather either. They are followers of the Damonian tendency, interested both in scale-intervals (as their chosen title of ἁρμονικός implies) and in rhythms, and in the ethical effects of different forms of music. The writer criticizes their dogmas as random and subjective (4-6).

7-10. In their expositions they present musical examples, for purposes of discussion, by singing and by plucking a stringed instrument (see below on 30-31); but they emphasize that they are theoreticians, not performers. Our author first accuses them of disingenuousness, as they have in fact devoted more effort to performing technique than to working out coherent theory (10-13), and later — not too consistently — he says scornfully that their technique falls far short of that of the professional performers (24 f.). A similar point is made in a passage of Iamblichus (De communi mathematica scientia, p. 80. 13 ff. Festa) which has been included in some editions of the fragments of Aristotle's *Protrepticus* (fr. 52 p. 59 Rose<sup>3</sup>; fr. 5 p. 31 Ross), though according

to I. Düring “We do not know from what source this is taken; the text does not fit at all into the framework of the *Protrepticus*”.<sup>15</sup> It says that those who make ἀποδείξεις and συλλογισμοί about συμφωνία and other such matters σκοπεῖν εἰώθασιν, οὐδενὸς δὲ κοινωνοῦσι τῶν ἔργων, ἀλλὰ κἂν τυγχάνωσιν αὐτῶν δυνάμενοί τι χειρουργεῖν, ὅταν μάθωσι τὰς ἀποδείξεις ὥσπερ ἐπίτηδες εὐθὺς αὐτὰ χεῖρον ποιοῦσιν.

7. καὶ λέγουσι μὲν ὡς οὐ δεῖ: cf. Isoc. Soph. 4 καὶ λέγουσι μὲν ὡς οὐδὲν δέονται χρημάτων.

10-13. Cf. *ibid.* 5 παρὰ μὲν ὧν δεῖ λαβεῖν αὐτούς, τούτοις μὲν ἀπιστοῦσιν, ... ὧν δ’ οὐδεπώποτε διδάσκαλοι γεγόνασιν, παρὰ τούτοις τὰ παρὰ τῶν μαθητῶν μεσεγγυοῦνται. 9 χεῖρον γράφοντες τοὺς λόγους ἢ τῶν ἰδιωτῶν τινες αὐτοσχεδιάζουσιν, ὅμως ὑπισχνοῦνται τοιούτους ῥήτορας τοὺς συνόντας ποιήσιν ὥστε κτλ.

13-17. Concern with the ethical effects of different kinds of music is a persistent theme in Greek theory from the fifth century on, beginning with the Pythagoreans. Damon seems to have been the first to give it literary expression in his *Areopagitikos*. His ideas were taken up by Plato, who is said to have been taught music by a pupil of Damon’s — one Drakon — and who mentions Damon in the most commendatory terms.<sup>16</sup>

Our author’s ἀρμονικοί claim that music can make ἐγκρατεῖς, φρόνιμοι, δίκαιοι, ἀνδρεῖοι, or δειλοί. The list of qualities corresponds in part to those of which Damon spoke.<sup>17</sup> But so far as our information goes, Damon was particularly concerned with the effects of different modes (ἀρμονίαι) and rhythms, whereas our author’s argument focuses on the role of genus, and specifically on the antithesis of enharmonic and chromatic. In discussion of musical ethos in Plato, Aristotle, and the Peripatos, genus remains out of sight, but it reappears in Diogenes of Seleucia, who maintained a view similar to that criticized here.<sup>18</sup> In later sources the diatonic genus is usually brought into the assessment, and each genus on the whole is assigned positive qualities.<sup>19</sup>

15-17 The structure is remarkably similar to Isoc. *De pace* 31-32 εἰς τοῦτο γὰρ τινες ἀνοίας ἐληλύθασιν ὥσθ’ ὑπειλήφασιν (κτλ.) ... κακῶς εἰδότες ὡς οὔτε πρὸς χρηματισμὸν οὔτε πρὸς δόξαν ... οὐδὲν ἂν συμβάλαιτο τηλικαύτην δύναμιν ὅσην περ ἀρετὴ καὶ τὰ μέρη ταύτης. The expression κακῶς εἰδότες ὅτι it is especially Isocratean: *Panath.* 160, 187, 263, *Soph.* 10, *Platae.* 25, *Epist.* 7. 4; also *Xen. Cyr.* 2. 3. 13.

<sup>15</sup> Aristotle’s *Protrepticus*, 1961, 208.

<sup>16</sup> *Laches* 180d, cf. 197d; *Rep.* 400ab.

<sup>17</sup> Cf. *Philod. Mus.* p. 116 van Krevelen (DK 37 B 4): ἀνδρε[ία], σω[φροσύνη], δι[καίολογος], and p. 194 = P. 70 Neubecker; ἀνδρεία also implied in *Arist. Quint.* p. 80. 25 ff. W.-I. See also W. D. Anderson, *Ethos and Education in Greek Music*, 1966, 151.

<sup>18</sup> *Philod. Mus.* IV pp. 39 f. Neubecker.

<sup>19</sup> See *Adrastus* (?) ap. *Theon Smyrn.* p. 54.12 - 56.5 H., *Plut. Non posse suaviter* 1096b, *Sext. Emp. adv. Mus.* 50, *Arist. Quint.* p. 92. 19 ff. (interp.), *Anon. Bellerm.* 26, *Procl. in Tim.* II 169. 1 ff. D.

17-19. Archaic and fifth-century music in general, from Olympus and Polymnestus down to Pindar and tragedy, is reported to have been normally in the enharmonic genus, and the earlier theorists, according to Aristoxenus, concerned themselves with it alone.<sup>20</sup> The term ὁρμονία / ἐναρμόνιος, '(standard) tuning', presupposes its primary status, just as χρώμα/χρωματικός designates a secondary phenomenon, a 'colouring'. Chromatic was associated especially with citharody after the mid fifth century. Euripides and Agathon are said to have made some use of it in tragedy, but it remained abnormal there. Some tragic enharmonic was judged to have an admixture of the diatonic.<sup>21</sup> But pure diatonic seems to have had no recognized place in 'classical' music. It is illuminating to learn from the present text that it was a regional phenomenon in the early fourth century, characteristic of northern and northwestern Greece. It may also have been current in Magna Graecia, considering the greater importance that it assumed in the Pythagorean line of musical theory.<sup>22</sup>

17. τίς γὰρ οὐκ οἶδεν: cf. Isoc. Soph. 12 (after θαυμάζω δ' ὅταν ἴδω ...) τίς γὰρ οὐκ οἶδε πλὴν τούτων, ὅτι κτλ.

18-19. Grenfell - Hunt read τοὺς Θε[ρ]μοσύλ]ησι, but θυ[ is palaeographically better, and the extra word is necessary to make the line up to its proper length. The line-break was certainly at |πυλ-. The writer may mean that diatonic songs were to be heard at the Amphictionic League's gatherings at Anthela. This would account for the mention of the Dolopes, though probably not for the Aetolians. Anything that was 'common knowledge' about the Aetolians' songs may have been based on their appearances at the Olympic festivals.

20-21. Other sources, as mentioned above, speak of a diatonic ingredient in some tragic enharmonic, and of excursions into the chromatic by the younger tragedians. Our author's statement may therefore be a little too absolute. But it is valuable to have this early, yet presumably post-Euripidean, confirmation that enharmonic was the norm. It provides the strongest grounds for interpreting the Orestes fragment in enharmonic and not chromatic terms.<sup>23</sup>

Grenfell and Hunt's supplements χρω[μένους, μᾶλλον] δὲ ... ἀνδρείο[υς τῶν δι|ὰ πα]γτός involve a false syllabic division of μᾶλλον (they admit it to be 'not usual', but are fatally resolved to incorporate the word) and a letter too many at the beginning of 21.

21-22. Diatonic is curiously treated as if it were a kind of chromatic; unless the idea is that it diverges still further from the enharmonic in the same direction as chromatic, so that if diatonic does not impair manliness, chromatic certainly will not. Grenfell - Hunt's supplements [ὥστε | οὐτε] χρώμα ... ἀνδρείους ποι|εῖ. εἰς τ]οῦτο δὲ give rather short lines, especially in 21. For ἂν ... ποιήσειεν cf. 16-17 above.

<sup>20</sup> Aristox. Harm. 1. 2, 2. 35; ps.-Plut. De mus. 1137d-f, 1143e, 1145a; Psellus De trag. 5; cf. Plut. De aud. 46b, Arist. Quint. p. 18. 5 ff., and line 21 below.

<sup>21</sup> Psell. loc. cit.

<sup>22</sup> Philolaus, Archytas, Plato, Aristoxenus.

<sup>23</sup> C. E. Ruelle, Rev. Phil. 31, 1907, 238

23. Cf. Isoc. Soph. 3 οὔτοι τοίνυν εἰς τοῦτο τόλμης ἐληλύθασιν ὥστε ...  
 χ[ρόνον πολὺ]ν Crönert, *Hermes* 44, 1909, 504: [ὅλον τὸν βίον]ν Grenfell - Hunt. The upper and lower tips of χ[ are visible.

25. Traces of καί can, I think, be discerned on the photograph.

28. οὐθ' here is a spelling of οὐδ' reflecting a spirant pronunciation of the δ in the combination οὐδ' ἦντινα.<sup>24</sup> Cf. οὐθείς etc.; L. Threatte, *The Grammar of Attic Inscriptions*, I 472.

29. Grenfell - Hunt give ῥυθμ[ὸν δὲ], which is unsatisfactory as Greek and hardly fills the three-letter space after ῥυθμόν. Perhaps συμπαίοντες.

30-31. τὸ ὑποκείμενον σανίδιον αὐτοῖς is clearly a device for beating time audibly. Although the author uses only a vague descriptive phrase, perhaps deliberately avoiding a technical name, we may suppose him to mean something analogous to the κρούπεζα sometimes worn by auletes, a shoe with a clapper attached to the sole.<sup>25</sup> The κρούπεζα is first mentioned by Cratinus fr. 77 (see Kassel - Austin ad loc.), and Pronomos is shown using it on the famous volute crater which is named after him, Naples H 3240. For a detailed treatment see A. Bélis, *BCH* 112, 1988, 323-339.

τοῦ ψ[αλ]τηρίου: this is the earliest occurrence of the word. In the later fourth century it emerged as the ordinary generic word for 'harp' (earlier πηκτίς, τρίγωνος /-ον, etc.). Our author has referred consistently to ψάλλειν and ψάλλται (7, 24 f.), and it is clear that his ἁρμονικοί do not use the common stringed instrument, the lyre, which was played by a combination of ψάλλειν and κρούειν (striking with a plectrum), but a different one that is only plucked.<sup>26</sup> It may be a harp, or it may be a board zither, an instrument with its strings strung horizontally across the surface of a broad soundbox extending under their whole length. I shall argue in my book that some ἁρμονικοί used such zithers for analysing and demonstrating intervals and scale-divisions. Our author is not referring to this sort of lecture, apparently, but it may be relevant to his naming the ψαλτήριον as the typical instrument of the ἁρμονικός.

31-34. Grenfell - Hunt print these lines as follows:

και ουδε αισχυν[ομενο]ι εξειπ[ειν]  
 τω[ν] μελων τα μεν δαφνης εξειν [ιδιον] τι τα δε κιτ[του]  
 ετ[ι δε ερω]τωντες ει ου φαινεται [. . . .]α ιδια επιτη[. . .]  
 ε[. . . .]γεισθαι : και οι σατυροι προς [αυλο]ν χορευοντες

<sup>24</sup> Fuhr (as above, n. 13); Crönert (as above, n. 13), 506.

<sup>25</sup> H. Abert, *Zeitschr. d. internat. Musikgesellschaft* 8, 1906, 82. Anderson (as above, n. 17), 148 f., 188f., supposes the reference to be to a 'plank seat' in the theatre. But even if the ἁρμονικός had taken over the theatre for his lecture, he would not be on one of the seats.

<sup>26</sup> Herodotus 1. 155. 4 distinguishes ψάλλειν from κιθαρίζειν (cf. SIG<sup>3</sup> 578. 15 ff., 959. 10, both Hellenistic), and Aristotle *Ath. Pol.* 50. 2 distinguishes ψάλτριάι from κιθαρίστριάι.

Other proposals for the end of 33 and the beginning of 34 are

[ταῦτα τ]ᾶ ἴδια ἐπιτή[δὲ]ς [ἐπαι]γείσθαι Ruelle.

[ἐνταῦθα] ἴδια ἐπιτή[δευσις] ἐ[ὶ] μὴ μείσθαι· Crönert.

The last bits of the lines ([ι]εξεῖπ[ etc.]) are on a detached scrap, whose exact position in longitude is conjectural. I think my readings fit the traces better than those quoted above, though the restoration of 31 is especially uncertain. I intend ἀξιούμενοι to mean ‘making claims’ or ‘laying down principles’ (ἀξιώματα, as they were later called).

οὐδὲ αἰσχύν[ονται: cf. Isoc. Soph. 3.

δάφνης ... κιτ[τοῦ: the Apolline and the Dionysiac. Pind. fr. 128c 1-3 ἔντι μὲν χρυσαλακάτου τεκέων Λατοῦς αἰοιδαί, | ὥ[ρ]ιαι παριανίδες· ἔντι [δὲ] καὶ θάλλοντος ἐκ κισσοῦ στέφανον Διο[νύ]σου κτλ. Some have taken our author to be saying that the songs in question are claimed to evoke visual images of bay or ivy, but we should not think in such concrete terms. The point of reference is ethical as before. The ἁρμονικοί perform certain melodies and argue that each has a distinct, inherent ethos. Rhythm and mode would be important factors affecting the characterization. Pindar, in a Paean, acclaimed the ‘Dorian melody’ as being σεμνότατον and so, presumably, the most suitable for paeans; at any rate he must have been using it in that composition (fr. 67). Baccheia and dithyramb were associated with the Phrygian mode and unsuited to the Dorian (Arist. Pol. 1342b4-12). At a Dionysiac cabaret performance described by Xenophon (Symp. 9. 3) the auloi sound the βακχεῖος ῥυθμός, while the paeonic rhythm (Arist. Rhet. 1409a2 ff.) is associated with Apollo and his Cretan priests.

33. The uncompounded ἐρω]τῶντες is too short.

ἐπὶ τῇ[ς] | ἔ[λ]ικος κι]γείσθαι: Aristoxenus often uses κινεῖσθαι of melody, Harm. 1. 3, 8 ff., etc.

λην]ὸν: a song accompanied by plucked strings is unlikely to evoke a dance πρὸς [αὐλ]ὸν.

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### III. OBSERVATIONS ON OTHER TEXTS RELATING TO MUSIC

#### 1. Ion of Chios on the eleven-stringed lyre (fr. 32 West)

Ἐνδεκάχορδε λύρα, δεκαβάμονα τάξιν ἔχουσα  
 †τάξ† συμφωνούσας ἀρμονίας τριόδους·  
 πρὶν μὲν σ' ἐπτάτονον ψάλλον διὰ τέσσαρα πάντες  
 Ἕλληνες, σπανίαν μούσαν ἀειράμενοι.

The couplets are quoted by Cleonides,<sup>27</sup> Isag. 12 (p. 202 Jan; *Euclidis Opera* VIII 266 Menge), who names the author as 'Ion'. The only writer ever cited by this name is Ion of Chios, and he is certainly meant. So much was accepted even by Wilamowitz, who conjectured that the poem was one of several by Ion of Samos that had become mixed up with the Chian's work.<sup>28</sup> This idea has rightly been rejected by scholars. Two anthology epigrams on the death of Euripides, ascribed to 'Ion', certainly cannot be by Ion of Chios, who died in 422.<sup>29</sup> But Ion of Samos is known only as the author of a couple of epigrams inscribed on the base of a statuary group dedicated at Delphi by Lysander after Aigospotamoi. There is no evidence that verse of his ever went into literary

<sup>27</sup> Scribes and editors spell this author's name Κλεονείδης or Κλεονίδης. But the correct form is surely Κλεωνίδης.

<sup>28</sup> Timotheos, 1903, 75 n. 1; cf. *Hermes* 62, 1927, 283 = *Kl. Schr.* IV 438.

<sup>29</sup> A.P. 7. 43-44; Page, *Further Greek Epigrams*, 157 f.

circulation; and it now seems that his epigrams were not contemporary with the statuary group but an addition in the second half of the fourth century.<sup>30</sup>

As for the poem on the lyre, Wilamowitz's reason for denying it to Ion of Chios was that Timotheos, on his own showing (Pers. 229 ff. Page), was the first to bring the eleven-stringed lyre to the fore ('zur Herrschaft'): 'das hat der Chier Ion nicht erlebt'. But Timotheos' words,

νῦν δὲ Τιμόθεος μέτροις  
ῥυθμοῖς θ' ἑνδεκακρουμάτοις  
κίθαριν ἐξανατέλλει,

although they probably do refer to an eleven-stringed kithara,<sup>31</sup> are a boast concerning his status as an epoch-making citharode, and need not mean that he was the very first person to build an eleven-stringed lyre. Even if he was, chronology does not exclude Ion's having seen it, since Timotheos was probably born about 450 or a few years earlier. It was perhaps about 420 that he defeated the famous Phrynīs in competition.<sup>32</sup> This removes the only argument against Ion's authorship of the elegy, and gives us the year 422 as a valuable terminus ante quem for the development of the eleven-stringed instrument.<sup>33</sup> References in Old Comedy to polychord modern music will be cited below.

Now for interpretation of the detail.

1. λύρα: in poetic usage down to the end of the fifth century, φόρμιγξ, κίθαρις / κιθάρα, and λύρα do not demonstrably refer to different types of instrument. In the Hymn to Hermes, for example, all three words are used of Hermes' tortoise-shell lyre. Pindar uses both φόρμιγξ and λύρα of his own instrument, which was probably a box lyre of the sort used by citharodes. Ion too is doubtless referring to a box lyre of some size, not a tortoise-shell lyre. Fourth-century and later writers distinguish the λύρα and κιθάρα as separate instruments, sc. the tortoise-shell and box-lyre respectively.<sup>34</sup> There is nothing to be said for the recent suggestion that Ion is referring to a harp.<sup>35</sup> λύρα never means 'harp', and the contrast that Ion draws between the (new) eleven-stringed instrument and the former restriction to seven notes is relevant only to the lyre. Harps of up to at least twenty strings had been around for generations.

<sup>30</sup> See P. A. Hansen at CEG 819.

<sup>31</sup> For ἑνδεκακρούματος cf. Pind. Pyth. 2. 70 ἑπτακτύπου φόρμιγγος. The later tradition, perhaps on the basis of this passage, connects Timotheos with the eleven-stringed lyre: 'Laconian decree' (Hellenistic forgery) ap. Boeth. Inst. 1. 1, cf. 1. 20; Nicom. p. 274. 5; Paus. 3. 12. 10; Suda IV 556. 25.

<sup>32</sup> PMG 802.

<sup>33</sup> There are at least three vases earlier than this with depictions of kitharas with ten or eleven strings: St. Petersburg 674 (ca. 480; eleven), Harvard 1925.30.42 (440-30; ten), Ferrara VT T617 (440-30; eleven). But numbers of strings in art cannot be trusted.

<sup>34</sup> Pl. Rep. 399d, Anaxilas fr. 15. 2, Arist. Pol. 1341a19, Aristox. fr. 102, Ptol. Harm. 1. 16, 2. 16, Paus. 5. 14. 8, Arist. Quint. pp. 85. 8/14, 91. 2/5, 92. 11.

<sup>35</sup> M. Maas - J. McI. Snyder, *Stringed Instruments of Ancient Greece*, 1989, 154.

Ion probably wrote λύρη, and in 2 ἁρμονίης, in 4 σπανίην.<sup>36</sup> The Atticisms of the tradition have of course no bearing on the authenticity of the fragment.

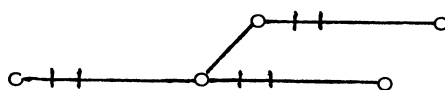
δεκαβάμονα τάξιν: the τάξις is the ordered arrangement of tuned strings. They yield a succession of ten intervals or steps. The compound adjectives in -βάμων, listed by Buck - Petersen 217, cover quite a wide range of meanings but in general serve to express an idea of motion, of which the manner, means, or location is defined by the fore-element. So here the sense is 'an arrangement (of strings) affording motion through ten (spaces)'. For melody being conceived as movement up and down the scale see above on P. Hibeh 13. 34. Aristoxenus speaks of the voice in song crossing spaces: Harm. 1. 9 ὅταν δὲ στήναί που δόξασα εἶτα πάλιν διαβαίνειν τινὰ τόπον φανῇ ... διαστηματικὴν τὴν τοιαύτην κίνησιν λέγομεν.

2. This is the most difficult line in the fragment.<sup>37</sup> Let us begin by elucidating the phrase ἁρμονίας τριόδους. Ἀρμονία is attunement, or the modal scale that results from a particular attunement. A τρίοδος is a place where a road forks. Here it continues the metaphor implicit in -βάμονα. It signifies points at which the musician has the choice between one scale-path and another. Those who have discussed the fragment have strangely failed to cite two passages of Aristoxenus which illuminate it:

Harm. 1. 5 οἱ δὲ περὶ Ἑρατοκλέα τοσοῦτον εἰρήκασιν μόνον, ὅτι ἀπὸ τοῦ διὰ τεττάρων ἐφ' ἑκάτερα δίχα σχίζεται τὸ μέλος.

Harm. 3. 66 ἀπὸ δὲ τοῦ διτόνου (ὁδοὶ) δύο μὲν ἐπὶ τὸ ὀξύ, μία δ' ἐπὶ τὸ βαρὺ· δέδεικται γὰρ ἐπὶ μὲν τὸ ὀξύ πυκνὸν τεθειμένον καὶ τόνος, πλείους δὲ τούτων οὐκ ἔσονται ὁδοί ... 67 ... ἀπὸ πυκνοῦ δ' ἐναντίως ἐπὶ μὲν τὸ βαρὺ δύο ὁδοί, ἐπὶ δὲ τὸ ὀξύ μία (and continuing repetitive discussion of these 'routes' into 69).

Both passages refer to the same thing, the meeting of one path with two at either end of a tetrachord. Within a given tetrachord the scale of a melody is limited to a single track, but when it goes higher or lower there are the alternatives of moving into a conjunct or a disjunct tetrachord:



<sup>36</sup> Cf. fr. 27. 2 κρητήρα, 30. 1 ἡγορέη, 3 Πυθαγόρης; my *Studies in Greek Elegy and Iambus*, 1974, 78 (and 80 for συμφωνούσας for -εούσας).

<sup>37</sup> See discussions by T. Reinach, *RÉG* 14, 1901, 8-19; Wilamowitz, *Hermes* 37, 1902, 305 f. = *Kl. Schr.* IV 147 f.; F. Marx, *Rh. Mus.* 83, 1934, 376; O. J. Gombosi, *Tonarten und Stimmungen der antiken Musik*, 1939, 67 n. 1; F. R. Levin, *TAPA* 92, 1961, 295-307; G. Comotti, *QUCC* 13. 1972, 54-61; U. Duse, *QUCC* n.s. 4, 1980, 113-23.

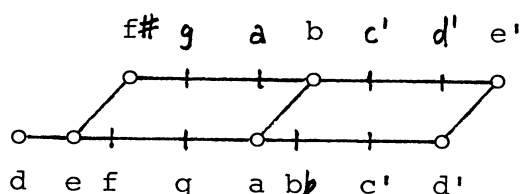
The point where the ὁδοί bifurcate may aptly be called τρίοδος.<sup>38</sup> The first Aristoxenus passage tells us that this concept of a σχιστὴ ὁδός was formulated by Eratocles and his circle. We do not know Eratocles' date, but it is quite possible that he was a contemporary of Ion.

The ἄρμονίαι τρίοδοι, then, are located at the outer or 'standing' notes of a tetrachord. This interpretation is confirmed by the epithet συμφωνούσας, for such notes mark out concordant intervals of fourths or fifths. But how does the whole phrase relate syntactically to δεκαβάμονα τάξιν ἔχουσα? There is no grammatical difficulty in taking τάξιν and τρίοδους as in apposition, or one of them as predicative, but the resulting sense is lacking in clarity.

It is natural to suspect that the article τὰς is intrusive, just as in the previous line the manuscripts have τὴν before δεκαβάμονα. So Wilamowitz, who proceeded to make the transmitted ἔχοις ἀεὶ τὰς into ἔχουσα (or -οισα) | εἰς {τὰς}, '“Elfsaitige Leier, die du für die symphonischen Dreiwege der Harmonie eine zehnstufige Ordnung hast”. Die Anlage von 10 Intervallen ermöglicht drei Tetrachorde.' But we have established that τρίοδους does not mean 'three tetrachords', but something much more precise. In any case τάξιν ἔχουσα εἰς τρίοδους involves an unnatural use of εἰς. Wilamowitz arrived at his εἰς by playing with letters, not by arguing from the sense.

Marx, holding on to the idea of three tetrachords, sought to bring it out more clearly by writing τρεῖς. This too fails in the light of our understanding of what the τρίοδοι are. If there are three tetrachords, there cannot be three points of juncture. And the whole δεκαβάμων τάξις cannot be equated with a few particular nodal points within it.

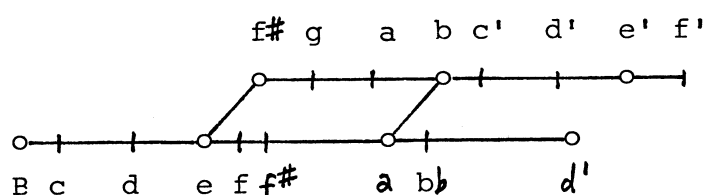
That the eleven lyre-strings correspond to the notes of three successive tetrachords, two conjunct and one disjunct (for example, e f g a b c' d' e' f' g' a') has been a fairly general assumption.<sup>39</sup> But this is a single-track scale with no τρίοδος. We have seen that the τρίοδοι are places where the performer has the choice between conjunct and disjunct tetrachords. So we must look for a tuning scheme that provides such choices. For example, in the diatonic genus:



<sup>38</sup> Arist. Quint. 3. 17 p. 116. 18 - 117. 17 takes it as a model of the division of two ways (types of life) that faces a man at the end of his childhood; in Prodicus' famous parable of Heracles this choice was presented concretely as a choice between two roads, and of course the image goes back to Hesiod. A fifth-century elegist expresses his own hesitation over which of two life-styles he should follow by the phrase ἐν τρίοδῳ δ' ἔστηκα· δὴ εἰσὶ τὸ πρόσθεν ὁδοί μοι (Anon. Thgn. 911).

<sup>39</sup> Comotti is an exception. He reduces the lyre's range to a seventh, two conjunct tetrachords, with the tuning e e↑ f g♭ g a a↑ b♭ b c' d', enabling the player to switch between enharmonic, chromatic, and diatonic without retuning.

Such a tuning, with the συμφωνοῦσαι τρίοδοι at e and a (ascending), e' and b (descending), would allow modulation between various different octave structures made up of tetrachords with a disjunctive tone: d e - a - d', e - a b - e', e - a - d' e', e f# - b - e'. It would also allow some modulation into chromatic tetrachords, e f f# a, a b b d'. These are just the kinds of modulation that we see in the Delphic Paeans, though their composers apparently had up to fourteen strings on their kitharas and made melodies with the wider compass of a twelfth. Limenius, for example, uses the system



A simple and satisfactory solution to the textual problem is to write καὶ συμφωνοῦσας, as I suggested twenty years ago in IEG.

3. πρὶν μὲν : the answering sentence is missing. Clearly the poem continued beyond line 4.

ἐπτάτονον : similarly in Ar. fr. 467 the new music is contrasted with the old kind that was limited to seven notes and lacking in harmonic variety:

οὐχ οἷα πρῶτον ἦιδον ἐπτάχορδα, πάνθ' ὁμοῖα.

Multiplicity of χορδαί (strings or notes) is a prominent theme in Pherecrates' survey of the modern musical scene (fr. 155; see below).

ψάλλον: musically distinguished from κιθαρίζειν (cf. above on P. Hibeh 13. 30-31). But plucking the strings with the left hand, besides striking them with the plectrum held in the right, was part of lyre-playing technique, as we see from many vase paintings<sup>40</sup> and from other literary evidence.<sup>41</sup>

διὰ τέσσαρα: metri gratia for the usual διὰ τεσσάρων. The meaning is presumably that from the middle note, which there is some reason to think was commonly the tonal centre in the classical period, the melody was restricted to the range of a fourth in each direction. Wilamowitz quoted Nicom. Ench. 5 p. 244. 14 J.: Pythagoras added the eighth string ἵνα μὴ κατὰ συναφὴν (i.e. with two conjunct tetrachords) ὁ μέσος φθόγγος πρὸς ἀμφοτέρω τὰ ἄκρα ὁ αὐτὸς συγκρινόμενος διαφορουμένην παρέχηι μόνην τὴν διὰ τεσσάρων συμφωνίαν πρὸς τε τὴν ὑπάτην καὶ πρὸς τὴν νήτην. Some heptachord tunings in fact spanned the octave.<sup>42</sup>

<sup>40</sup> Maas - Snyder (above, n. 35), 64, 93, 122, 142, 146, 177.

<sup>41</sup> Ar. Eq. 522 (if the allusion is to Magnes' Barbitistai), Pl. Lys. 209b, Apul. Flor. 15, Philostr. Imag. 1. 10, 4, Philostr. Jun. Imag. 7. 3, ps.-Ascon. in Cic. Verr. 2. 1. 53 (II 237. 1 Stangl).

<sup>42</sup> Philolaus DK 44 B 6 (quoted and explained by Nicom. 9 pp. 252 f); ps.-Arist. Probl. 19. 7, 32; ps.-Plut. 1140f, cf. 1137bc.

πάντες: 'πάντα malim' I noted in IEG; cf. ἐπτάχορδα, πάνθ' ὁμοῖα in the Aristophanes fragment quoted above. πάντα is in fact found as a variant in the quotation of our fragment in Manuel Bryennios, Harm. p. 116 Jonker. But Bryennios is dependent on Cleonides, and the variant no doubt represents a mechanical assimilation.

4. σπανίαν μοῦσαν: cf. again the Aristophanes fragment.

## 2. Pherecrates fr. 155. 14-16

Φρῦνις δ' ἴδιον στρόβιλον ἐμβαλὼν τινα  
κάμπτων με καὶ στρέφρων ὅλην διέφθορεν,  
ἐν πέντε χορδαῖς δώδεχ' ἀρμονίας ἔχων.

16 πέντε χορδαῖς a<sup>2</sup>A<sup>2</sup>Barb.: πενταχόρδαις vel -χορδαῖς vel -χόρδοις cett.

There are two main problems in these lines: the meaning of στρόβιλος, and the 'twelve ἀρμονίαι on five strings'. As to the first, I will just say briefly that I. Düring's idea that στρόβιλος denotes some conical gadget for altering the tuning of a string seems to me far-fetched.<sup>43</sup> The best indication of its meaning is the parallel of Plato Com. fr. 285 ap. Phryn. Praep. Soph. p. 110. 3, στρόβιλος: τὴν τοῦ ἀνέμου συστροφὴν ... Πλάτων καὶ μεταφορικῶς κέχρηται ἐπὶ ὠιδῆς κιθαρῳδικῆς πολὺν ἐχούσης τὸν τάραχον. I would therefore translate 'Phrynis, hurling a kind of personal whirlwind at me'. The suggestion is of a wild flurry of notes.

As to line 16, it is at least clear that there is a reference to Phrynis' being able to accommodate several ἀρμονίαι simultaneously on his strings, so as to modulate from one to another (cf. 15 κάμπτων). Twelve is a surprisingly high number, as it is doubtful whether musicians at that time recognized the existence of so many ἀρμονίαι. But we could put that down to comic exaggeration. The real difficulty is the five strings.<sup>44</sup> If the number of strings is to be mentioned, we expect it to be more than the standard seven, not less. It was by means of extra strings that citharodes were able to modulate from one scale to another. Elsewhere Phrynis is credited with increasing the number of the kithara's strings from seven to nine.<sup>45</sup> And in the fragment under consideration Pherecrates repeatedly mentions supernumerary strings as characteristic of these modern musicians. He makes both Melanippides and Timotheos undo Music χορδαῖς δώδεκα (5, 25), 'with their dozen strings'.<sup>46</sup>

This surely suggests that in line 16 too the words χορδαῖς δώδεκα should if possible be construed together. The other numeral will then have to go with the other noun. Five is a more suitable number for the ἀρμονίαι than twelve, and still provides an element of comic exaggeration;

<sup>43</sup> Eranos 43, 1945, 186 f.; cf. H. Schönewolf, Der jungattische Dithyrambos, Diss. Giessen 1938, 67; E. K. Borthwick, Hermes 96, 1968, 67 f.; E. Pöhlmann in Serta Indogermanica (Festschr. G. Neumann), 1982, 310 f.

<sup>44</sup> The variant 'in his pentachords' offers no clear sense, and even if it could be understood it would be too technical for comedy.

<sup>45</sup> Plut. Agis 10. 7, Prof. Virt. 84a, Apophth. Lac. 220c; cf. Procl. Chrestom. ap. Phot. Bibl. 320b.

<sup>46</sup> 'Twelve' is not to be taken literally but as a loose hyperbole. See Düring, Eranos 43, 1945, 181 f.

the citharode might be pleased enough if he could accommodate even three ἁρμονίαι in a single tuning scheme.

The only obstacle to making these connections, πέντε ... ἁρμονίας ἔχων, χορδαῖς δώδεκα, is the preposition ἐν. I propose emending it to εἰς, ‘up to five, no less than five’. See LSJ s.v. εἰς III. 1-2. With this reading it would have been immediately clear that πέντε is accusative and to be taken with ἁρμονίας, and no confusion could arise.

### 3. Crates fr. 42

Ath. 619a ἡ δὲ τῶν θεριστῶν ᾠδὴ Λιτυέρσης καλεῖται. καὶ τῶν μισθωτῶν δέ τις ἦν ᾠδὴ τῶν ἐς τοὺς ἀγροὺς φοιτῶντων, ὡς Τηλεκλείδης φησὶν ἐν Ἀμφικτύοσιν (fr. 8), καὶ βαλανέων ἄλλαι, ὡς Κράτης ἐν Τόλμαις (fr. 42), καὶ τῶν πτισσουσῶν ἄλλη τις, ὡς Ἀριστοφάνης ἐν Θεσμοφοριαζούσαις (fr. 352) κτλ.

This is an excerpt from a longer section in Athenaeus concerned with work songs (618c ff.). They typically go with repetitive or monotonous activities: grinding corn, weaving, spinning, harvesting, herding, etc. A song of bath-attendants stands out oddly. Perhaps βαλανέων is a minuscule corruption of καλαμέων in the sense ‘gleaners’ (~ καλαμάομαι). Cf. Gow on Theoc. 5. 111 καλαμευτάς.

### 4. Arist. Pol. 1341a39

ὁμοίως δὲ καὶ πολλὰ τῶν ὀργάνων τῶν ἀρχαίων, οἷον πηκτίδες καὶ βάρβιτοι, καὶ τὰ πρὸς ἡδονὴν συντείνοντα τοῖς ἀκούουσι τῶν χρωμένων, ἐπτάγωνα καὶ τρίγωνα καὶ σαμβῦκαι, καὶ πάντα τὰ δεόμενα χειρουργικῆς ἐπιστήμης.

An instrument called ἐπτάγωνον is not otherwise known and not easily imaginable. The text may have been corrupted by anticipation of the following τρίγωνον. It is worth recalling T. Reinach’s conjecture ἐπιγόνεια.<sup>47</sup> The ἐπιγόνειον was a forty-stringed instrument, probably a board zither, named after the Sicynian musician and theorist Epigonos of (perhaps) the late sixth century.<sup>48</sup> Another passage where a mention of it may have fallen victim to corruption is Ath. 456d (Chamaileon fr. 34 Wehrli, 42 Giordano, but the sentence in question probably does not derive from Chamaileon): οἱ δὲ εἰς ἐπιτόνιον ψαλτήριον δελφῖνα καὶ τράγον εἰργασμένον εἰρήσθαι.

For σαμβῦκαι one of the two main manuscript groups gives ἱαμβοί. The variant suggests ἱαμβῦκαι as the original reading. The ἱαμβύκη appears in association with the τρίγωνος (the older form of τρίγωνον) in Eupolis fr. 148. 4. Some Hellenistic antiquarians assumed it to be a different instrument from the σαμβύκη, and speculated that it used to accompany the singing of ἱαμβοί.<sup>49</sup> But the σαμβύκη too is repeatedly associated with the τρίγωνον,<sup>50</sup> and I have no doubt that

<sup>47</sup> In Daremberg - Saglio, Dictionnaire des Antiquités, III 2. 1451.

<sup>48</sup> Poll. 4. 59; Juba FGrH 275 F 84.

<sup>49</sup> Phillis ap. Ath. 636b. Hsch., Phot., Suda.

<sup>50</sup> Aristox. fr. 97, Phillis loc. cit., Plut. De tribus reip. gen. 827a.

ἰαμβύκη, σαμβύκη, and ζαμβύκη<sup>51</sup> represent different renderings of the same foreign loan-word.<sup>52</sup> The two oldest sources (Eupolis, and as it seems Aristotle) have ἰαμβ-, later ones σαμβ-.

5. Aristox. Harm. 1. 12 p. 17. 16 da Rios

εἰ δὲ κινεῖται μὲν τὴν ὑφ' ἡμῶν λεγομένην κίνησιν, ἐκείνης τῆς κινήσεως τῆς ὑπ' ἐκείνων λεγομένης τὴν κατὰ τάχος διαφορὰν λαμβανούσης, ἡρεμεῖ δὲ πάλιν αὖ τὴν ὑφ' ἡμῶν λεγομένην ἡρεμίαν, στάντος τοῦ τάχους καὶ λαβόντος μίαν τινὰ καὶ τὴν αὐτὴν ἀγωγὴν, οὐδὲν ἂν ἡμῖν διαφέρει.

τὴν (before κατὰ τάχος): τῆς MV<sup>ac</sup>U Sc. Read τινὰ, as in the parallel clause we have μίαν τινὰ καὶ τὴν αὐτὴν ἀγωγὴν.

6. Ib. 1. 13 p. 18. 8

ὅτι δὲ καὶ τῆς τάσεως ἡρεμίας τινὸς τεθείσης οὐδὲν μᾶλλον ἐκείνων (sc. βαρύτητος καὶ ὀξύτητος) ἑκατέρων ταῦτὸν τάσις ἐστίν κτλ.

ἑκατέραι Macran: right in principle, but better is ἑκατέρωι. Compare the neuters just below, likewise referring to βαρύτης and ὀξύτης: line 13 ἐν ἀμφοτέροις, 17 ἕτερόν ἐστιν ἑκατέρου τούτων ἢ τάσις, ὥς {μηδὲν} κοινὸν γιγνόμενον ἐν ἀμφοτέροις.

7. Ib. 1. 21 p. 27. 16

διαίρεισθω δὲ (τὸ τονιαῖον διάστημα) εἰς τρεῖς διαίρεσεις· μελωιδεῖσθω γὰρ αὐτοῦ τό τε ἥμισυ καὶ τὸ τρίτον μέρος καὶ τὸ τέταρτον· τὰ δὲ τούτων ἐλάττωνα διαστήματα πάντα ἔστω ἀμελῶδητα. καλεῖσθω δὲ κτλ.

Read μελωιδεῖται γὰρ ... πάντα ἐστὶν ἀμελῶδητα. Cf. 2. 46 τῶν δὲ τοῦ τόνου μερῶν μελωιδεῖται τὸ ἥμισυ ... καὶ τὸ τρίτον μέρος ... καὶ τὸ τέταρτον ... τούτου δ' ἕλαττον οὐδὲν μελωιδεῖται διάστημα; also 1. 20 μελωιδεῖται μὲν γὰρ τοῦ διὰ τεσσάρων ἐλάττω διαστήματα πολλά. The indicatives have become assimilated to the preceding and following imperatives.

8. Ib. 1. 29 p. 37. 5

ὑποκεῖσθω μὲν τὸ πυκνὸν ἢ τὸ ἄπυκνον τιθέμενον σύστημα ἐπὶ μὲν τὸ ὀξὺ μὴ τίθεσθαι ἕλαττον διάστημα τοῦ λειπομένου τῆς πρώτης συμφωνίας, ἐπὶ δὲ τὸ βαρὺ μὴ ἕλαττον τονιαίου.

μὲν (before τὸ πυκνόν): μετὰ Meibom

<sup>51</sup> This form in Hsch. and Phot.

<sup>52</sup> Cf. Akkadian sammû(m) 'lyre', from Sumerian zami. Other material in É. Masson, Recherches sur les plus anciens emprunts sémitiques en grec, 1967, 91 ff.



μετά is essential; cf. 1. 27 p. 35. 20 οὐ πᾶν μετὰ πᾶν διάστημα μελωιδοῦσα, 28 p. 36. 15 τί μετὰ τί, etc. But simply changing μὲν to μετὰ produces a harsh asyndeton. Read μὲν (οὖν μετὰ).

9. Ib. 2. 31 p. 40. 13

οἱ μὲν γὰρ μέγα τι ὑπολαμβάνουσιν εἶναι τὸ μάθημα καὶ ἔσεσθαι ἔνιοι †δὲ οὐ μόνον μουσικοὶ ἀκούσαντες τὰ ἁρμονικὰ ἀλλὰ καὶ βελτίους τὸ ἦθος.

δὲ ANPg: μὲν M<sup>2</sup>i.r. VU: γε?

10. Ib. 2. 37 p. 47. 2

οἱ μὲν τῶν ἁρμονικῶν λέγουσι βαρύτατον μὲν τὸν ὑποδῶριον τῶν τόνων, ἡμιτονίῳ δὲ ὀξύτερον τούτου τὸν μιζολύδιον, τούτου δ' ἡμιτονίῳ τὸν δῶριον, τοῦ δὲ δωρίου τόνῳ τὸν φρύγιον, ὡσαύτως δὲ καὶ τοῦ φρυγίου τὸν λύδιον ἐτέρῳ τόνῳ· ἕτεροι δὲ πρὸς τοῖς εἰρημένους τὸν ὑποφρύγιον {αὐλὸν} προστιθέασιν ἐπὶ τὸ βαρύν. οἱ δὲ αὖ πρὸς τὴν τῶν αὐλῶν τρύπησιν βλέποντες κτλ.

The nonsensical αὐλὸν (o in ras. A) is to be deleted. It has come from αὐλῶν in the next line.

11. Ib. 2. 42 p. 52. 17

ὀλίγα δ' ἐστὶν ἃ τυγχάνουσι ποιοῦντες πάντα ταῦτα, καὶ γὰρ ἀφαιροῦντες καὶ παραβάλλοντες καὶ τῷ πνεύματι ἐπιτείνοντες καὶ ἀνιέντες καὶ ταῖς ἄλλαις αἰτίαις ἐνεργοῦντες.

‘And for all these efforts [auletes] produce the proper results only rarely, despite employing such techniques as separating and bringing together, increasing and decreasing tension with the breath, and all the other causal expedients.’

So A. Barker translates, correctly.<sup>53</sup> But the καὶ γάρ in the Greek is difficult — more so than ἢ γάρ at 2. 54 p. 68. 2 which Macran cites as parallel. Do we not want καίπερ?

12. Ib. 2. 55 p. 68. 10

ἐπεὶ δὲ τῶν διαστηματικῶν μεγεθῶν τὰ μὲν τῶν συμφῶνων ἦτοι ὅλως οὐκ ἔχειν δοκεῖ τόπον ἀλλ' ἐνὶ μεγέθει ὀρίσθαι, ἢ παντελῶς ἀκαριαῖόν τινα, τὰ δὲ τῶν διαφῶνων πολλῶι ἦττον τοῦτο πέπονθε, {καὶ} διὰ ταύτας τὰς αἰτίας πολὺ μᾶλλον τοῖς τῶν συμφῶνων μεγέθεσι πιστεύει ἢ αἴσθησις ἢ τοῖς τῶν διαφῶνων ... ἐὰν μὲν οὖν προσταχθῇ πρὸς τῷ δοθέντι φθόγγῳ λαβεῖν ἐπὶ τὸ βαρὺ τὸ διάφωνον οἷον δίτονον ἢ ἄλλο τι τῶν δυνατῶν ληφθῆναι διὰ συμφωνίας, κτλ.

καὶ seclusi.

τὸ διάφωνον: read τι διάφωνον.

<sup>53</sup> Greek Musical Writings, II 158.

## 13. Ib. 3. 66 p. 83. 6

{ἀπὸ ἡμιτονίου μὲν ἐπὶ τὸ ὀξύ δύο ὁδοὶ καὶ ἐπὶ τὸ βαρὺ δύο.} ἀπὸ δὲ τοῦ διτόνου δύο μὲν ἐπὶ τὸ ὀξύ, μία δ' ἐπὶ τὸ βαρὺ.

Macran, followed by da Rios and Barker, rightly excises the first sentence as being incompatible with Aristoxenian theory. But then it is necessary to add ὁδοί somewhere in the second sentence, most likely after διτόνου or after ὀξύ.

## 14. Ps-Arist. De audibilibus 802a17

ἀπὸ δὲ τῶν ἄλλων ὀργάνων οἱ τῶν κεράτων ἦχοι (μὴ) πυκνοὶ καὶ συνεχεῖς πρὸς τὸν ἀέρα προσπίπτοντες ποιοῦσι τὰς φωνὰς ἀμαυράς.

The addition of μὴ is demanded by the whole context and argument. Cf. 801b25 τῶν φωνῶν ταύτας ὑποληπτέον εἶναι λαμπροτάτας ὅσαι μάλιστα δύνανται προσπίπτουσαι κινεῖν τὴν ἀκοήν· τοιαῦται δὲ εἰσιν αἱ σαφεῖς καὶ πυκναὶ καὶ καθαραὶ καὶ πόρρω δυνάμεναι διατείνειν, 802a7 ἐπὶ δὲ τῶν αὐλῶν γίνονται αἱ φωναὶ λαμπραὶ καὶ τῶν ἄλλων ὀργάνων ὅταν τὸ ἐκπίπτον πνεῦμα πυκνὸν ᾗ καὶ σύντονον. In a19, after the emended sentence, the author goes on to describe features of horns that will diffract or obstruct the sounds so that they come out μὴ συνεχεῖς (23), or κωφοὶ καὶ ἀνώμαλοι (29).

## 15. Theon Smyrnaeus p. 48. 17 Hiller

σύμφωνα μὲν τὰ τε κατ' ἀντίφωνον, οἷόν ἐστι τὸ διὰ πασῶν καὶ τὸ δις διὰ πασῶν, καὶ τὰ <κατὰ> παράφωνον, οἷον τὸ διὰ πέντε, τὸ διὰ τεσσάρων. ἡ σύμφωνα δὲ κατὰ συνέχειαν οἷον τόνος, δίεςις.

Read <οὐ> σύμφωνα δὲ <τὰ> κατὰ συνέχειαν, οἷον τόνος, δίεςις (vel sim.). Cf. Nicom. Ench. 12 p. 261. 20 οὐδεὶς φθόγγος πρὸς τὸν συνεχῇ σύμφωνος, ἀλλὰ πάντως διάφωνος.

## 16. Ps.-Plut. De mus. 1132c (Heracl. Pont. fr. 157 W.)

καὶ Πολύμνηστον τὸν Κολοφώνιον τὸν μετὰ τοῦτον (Κλονᾶν) γενόμενον τοῖς αὐτοῖς χρῆσασθαι ποιήμασιν.

The last phrase yields no satisfactory sense. Commentators and translators take it as 'employed the same metres', but this is dubious as Greek and irrelevant to the argument. Read τοῖς αὐτοῦ. The point of the whole preceding paragraph is that the early lyricists set their own poems to music. Stesichorus, Terpander, Klonas are all cited as examples, and Polymnestus continues the series.

17. Ib. 1136f (Aristox. fr. 82 W.)

οὐκ ἡγνώνει δὲ (Πλάτων) ὅτι πολλὰ Δώρια παρθένεια †ἄλλα Ἀλκμᾶνι καὶ Πινδάρῳ καὶ Σιμωνίδῃ καὶ Βακχυλίδῃ πεποιήται.

ἄλλα del. Burette: ἅμα vel μέλη Wytttenbach: Ἀλκμᾶνι ἀλλὰ καὶ Einarson - De Lacy.

Read rather Ἀλκμᾶνι καὶ ἄλλα Πινδάρῳ.

18. Ib. 1143bc (after Aristoxenus)

Ethos is determined by a combination of rhythm and other elements: οἶον Ὀλύμπῳ τὸ ἐναρμόνιον γένος ἐπὶ Φρυγίου τόνου τεθὲν παίωνι ἐπιβατῶι μιχθέν· τοῦτο γὰρ τῆς ἀρχῆς τὸ ἦθος ἐγέννησεν ἐπὶ τῷ τῆς Ἀθηνᾶς νόμῳ· προσληφθείσης γὰρ μελοποιίας καὶ ῥυθμοποιίας, τεχνικῶς τε μεταληφθέντος τοῦ ῥυθμοῦ μόνον αὐτοῦ καὶ γενομένου τροχαίου ἀντὶ παίωνος, συνέστη †τὸ Ὀλύμπου ἐναρμόνιον γένος†. ἀλλὰ μὴν καὶ τοῦ ἐναρμονίου γένους καὶ τοῦ Φρυγίου τόνου διαμενόντων καὶ πρὸς τούτοις τοῦ συστήματος παντός, μεγάλην ἀλλοίωσιν ἔσχηκεν τὸ ἦθος· ἡ γὰρ καλουμένη ἁρμονία ἐν τῷ τῆς Ἀθηνᾶς νόμῳ πολὺ διέστηκε κατὰ τὸ ἦθος τῆς ἀναπείρας.

Aristoxenus is comparing the first two sections of the traditional νόμος Ἀθηνᾶς attributed to Olympus. The first section, referred to at the end of the passage as ἡ ἀνάπειρα,<sup>54</sup> derived its particular character from the combination of the enharmonic genus, the Phrygian key, and the paion epibatos rhythm. In the second section the enharmonic genus and the Phrygian key remained, but the ethos underwent a transformation because of the enlargement of melody (προσληφθείσης μελοποιίας) and the change of rhythm to trochaic. Now Aristoxenus cannot say that through these artifices συνέστη τὸ Ὀλύμπου ἐναρμόνιον γένος, since he is explicit that the composition was in the ἐναρμόνιον γένος from the beginning.<sup>55</sup> He must have written something like συνέστη ἡ καλουμένη ἁρμονία. The last sentence shows that ἁρμονία was the technical name of the second section of this nome, as ἀνάπειρα was of the first section. This was not understood by the compiler 'Plutarch', who thought that ἁρμονία was being used in its common sense of the 'enharmonic genus'.

19. Aristides Quintilianus. 1. 7 p. 12. 6 W.-I.

δίεσις μὲν οὖν ἐκαλεῖτο τὸ μικρότατον τῆς φωνῆς διάστημα ... τόνος δὲ ... ἡμιτόνιον δὲ ἦτοι τὸ ἡμισυ τοῦ τόνου ἢ τὸ ἀπλῶς †τόνῳ παραπλήσιον†· οὐ γὰρ φασιν εἰς ἴσα τέμνεσθαι τοῦτον, ὥσπερ ἴσως καὶ τάλῃθες ἔχει.

<sup>54</sup> The similar πεῖρα is given by Poll. 4. 84 as the name of the first section of the Πυθικὸς νόμος (cf. sch. Pind. Pyth. p. 2. 10 Dr.); Strabo 9. 3. 10 gives ἄμπειρα as the second section, preceded by ἄγκρουσις.

<sup>55</sup> Weil - Reinach rewrite the passage, eliminating τὸ Ὀλύμπου ἐναρμόνιον γένος.

The mathematicians had proved that a tone cannot be divided into two exactly equal parts.<sup>56</sup> They accordingly regarded the term ἡμιτόνιον as improper.<sup>57</sup> Acknowledging this, some writers redefined the word as the difference between a fourth and a ditone (= the leimma, recognized as being less than half a tone), or as the difference between the tone and the leimma. Thus a greater and a lesser semitone were distinguished, equivalent to 114 and 90 cents respectively.<sup>58</sup>

The sense required in the above passage, therefore, is ‘either the half of a tone or what is simply near to half a tone’, not ‘near to a tone’. Barker is aware of the problem, but his conjecture<sup>59</sup> τοῦ ... παραπλησίον, ‘(the half of) what is simply near to a tone’, is an unsatisfactory solution. It is better to change τόνωι to τούτωι, and the following τοῦτον to τόνον.

## 20. Sext. Emp. adv. Musicos 9

οἱ τε τῆς Ἑλλάδος ἡγούμενοι καὶ ἐπ’ ἀνδρείαι διαβόητοι Σπαρτιᾶται μουσικῆς ἀεὶ ποτε στρατηγούσης αὐτῶν ἐπολέμουν· καὶ οἱ ταῖς †Σόλωνος χρώμενοι παραινέσεσι πρὸς αὐλὸν καὶ λύραν παρετάσσοντο, ἔνρυθμον ποιούμενοι τὴν ἐνόπλιον κίνησιν.

The people who follow Solon’s precepts could only be the Athenians.<sup>60</sup> But the Athenians did not march to the accompaniment of music. It was the Spartans (especially) and the Cretans who were famous for doing so, and what Sextus says here corresponds closely with what Ephorus said of the Cretans: τακταῖς δέ τισιν ἡμέραις ἀγέλη πρὸς ἀγέλην συμβάλλει μετὰ αὐλοῦ καὶ λύρας εἰς μάχην ἐν ῥυθμῶι, ὥσπερ καὶ ἐν τοῖς πολεμικοῖς εἰώθασιν.<sup>61</sup>

So for Σόλωνος we should read Μίνωος.

## 21. Ib. 51

τρεις δὲ (διαφορὰς εἶχε) τὸ χρῶμα· τὸ μὲν γάρ τι αὐτοῦ τονικὸν καλεῖται, τὸ δὲ ἡμιτόνιον, τὸ δὲ μαλακόν.

Editors of Sextus seem to have been unfamiliar with the technical literature of music. The distinction between three forms of chromatic is due to Aristoxenus (Harm. 2. 50 p. 63. 2, al.) and Sextus, like Cleon. Isag. 7 p. 190. 12 ff. and Arist. Quint. 1. 9 p. 17. 8 ff., will certainly have used Aristoxenus’ terms: τονιαῖον, ἡμιόλιον, μαλακόν.<sup>62</sup>

<sup>56</sup> Euclid, Sectio canonis 16; Panaetius ap. Porph. in Ptol. p. 65. 26 ff. D.

<sup>57</sup> Panaet. loc. cit. p. 67. 5.

<sup>58</sup> Adrastus ap. Theon Smyrn. p. 53. 9 ff.; Nicom. Ench. 12 p. 263. 24, cf. 7 p. 249. 10; Gaud. Harm. 13-16; Arist. Quint. 3. 1 p. 95. 19 ff.; Anon. Bellerm. 76.

<sup>59</sup> Greek Musical Writings, II 412 n. 79.

<sup>60</sup> Cf. Pyrrh. hypot. 3. 221 for a reference in Sextus to Solon as the Athenians’ lawgiver.

<sup>61</sup> FGrH 70 F 149 p. 88. 28 J ap. Strab. 10. 4. 20; cf. Polyb. 4. 20. 6. For the Spartans cf. Epicharm. 75 (with sch. Pind. Pyth. 2. 127), Thuc. 5. 70, Xen. Lac. Pol. 13. 7-8, Arist. fr. 244, etc.

<sup>62</sup> That ἡμιόλιον is to be restored was noted by Winnington-Ingram, Lustrum 1958 (3), 28 n. 1.

22. Porph. in Ptol. Harm. p. 84. 12 Düring

ἔστι δ' ἐπίτασις μὲν κίνησις φωνῆς ἐκ βαρυτέρου τόνου εἰς ὀξύτερον.

The parallel texts indicate that we should read ἐκ βαρυτέρου τόπου: Aristox. Harm. 1. 10 p. 15. 15; Arist. Quint. 1. 5 p. 7. 1; Anon. Bellerm. 36.

23. Anon. Bellerm. 64

ἄρχεται δὲ ὁ μὲν ὑπατοειδὴς τόπος ἀπὸ ὑπάτης μέσων ὑποδωρίου  
καὶ λήγει ἐπὶ μέσῃν δώριον,  
ὁ δὲ μεσοειδὴς ἄρχεται μὲν ἀπὸ ὑπάτης φρυγίου,  
λήγει δὲ ἐπὶ μέσῃν λυδίου,  
ὁ δὲ νητοειδὴς ἄρχεται μὲν ἀπὸ μέσης λυδίου,  
λήγει δὲ ἐπὶ νήτην συνημμένων (        ).

Three overlapping vocal registers are here defined. As Najock's apparatus shows, he and previous researchers have seen that the text cannot be entirely sound. But their attempts at emendation are gross and produce unconvincing results. It should not be necessary to make changes in all three definitions, and we should not expect any of the definitions to involve a mixture of unrelated keys.

The bottom notes given for each register are a fifth apart:

ὑπάτη ὑποδώριος	= (by convention)	c
ὑπάτη φρύγιος	=	g
μέση λυδίου	=	d'

We shall naturally assume that the top notes are also a fifth apart, and that the whole scheme is symmetrical.

In the case of the low register the transmitted text gives us a natural key-pairing, Hypodorian - Dorian, and a span of just two conjunct tetrachords, c - b $\flat$ . In the definition of the middle register, λυδίου must be wrong; it would give a span of only a fifth (g - d'), and no overlap with the high register. It is evidently a scribal anticipation of λυδίου just below. Phrygian should be paired with Hyperphrygian, giving us again a span of two fourths, g - f'. In the third definition we have only to apply the same formula, Lydian: Hyperlydian, and we get the same span again, d' - c''. The whole scheme covers exactly two octaves, c - c'', which agrees with the doctrine about the range of the voice stated in Nicom. Ench. 11 p. 255. 25, Arist. Quint. 1. 10 p. 21. 14, Gaud. Isag. 9 p. 339. 5.

24. Ib. 88

ᾠκροῦσι δὲ ἔστιν ἓν χρόνοις δύο, οἶον κτλ.

Read e.g. ἐν χρόνῳ ᾠκροῦσι φθόγγοι δύο. Cf. 6, ᾠκροῦσι ἔστιν ἓν τοῦτ' ἔστιν ᾠκροῦσι χρόνου δύο μέλη, τοῦτ' ἔστι δύο φθόγγοι ἀπὸ τῶν βαρέων ἐπὶ τὰ ὀξεία, οἶον κτλ.

#### IV. THE ORIGINS OF THE NOTATION SYSTEMS

##### 1. The standard systems

The surviving specimens of ancient Greek music, whether from papyri, inscriptions, or (in the case of Mesomedes) medieval manuscripts, are all recorded in the same notational system in one or another of its two manifestations, the vocal and the instrumental. The papyri go back in some cases to the mid third century BC, and show that this common notation was already established by that time. How much older was it? Opinions have diverged widely.

It is clear from the internal structure of the system that it was not created entire at one stroke, but developed by successive expansions from an original system that covered a smaller compass. This much is generally accepted. It is also commonly acknowledged that the vocal and instrumental symbols were not invented at the same time. The instrumental system, or rather its central core, is usually — and I believe rightly — regarded as the older.

It is certainly the more mysterious. The vocal symbols are derived directly from the 24 letters of the Ionic alphabet, whereas the instrumental system is based on the enigmatic series

η	λ	Ν	Ε	<	7	Κ	ϸ	Ϻ	Ρ	Γ	Ϻ	Ε	Η	Η	Ξ
a'	g'	f'	e'	d'	c'	b	a	g	f	e	d	c	B	A	G

These signs have the general appearance of letters, but some of them are abnormal in form and others quite unrecognizable. The arrangement is clearly not alphabetic (as it is in the vocal system); the ordering principle is completely obscure. It may be that the highest and lowest notes were not parts of the original series. The first and second signs appear to be derived from the third by inversion and rotation, a principle otherwise used for sharps and double sharps, while the last, Ξ, seems derived from the vocal symbol for the same note, Ϻ (reversed sigma), as is also the case with the six lower notes subsequently added to the system. If so, we have to focus our attention on the symbols from Ν to Η.

According to one theory, they are late and artificial creations, adapted from the plain symbols of the vocal notation.<sup>63</sup> This is unconvincing. If the vocal system was already in existence, what need was there to invent a separate instrumental system, when the other would have served equally well for both voices and instruments? And why should a straightforward alphabetic system, once established, be fragmented and tortured into something so much more obscure? If on the other hand the instrumental system was the older, it is easy to imagine that a need was subsequently felt for a less abstruse set of symbols, especially for the use of singers, who did not necessarily have the same technical training as the player on an instrument.

<sup>63</sup> A. Bataille, *Recherches de Papyrologie* 1, 1961, 15-20, followed by J. Chailley, *ibid.* 4, 1967, 201 ff.

Another theory is that the instrumental notation in its original form was taken over from a foreign source, and that the symbols are to be explained from a Semitic alphabet. This view has been maintained most recently (to my knowledge) by Heinrich Husmann.<sup>64</sup> He starts from the series

∖ □ > Δ × ∩ ∇ √

— taking the upper sign of each triad instead of the bottom one,<sup>65</sup> and confining himself to the central octave covered in the vocal notation by the unmodified alphabet A - Ω. He then compares these signs with the first eight letters of the Hebrew and Syriac (Estrangelā) alphabets, which he presents thus:

Hebrew	א ב ג ד ה ו ז ח
Syriac	ܐ ܒ ܓ ܕ ܗ ܘ ܙ ܠ

He comments:

Der genaue Vergleich mit altarabischen und phönikischen Zeichen würde noch deutlicher zeigen, daß die griechische Instrumentalschrift mit hoher Wahrscheinlichkeit aus dem vorderen Orient kommt.<sup>66</sup>

One may wonder why, if he believed that, he did not display the old Arabian and Phoenician characters that he had in mind, instead of Hebrew and Syriac ones, of which the best he can say is

Ein Vergleich allein schon mit den bekanntesten vorderorientalischen Schriften, Hebräisch und Syrisch, zeigt ... daß die Abweichungen der Instrumentalzeichen nicht größer sind, als die Varianten des Hebräischen und Syrischen unter sich.<sup>67</sup>

He does not seem to be aware that the forms of script he adduces date from later periods than could be relevant to the origin of the musical notation. Such slight similarities as can be found in his comparisons become even slighter when one goes back to older forms of Semitic alphabet. The case appears more hopeless still when one follows the series beyond the first eight symbols.<sup>68</sup>

<sup>64</sup> GGA 211, 1957, 57 f.; Grundlagen der antiken und orientalischen Musikkultur, 1961, 78-80.

<sup>65</sup> In favour of this he argues that the scale as a whole was conceived as descending, so that it was natural to build the triads downwards, and that the second and third signs of each triad represented flattenings achieved by partial covering of aulos holes. But in the historical system as we know it, in most keys, the lowest note of each triad was treated as basic and corresponded to a standing note, and the other two were sharps, corresponding to the movable notes. I agree that the notation-triads probably reflect half-stoppings on the aulos, but it may just as well be a matter of sharpenings achieved by partial openings of holes.

<sup>66</sup> GGA 211, 1957, 58.

<sup>67</sup> Grundlagen, 79.

<sup>68</sup> For tables of early Semitic alphabets see G. R. Driver, Semitic Writing, <sup>3</sup>1976, 142-5, 192-3; J. Naveh, Early History of the Alphabet, 1982, 32, 77, 90-8, 113, 137, 146, 156.

A third theory derives the notation from Greek letters as written in some early local script, perhaps that of Argos, used in a non-alphabetical order.<sup>69</sup> This view enjoyed some popularity up to about fifty years ago, but since then it seems to have fallen out of favour. In my judgement it remains the most persuasive account of the notation, at least in principle; but Westphal's detailed identifications of letters and his explanation of their sequence require some correction. He also assigned too high a date to the system.

The instrumental symbols in their basic forms can on the whole be matched with letters in sixth- and fifth-century local Greek scripts, or easily derived from them. In most cases we can find analogues in many parts of Greece, sometimes with different letter values in different regions. But we need to identify one particular region from whose scripts we can account for all the symbols. The most satisfactory set of correspondences is provided, as Westphal found, by Argive script. But to establish this we must go through the symbols one by one, the basic series from N to H, considering each in the light of the material collected in L. H. Jeffery's *Local Scripts of Archaic Greece*.<sup>70</sup>

N is an unequivocal nu in any alphabet.

□ occurs in several areas as a form of vau from the second half of the sixth century: in Euboea, Boeotia, Thessaly, Amorgos, Corcyra, Zancle. But in Argos and Mycenae, in the period 525-425, ▢ or □ represents beta. As we have a F later in the series which cannot credibly be taken as anything but vau, the equation of □ with beta has a distinct advantage.

⟨ is a form of gamma found in Euboea and the Chalcidian colonies, Phocis, Locris, Corinth, Megara, Sicyon, Argos,<sup>71</sup> Arcadia, Elis, Aetolia, the Ionian Islands, Achaea, Sicily, Thera, and Samos. Westphal interpreted the sign as lambda, which can hardly be justified.

7 is described by Alypius as πεῖ καθειλκυσμένον, pi with the right leg prolonged, but the rotated and mirror forms ◀ and ▲ are described as ἡμίδελτα πλάγιον (or ὕπτιον) and καθειλκυσμένον. The shapes seem to have suffered some distortion in the course of time, and it is difficult to reconstruct the originals. If the primary symbol was a pi, we should expect the form ▢ in any early dextrorsum script, giving ◻ and 7 for the two sharps. These are not particularly like the symbols transmitted. It is also imaginable that the primary symbol was an alpha (Α or Α), or a delta modified in the interests of orientational differentiation (Δ). The uncertainty is such that we cannot base any argument on this symbol. Westphal took it as a delta.

K is a clear kappa, a letter with no significant regional variations.

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<sup>69</sup> R. Westphal, *Harmonik und Melopöie der Griechen*, 1867, 389 ff.; *Die Musik des griechischen Alterthumes*, 1883, 155 ff.; F. A. Gevaert, *Histoire et théorie de la musique de l'antiquité*, 1875-81, I 424; D. B. Monro, *The Modes of Ancient Greek Music*, 1894, 68-75; O. J. Gombosi, *Tonarten und Stimmungen der antiken Musik*, 1939, 11, 78-82.

<sup>70</sup> Revised ed. with supplement by A. W. Johnston, 1990.

<sup>71</sup> Jeffery, *Pl.* 28 no. [19], ca. 475 BC.



ϸ may be one of several letters. One thing it cannot be in the archaic or classical era is sigma. Nor can it be theta, as Westphal interpreted it. Its most widespread value is gamma, by rounding of the two-stroke form ϸ or Γ (Euboea, Phocis, Locris, Corinth, Sicyon, Arcadia, Elis, Achaea, Sicily, Camirus). But in Naxos, Paros, Thasos, Keos and Delos down to the early fifth century it represents beta; in Melos and Cnidos it represents omikron (the circle of O being broken to differentiate it from O = omega); and in Crete pi. In the musical notation, with beta and gamma already spoken for, the likeliest interpretation is omikron, with the circle broken in this case to allow for orientational differentiation.

Ϻ is a clear vau. A similar form is found for epsilon at Eleutherna in Crete; but Ε later in our note-series must be epsilon. The presence of a vau limits us to those areas of Greece where this letter was in use.

ϻ would be most simply explained as a development from the common form of nu, Ν, except that we have already had Ν as the first of our series, an octave above ϻ. It is certainly not a principle of the notation that notes an octave apart are designated by the same letter. If Ν was an addition to the original scheme it is conceivable that nu was repeated at the octave, as in the fully developed system the vocal symbols Α - Ο and their instrumental counterparts are all repeated in the higher octave with a diacritic dash. In this case we should have to make the difficult assumption that ϻ developed differently in the two positions, to Ν and ϻ. Another possibility is that ϻ derives from Ϻ, a form of epsilon found in most areas. Westphal interpreted it as mu.

Γ would pass for gamma in many regions; but it could as easily represent ϳ, a widespread form of lambda (Thessaly, Phocis, Locris, Corinth, Argolid apart from Argos, Achaea, Sicily, Cyclades, etc.). As we have already had a probable gamma, lambda has the stronger claim here. Another possibility is tau modified for orientational differentiation.

ϣ is another sign with several possible alphabetic values. At Thespieae in the late fifth century it was used for a vowel sound between ε and ι (< prevocalic ε). At Argos and Mycenae it represented lambda, and this is how Westphal took it. At Epidauros (ca. 500) and in south Italy (from ca. 400) it appears with the value h. Other possibilities are iota (with an added stroke; cf. below, p. 44); epsilon (as a development from Ϻ); or a truncation (for asymmetry) of +, which is chi in Attica, Aegina, Corinth, Megara, Argos, Selinus, Cyclades, and East Greek cities, and xi in Thessaly, Phocis, Locris, the eastern Argolid, Laconia, Arcadia, Achaea, etc.

Ε speaks for itself.

Ϟ has no obvious identity as a letter. One could imagine a relationship with the Mantinean letter Ϟ attested ca. 450 (a palatalized dental; Jeffery 212 f.); or with forms of beta used in Melos (Β) and Thera (Ϟ). I see nothing to be said for Westphal's reading as iota (Ϻ). Probably we are again dealing with a letter that has been mutilated in order to make it asymmetrical. If so, Ϟ is the obvious candidate. In the vocal notation the similar Ϟ is used for inverse Η, and in the uncanonical notation recorded by Aristides Quintilianus (see below, IV. 2) Η and its reverse appear as Ϟ Ϟ. We have Η itself as the next in the series, but it may not be what it seems (see below). The old

form **Ξ** or **Ξ** gave way to **H** in most places before 450. Another possible candidate is the peculiar form of xi, **⚭** or **⚭**, found at Argos in the second quarter of the fifth century.

**H** looks like an unequivocal (h)eta, until we take account of its sharps, **⚭** and **⚭**. Perhaps these are to be explained as variations on an original **Ξ** which was then modernized to **H**. But this would be anomalous in terms of the general scheme, in which symmetrical signs were avoided and the sharps formed by rolling back through 90° and by lateral inversion. The anomaly might be justified, or rather excused, by the hypothesis that the **H** triad, like those beyond it, was an addition to the primitive system. An alternative approach would be to suppose that the apparent **H** goes back to another letter-form such as **⚭**. The second sharp **⚭** would then emerge as merely a squaring-off of **⚭**. For the first sharp, admittedly, we should have to postulate an excessive roll-back as well as a squaring-off, **⚭** becoming **⚭**, and finally **⚭**. The **⚭** form of rho occurs in Attica, Euboea, Boeotia, Thessaly, Phocis, Locris, Corinth, Argos, Laconia, Arcadia, Elis, Syracuse, Delos, Thasos, Thera, Ephesos, etc., especially from the late archaic period and in the fifth century.

As a result of this survey we can feel some confidence that we are seeking the origins of the instrumental notation in the right field: in Greek local scripts of (probably) the fifth century. Collectively these scripts provide better matches for the musical signs than any form of Semitic alphabet could do. We have not been able to make a sure identification in every case, but we have been able to make reasonable suggestions. Here is a synopsis of our findings:

N	⚭	⚭	⚭	⚭	⚭	⚭	⚭	⚭	⚭	⚭	⚭	⚭
v	[f]	γ	π?	κ	[β]	⚭	[v]	[γ]	λ?	ε	h?	h?
	β		α?		[γ]		υ?	λ?	χ?		ξ?	ρ?
			δ?		ο			τ?	ι?			
(Westphal:	v	β	λ <sub>2</sub>	δ	κ	θ	⚭	μ	γ	λ <sub>1</sub>	ε	ι η )

The equivalences in square brackets are those eliminated by the axiom of non-duplication. Westphal's decipherment is added for comparison.

The next question is, can we pin down this notation to a particular locality? The most distinctive characters in it seem to be:

**⚭** = β in Argos and Mycenae.

**⚭** = ο in Melos and Cnidos.

**⚭** = λ in Argos and Mycenae (if it is not modified χ).

**⚭** = modified **⚭** = ξ in Argos (if not modified η).

Now, the modification of **⚭** to **⚭** might well have been made by the inventor of the notation independently of the Melian and Cnidian scripts. He could not use **⚭** without doctoring it to make

it asymmetrical, and the removal of a section of the letter was the same expedient as we see employed in other cases.<sup>72</sup> So we are entitled to leave Melos and Cnidos out of the reckoning, leaving Argos unchallenged. We could account for  $\text{Ϝ}$  and  $\text{ϝ}$  without Argos, but not  $\text{Ϛ}$ , given that it cannot be *vau*. Our other equivalences are all compatible with a fifth-century Argive origin for the notation. A date in the first half of the century fits the Argive evidence best, especially the  $\text{<}$  gamma and (if it is relevant) the  $\text{ϝ xi}$ . Westphal dated the system at least a century too early, putting it in the late seventh century and associating it with Polymnestus.<sup>73</sup>

The Argolid had been the leading region for musical excellence since the sixth century. The Pythian auletic contest was dominated from 586 to 554 by Sakadas of Argos and Pythokritos of Sicyon.<sup>74</sup> Aristonikos, a pioneer in the art of  $\text{ψιλὴ κιθάρισις}$ , was another Argive, though resident in Corcyra, and Lysandros, who made important advances in the same art, perhaps in the early fifth century, was another Sicyonian.<sup>75</sup> In the time of Polykrates of Samos, according to Herodotus 3. 131. 3 (perhaps interpolated),  $\text{Ἀργεῖοι ἤκουον μουσικὴν εἶναι Ἑλλήνων πρῶτοι}$ . Two of the earliest identifiable musical theorists were Lasos of Hermione and Epigonos of Sicyon. Lasos is credited with writing the first book about music, and it seems very possible that he actually invented the word  $\text{μουσική}$ , which is first attested in Pindar and Epicharmus.<sup>76</sup> I do not propose attributing the invention of the notation to Lasos or Epigonos, because I infer from hints in Aristoxenus and elsewhere that their approach to harmonic analysis was to divide the octave up into the smallest possible intervals, and the notation, based on a diatonic scale, does not reflect that conception at all. But the north-east Peloponnese seems to have been a favourable milieu for taking such a step as inventing a notation.

It remains to ask how the order of the letters used in the notation is to be accounted for. Westphal thought he had found a pattern by which adjacent letters designated notes an octave apart:

$\nu$	$\beta$	$\lambda_2$	$\delta$	$\kappa$	$\theta$	$\rho$
$\mu$	$\gamma$	$\lambda_1$	$\epsilon$	$\iota$	$\eta$	$\zeta$

But of these pairs there is at most only one ( $\delta \epsilon$ ) that does not involve an untenable identification. There is no consistency in whether the higher octave is occupied by the first or the second letter of the alleged consecutive pair; and the sequence of the pairs remains as obscure as before.

Musical notation using letters or syllables in non-alphabetic sequence is a phenomenon with parallels outside Greece. The key to them is that they are abbreviations of words: technical names for degrees of the scale, or words associated with specific pitches in some paradigmatic song. One example is the Indian system in which the degrees of the diatonic scale are denoted by the letters or

<sup>72</sup> Also in the vocal notation in several cases where symmetrical letters are inverted or rolled back:  $\text{B R}$ ,  $\text{E F}$ ,  $\text{Z 7}$ ,  $\text{H ϣ}$ ,  $\text{Θ Ϟ}$ ,  $\text{Φ ϡ}$ . The same treatment of omikron appears, I believe, in the notation recorded by Aristides Quintilianus; see below, p. 45.

<sup>73</sup> Doubts about such a high dating were already expressed by Monro and Gombosi.

<sup>74</sup> Paus. 6. 14. 10.

<sup>75</sup> Menaichmos FGrH 131 F 5; Philochoros 328 F 23.

<sup>76</sup> It is, I think, the earliest attested of the craft-names in  $\text{-ική}$  which proliferate in the fifth century.

ligatures sa, ri, ga, ma, pa, dha, ni, standing for the names sadja, rsabha, gándhára, madhyama, pañcama, dhaivata, nisáda. Sharps and flats are indicated by the addition of Vedic pitch accent signs. Another example is the Western medieval set ut, re, mi, fa, sol, la, taken from the initial syllables of the first six lines of a hymn to St. John.<sup>77</sup> The probability must be that the letters of the Greek instrumental notation originally had some such significance, even though they do not match the known names for degrees of the scale.<sup>78</sup> Perhaps one day some brilliant insight will produce a plausible decoding, but more likely their meanings will remain forever hidden.

A few words may be spared for the vocal notation. We have already decided on general grounds that this more perspicuous system is likely to have developed later than the instrumental system, to make things easier for vocalists. Now that we have arrived at a rough dating for the instrumental system, we can confirm its priority. The vocal notation may be dated to the late fifth or the fourth century. The Ionian alphabet on which it is based was officially adopted at Athens in 403/2 and had been in widespread unofficial use there for a generation or so before that date. It was also establishing itself in other Greek cities at this period. The letter-forms used in the notation point to a date before rather than after 300. Epsilon is square in the older scores such as the Orestes papyrus, and the shape is guaranteed by the use of **F** as a modified **E** in the lower extension of the series. Omega has the classical form **Ω**, inverted **U**. Sigma appears in lunate form, but the reversed form in the lower series is **Ϻ**, implying original **Σ** : **Ϻ**.<sup>79</sup> Zeta is more problematic. It appears as **Z** with the modified form **Ϝ**. In the fourth century, zeta still had the form **Ζ**. We can easily assume that this was modernized to **Z** in the course of time, but then we must suppose that **Ϝ** too has changed in parallel, perhaps from **Ϛ**.<sup>80</sup>

## 2. The system in Aristides Quintilianus 1. 7

Aristides Quintilianus, after stating that ‘the ancients’ (i.e. pre-Aristoxenian theorists) divided the octave into twenty-four quarter-tone steps, presents a table of note-symbols associated with this division.<sup>81</sup> It covers two octaves. Notes are given for every quarter-tone in the first octave, but only for every semitone in the second. For each note two symbols are given, one of which is the other reversed or inverted, and in the first octave, where there are two notes in every semitone, the symbols for these two notes are similarly related. Thus the second symbol given for the first of two quarter-tone steps is identical with the first symbol for the second, and the first symbol for the first is identical with the second for the second. At any rate, there are so many examples of this

<sup>77</sup> See The New Grove, XIII 337 f.

<sup>78</sup> **N** appears an octave above **Π** (υ?), as does νήτη above ὑπάτη, but nothing else fits that frame.

<sup>79</sup> Winnington-Ingram, *Philologus* 122, 1978, 240 f.

<sup>80</sup> Cf. Winnington-Ingram, loc. cit.

<sup>81</sup> Harm. 1. 7 p. 12. 5 f., 12 ff.; the first plate at the end of Winnington-Ingram’s edition shows the note table as it appears in cod. Ven. Marc. app. VI. 10, while J. Chailley, *RÉG* 86, 1973, 19, reproduces its appearance in Neap. gr. III C 4.

pattern that we must assume that it originally prevailed throughout, apparent exceptions being due to corruption or dislocation.

R. P. Winnington-Ingram and J. Chailley have argued convincingly that in the original form of the scheme the twenty-four semitones of the two-octave scale were represented by the twenty-four letters of the Ionian alphabet, in their normal order but in some cases modified in shape for the sake of reversibility.<sup>82</sup> They make detailed suggestions for matching the symbols as transmitted to the alphabetic series.

As regards the double row of signs and their inversions, Chailley supposes that there were originally not two but four different aspects for each symbol, two of them serving to indicate ascending motion and two descending. He takes the whole notation to represent intervals, not pitches, so that for example Ε would signify a rising fourth (from whatever note preceded) and Ξ a falling fourth. But it is impossible to see why an interval notation should extend over two octaves; the widest interval ever attested in the remains of Greek music is a ninth. And the evidence of the transmission by no means favours the four-aspect hypothesis. A bizarre feature of Chailley's reconstruction is that alpha and beta have only two aspects each, the missing ones being supplied by postures of qoppa.

Winnington-Ingram, following a hint by Monro,<sup>83</sup> thinks that the deviser of the scheme gave two symbols for each note because the standard notation differentiated between vocal and instrumental notes; and that as the principle he used to create his 'instrumental' set of symbols — reversing or inverting the 'vocal' set — corresponds to that seen in the final extension of the standard system at the bass end (↵ Τ, < >, etc.), this whole system is comparatively late and artificial, and indeed 'rather silly'.

I should say it was very silly, if the inventor really intended two parallel series in which the instrumental symbol for a note was always the same as the vocal symbol for the note a quarter-tone higher or lower, and vice versa. But Aristides Quintilianus does not say that the two rows of signs that he gives were meant to be a vocal and an instrumental series, and I am more inclined to suppose that they originated by a kind of dittography. In the source from which Aristides derived his table (directly or indirectly), the notation may have been explained on the following lines:

"The twenty-four semitones of the double octave are represented by the letters from alpha to omega, with certain modifications of shape; the intervening quarter-tones are indicated by the same letters reversed or inverted. The letter-forms used, and their inverse forms, are as follows: > <, β ϣ, Γ ∟, ... So the continuous series in order of pitch goes < > ϣ β ∟ Γ ..."

An account in this form would give rise to the two rows that we find reflected in Aristides' text, with their criss-cross pattern of correspondences. In fact the dittography does not extend beyond the first octave, for in the second octave we are given the normal and inverse symbol once each.

<sup>82</sup> Winnington-Ingram, *Philologus* 117, 1973, 243-9; Chailley, *RÉG* 86, 1973, 17-34.

<sup>83</sup> *The Modes of Ancient Greek Music*, 1894, 99.

Clearly some shapes have become distorted and the order disturbed. Chailley and (especially) Winnington-Ingram have done much to sort things out. In some instances I have alternative solutions to suggest. The following table sets out the signs in the order they appear, with the serial numbers assigned to them in the manuscripts; Chailley's and Whinnington-Ingram's identifications and reconstructed forms; and mine where they differ from theirs.

		Chailley		Winnington-Ingram	West
2	∞ ∞			υ < > or ∅ ∞ ∞	φ ∅ ∅
3	< >	α A		α < >	
4/6	6 9	ρ ρ b		β b ρ	β
5	Π Π	β B		η μ 4	π Π Π ?
7/8	Γ Γ	γ Γ Γ		γ Γ Γ	
9/10	Δ ∇	δ Δ ∇		δ Δ ∇	
11/12	E E	ε E E		ε E E	
13/14	1 1	ζ 1 1		ζ 1 1	
15	4 4	η 4 4		η μ 4	
16/17	ε ε	θ ε ε		θ ε ε	
18/19	Υ Υ	ι Υ Υ		ι Υ Υ	
20	α x	ξ α x		κ K X	κ
21/22	> <	κ < >		λ > <	λ
23/24	Υ Υ	λ < Υ		μ μ Υ	μ 1 1
26	1 1	τ 1 1		ν or τ ?	ν 1 1
28	7 F	π 7 F		Ξ (Ξ) 7 F	Ξ 7 F
30	< >	φ ε θ		∅ ∞ ∞ or ψ < >	ψ
32	Ω υ	ω Ω υ		π Π Π or ω Ω υ	ω

34	Ɱ Ɱ	o Ɱ Ɱ	ρ P d	} o Ɱ Ɱ
36	Ɱ Ɱ	σ ζ ρ	σ Ɱ Ɱ	
38	Ɱ Ɱ	ν < >	τ T ⊥ or υ < >	π π ⊥
40	Ɱ Ɱ	ρ ρ A	υ < > or o Ɱ Ɱ	ρ ρ A
42	ϣ ϣ	ψ ϣ ϣ	φ ϣ ϣ or ψ ϣ ϣ	σ Σ Σ
44	λ γ	χ λ γ	χ λ γ	τ T ⊥
46	f γ	μ ρ ρ	ψ ψ ρ	υ γ λ
48	lost			

2. see below on 48.

5. Winnington-Ingram's interpretation as eta has the advantage that it supplies the companion pair to 15, which is otherwise missing.

20. Probably ϣ = ϣ and α = α.

21/22. An apparent duplication of 3, but probably originally distinct.

23/24. Halves not of ϣ (as Winnington-Ingram suggests; no mu ever had such a form) but of ϣ.

30-32. ψ ω clearly more plausible than φ ω or o π.

34-36. As the alphabet has square E (and the older forms of ζ I and ω Ω), a lunate sigma must be doubtful. Rather a broken omikron (as Chailley supposes for 34); cf. above, p. 39.

38. π prima facie less likely than τ or υ, but it has the merit that if the following equivalences are admitted it gives us a straight flush, o π ρ σ τ υ.

42. With ϣ compare ϣ, the form developed from reversed Σ in the standard vocal notation.

48. If we interpret 2, an apparent duplicate of 40, as phi instead of rho,<sup>84</sup> the letter missing after 46 has migrated from the end of the series to the beginning. Chi has disappeared, unless it has merged with 3 alpha; ψ ω have intruded between ξ and o.

How old is this notation? Aristides associates it with οἱ ἀρχαῖοι, i.e. a period earlier than Aristoxenus. The letter-forms E I Σ Ω are compatible with this. Having disposed of the idea that the system involved a double series of symbols, vocal and instrumental, we no longer have any reason to suspect it of being influenced by the standard notation.

<sup>84</sup> Note that in the standard notation the modified phi of the bass register appears as ϣ in the manuscripts of Alypius, as ϣ in those of Aristides Quintilianus, and as ϣ in those of Gaudentius. There is a similar variation in our list at 40, where, according to the facsimile given by Chailley, the Naples manuscript gives ϣ.

Its most significant feature is that unlike the standard notation it is not based on diatonic steps, or on any form of tonal scale. It is dodecaphonic, treating the twelve semitone steps of each octave as equal in status, and subdividing each of them into quarter-tones requiring differentiated symbols of a secondary order. This seems to be the product of theoretical analysis, not a system inspired by musical praxis. We hear, as it happens, of certain harmonic theorists who mapped out the octave in quarter-tones. They were anterior to Aristoxenus, who several times criticizes their approach without identifying them by name.<sup>85</sup> It is surely in their environment that we should seek the origin of the notation under discussion. From Aristoxenus onward, so far as we know, everyone operated with some form of heptatonic Perfect System, and the standard notation had by then probably established itself to the exclusion of all rivals. Aristides was right, then, to attribute the ‘dodecaphonic’ system to οἱ ἀρχαῖοι. It was probably invented sometime in the earlier part of the fourth century. It failed to achieve general currency; but it was by no means as silly as it has been deemed.

Aristides’ first mention of these ἀρχαῖοι is at p. 12. 5, οὕτω δὲ καὶ οἱ ἀρχαῖοι συνετίθεσαν τὰ συστήματα, ἐκάστην χορδὴν ἐν διέσει περιορίζοντες. A few pages later he makes a similar diversion: p. 18. 5, γίνονται δὲ καὶ ἄλλαι τετραχορδικαὶ διαιρέσεις, αἷς καὶ οἱ πάνυ παλαιότατοι πρὸς τὰς ἁρμονίας κέχρηται. He proceeds to describe these ancients’ συστήματα, six of them, modal scales whose intervals are measured in διέσεις and multiples of this minimal unit, e.g. τὸ μὲν οὖν λύδιον σύστημα συνετίθεσαν ἐκ διέσεως καὶ διτόνου καὶ τόνου καὶ διέσεως καὶ διέσεως καὶ διτόνου καὶ διέσεως. It is a natural guess that these two antiquarian digressions are related, and reflect a single pre-Aristoxenian source in which an exposition of the quarter-tone notation was followed by the account of the scales. They may have been tabulated there in that notation, just as in Aristides Quintilianus, after their interval-sequences have been recited, they are tabulated in the standard vocal and instrumental notations.

On the other hand it is difficult to separate these ancient ἁρμονίαι from the set of irregular ἁρμονίαι which Aristides elsewhere mentions as having been recorded by Damon.<sup>86</sup> Barker writes that the grounds for identifying the two sets are ‘very slim’.<sup>87</sup> But it is hard to conceive that Aristides had access to two separate sets of ancient modal scales, one set described by Damon, the other attributed to οἱ πάνυ παλαιότατοι, especially as he equates the latter with the ἁρμονίαι that Plato referred to in Rep. 398e-9c: Plato’s musical theory is known to owe much to Damon.<sup>88</sup> Does the notation with which we are concerned, then, go back to Damon? I do not see how the possibility can be disproved. But it is perhaps more likely that Aristides’ source was post-Damonian, a writer of Plato’s time who cited Damon as his authority for the scales (as Plato does for rhythms, just after his discussion of ἁρμονίαι, Rep. 400b), and who employed a newly devised quarter-tone notation. This would account incidentally for the difference between Aristides’ expressions οἱ ἀρχαῖοι and οἱ πάνυ παλαιότατοι.

<sup>85</sup> Harm. 1. 7, 28, 2. 38, 53; cf. Pl. Rep. 531ab.

<sup>86</sup> Harm. 2. 14 p. 80. 29; cf. Winnington-Ingram, *Mode in Ancient Greek Music*, 1936, 59.

<sup>87</sup> *Greek Musical Writings*, II 483 n. 143.

<sup>88</sup> Cf. above, p. 19.



# V. THE CHRISTIAN HYMN FROM OXYRHYNCHUS: GREEK MUSIK OR SYRIAC?

This hymn, P. Oxy. 1786 (Pöhlmann, No. 34), copied in the later third century, is perhaps the latest in date of the known texts recorded in the ancient Greek notation. At the same time it is by a considerable interval the oldest surviving example of music used in Christian worship. It is therefore a matter of some interest to determine, if possible, to what musical tradition it belongs.

Very different opinions have been held. H. Abert wrote of the music that

Sie trägt durchaus den Stempel der altgriechischen Kunst, von der Melopöie bis zum äußeren Notenbilde ... Der christliche Komponist muß mit der antiken Musik eng vertraut gewesen sein.<sup>89</sup>

Egon Wellesz, on the other hand, denied that the music of the hymn was of genuinely Greek character, and stated decisively that it represented a new ecclesiastical music modelled on patterns deriving from Jewish or Syriac hymnody. He thought that the hymn might even be a translation from a Jewish or Syriac original.<sup>90</sup>

I shall argue that Wellesz's position is mistaken, and that those who see the hymn as eminently a product of Greek tradition are on altogether stronger ground.

Let us consider first the poetic text.

◡◡—◡]ομου πᾶσαί τε θεοῦ  
 λόγιμοι α [   ] [   ]αρ[  
 [◡◡—◡◡—◡◡—◡◡—]  
 ]ὑτᾶνηω ᾗ σιγάτω,  
 μηδ' ἄστρα φαεσφόρα λ[αμπ]έ[σ]θων,  
 ἄπ[ο]λεῖπ[όντων] ῥ[ιπαὶ] πνοιῶν,  
 πηγαὶ] ποταμῶν ῥοθίων πᾶσαι.  
 ᾗ ὑμνούντων δ' ἡμῶν [π]ατέρᾱ  
 χυτὸν χᾷγιον πνεῦμα, ᾗ  
 πᾶσαι δυνάμεις ἐπιφωνούντων  
 “ἁμήν, ἁμήν”. κράτος, αἶνος, αἶνος [ἀεὶ  
 καὶ δόξα θεῷ] δ[ωτ]ή[ρι] μόνῳ  
 πάντων ἀγαθῶν ἁμήν, ἁμήν.

<sup>89</sup> Bursians Jahresbericht 193, 1922, 7.

<sup>90</sup> CQ 39, 1945, 34-45; A History of Byzantine Music and Hymnography, <sup>2</sup>1961, 152-6.

It is composed in anapaests. The metre appears to crumble in ruins when the formula *πατέρα καὶ υἱὸν καὶ ἅγιον πνεῦμα* is used. But the rhythmic notation accompanying the note symbols, as well as the written crases *χυιον χαγιον*, makes it clear that the metrical scheme was maintained in the music and the words forced to fit it. Over the final vowel of *πατέρα* a diseme note is written, and over that of *πνεῦμα* a diseme followed by a diseme leimma.<sup>91</sup> The other doxological formula, ‘power, praise, and glory’, is accommodated to the metre by omitting the first copula and by using *αἶνος* instead of *εὐλογία* (Apoc. Iohann. 5. 13 ἡ εὐλογία καὶ ἡ τιμὴ καὶ ἡ δόξα καὶ τὸ κράτος). We see, therefore, that the hymnist was concerned to maintain the metre throughout, and that it is misleading to say, as Wellesz does, that ‘when he came to insert the doxological formula ... he had to abandon the anapaestic metre and to introduce rhythmical prose.’<sup>92</sup>

Wellesz refers to the anapaestic metre, rather oddly, as ‘the popular metre of the Hellenistic age’. It was certainly a popular metre in the first three centuries of our era.<sup>93</sup> We find it used for hymns in Lucian’s *Podagra* (191-203), in two hymns to Apollo quoted by Porphyry (Antr. Nymph. 8 and ap. Eus. PE 3. 14. 4 f.), and — in the more solemn spondaic tempo — in the Berlin Paean (above, p. 12). It is against this pagan background that we must view the anapaestic hymn to Christ the Saviour attributed to Clement of Alexandria,<sup>94</sup> and those two of Synesius’ hymns which are in this metre.<sup>95</sup> These poems naturally incorporate some metaphors and images of Biblical provenance, but in general they are imbued with Hellenic poetic diction and with the hues of Hellenic philosophy. This applies especially, of course, to the compositions of the humane Neoplatonist Synesius.

The Oxyrhynchus hymn, although it admits more direct links with liturgical doxology, stands much closer to these products of Hellenic (Alexandrian) education than to the Odes of Solomon, the hymns of Bardesanes and Harmonios, and other products of the Syriac tradition, which, when they were translated into Greek, were translated into rhythmical prose, not into classicizing metres.<sup>96</sup> The call for the powers of nature to be still, to suspend their activity while the hymn is sung, is closely paralleled in both of Synesius’ anapaestic hymns:

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<sup>91</sup> The leimma ought to have been tetraseme. The error has resulted in the arsis-stigmai being displaced from here onwards (Winnington-Ingram, *Symb. Osl.* 31, 1955, 81).

<sup>92</sup> CQ 39, 1945, 41.

<sup>93</sup> See my *Greek Metre*, 170-2. Add the dramatic recitatives with musical notation in P. Osl. 1413. 1-15 (Pöhlmann, No. 36) and P. Oxy. 3704, and (if you are not too fastidious) the fourth-century Christian hymn in P. Köln IV 172.

<sup>94</sup> Clem. *Paedag.* 3. 12 pp. 291 f. St.; Heitsch, GDRK no. 45. 1.

<sup>95</sup> Nos. 1-2 in the current numeration.

<sup>96</sup> Cf. Wilamowitz, SPAW 1907, 278 f. = Kl. Schr. II 170 f.; E. J. Goodspeed, *A History of Early Christian Literature*, rev. R. M. Grant, 1966, 84-7.

1. 72-85	<p>εὐφαιμείτω αἰθήρ καὶ γᾶ· στάτω πόντος, στάτω δ' αἴηρ· λήγετε πνοαί βαλίων ἀνέμων· λήγετε ῥιπαί γυρῶν ῥοθίων, ποταμῶν προχοαί, κρανααὶ λιβάδες· ἐχέτω σιγά κόσμου λαγόνας ἱερευομένων ἀγίων ὕμνων.</p>	2. 28-43	<p>γᾶ σιγάτω ἐπὶ σοῖς ὕμνοις, ἐπὶ σαῖς εὐχαῖς· εὐφαιμείτω ὅσα κόσμος ἔχει· σὰ γὰρ ἔργα, πάτερ. καππανέσθω ἀνέμων ῥοῖζος, ἦχος δένδρων, θρόος ὀρνίθων· ἥσυχος αἰθήρ, ἥσυχος αἴηρ κλυέτω μολπᾶς· ὑδάτων δὲ χύσις ἄσφορος ἤδη στάτω κατὰ γᾶς.</p>
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It is a motif of impeccably Hellenic credentials, originating probably in one of the esoteric cults of the fifth century BC.

Ar. Th. 39 ff.

εὐφημος πᾶς ἔστω λαὸς στόμα συγκλήσας ...  
ἐχέτω δὲ πνοὰς νήνεμος αἰθήρ,  
κῦμα δὲ πόντου μὴ κελαδεῖτω ...  
πτηγῶν τε γένη κατακοιμάσθω ...  
μέλλει γὰρ ὁ καλλιέπης Ἀγάθων κτλ.<sup>97</sup>

Mesodemes 2. 1-6 Heitsch

εὐφαιμείτω πᾶς αἰθήρ,  
γῆ καὶ πόντος καὶ πνοαί,  
οὔρεα, τέμπεα σιγάτω,  
ἦχοι φθόγγοί τ' ὀρνίθων·  
μέλλει γὰρ ἔπρὸς ἡμᾶς βαίνειν  
Φοῖβος ἀκερσεκόμας εὐχαίτας.

Luc. Podagra 129 ff.

σῖγα μὲν αἰθήρ νήνεμος ἔστω  
καὶ πᾶς ποδαγρῶν εὐφημείτω·  
ἴδε πρὸς θυμέλας (ἢ) κλινοχαρῆς  
βαίνει δαίμων.

<sup>97</sup> Cf. also Ar. Av. 778; Eur. Bacch. 1084-5 with Dodds.

Corp. Herm. 13. 17 (Merkelbach - Totti, Abrasax II 134)

πάσα φύσις κόσμου προσδεχέσθω τοῦ ὕμνου τὴν ἀκοήν. ἀνοίγηθι γῇ, ἀνοιγέτω μοι πᾶς  
μοχλὸς ὄμβρου, τὰ δένδρα μὴ σείεσθε ... ἀνοίγητε οὐρανοί, ἄνεμοί τε στήτε ... μέλλω γὰρ  
ὑμνεῖν τὸν κτίσαντα τὰ πάντα κτλ.

P. Gr. Mag. 3. 198 ff. (Merkelbach - Totti II 66)

ἥσυχον ἐν στόμασιν πάντες κατερύκετε φ[ωνήν·  
αἰθέρος ἀμφίδρομοι σιγὴν ὄρνιθες ἔχοιτε,  
σκιτρῶντες δελφῖνες ὑπειράλιοι πάυεσθε,  
μείνατέ μοι ποταμῶν τε ῥοαὶ καὶ νάματ' ἀν[αύρω]ν κτλ.

P. Gr. Mag. 7. 320 ff.

ἡρεμείτω γαῖα καὶ ἄῃρ ἡρεμείτω καὶ θάλασσα ἡρεμείτω, ἡρεμείτωσαν καὶ οἱ ἄνεμοι, καὶ μή  
μου ἐμποδίζεσθε εἰς τὴν μαντείαν μου ταύτην· μὴ φωνή, μὴ ὀλολυγμός, μὴ συριγμός.

So far as Synesius is concerned, the Mesomedes passage is especially relevant. For the musical tradition in which Synesius was trained, Mesomedes was the classic composer. His fame is attested by the cenotaph set up to him by Caracalla, by Eusebius' inclusion of him in his chronography, and by Dio Cassius' reference to him as 'the man who wrote the citharodic nomes'.<sup>98</sup> His songs, with their musical scoring, were probably the basic text used in teaching the lyre to the select few who still learned it; this was what enabled some of his music to survive into medieval manuscripts. Synesius quotes from Mesomedes' hymn to Nemesis as a piece that 'we sing to the lyre'.<sup>99</sup> The metres that Synesius uses for his nine hymns — anapaestic monometers, spondaic heptasyllables, ionics, anacreontics, short apokrota — largely overlap with those used by Mesomedes; he uses the same literary Doric dialect, a great rarity in the Imperial age; and there are obvious verbal echoes.<sup>100</sup>

In substance as well as in metre, therefore, the Oxyrhynchus hymn draws on Greek heritage which finds representation also in the Mesomedes-Synesius line of tradition. The fact that the hymn is expertly recorded in the Greek notation itself suggests a composer with a Greek musical education, which had probably included the study of Mesomedes' works. He is a Christian, but his religious outlook may have been formed in a syncretistic atmosphere and enriched by pagan or gnostic concepts.

One further detail deserves remark. The poet attaches to God the title δωτὴρ μόνος πάντων ἀγαθῶν. This is not exactly an un-Christian idea; one may compare, for example, 1 Ep. Tim. 6. 17, Θεῶι τῷ παρέχοντι ἡμῖν πάντα πλουσίως εἰς ἀπόλαυσιν. But the expression derives rather from the Homeric θεοὶ δωτῆρες ἐάων. Callimachus had adapted the phrase to Zeus (Hymn 1. 91, following the hint of Il. 24. 528). Clement and Origen apply it to the Christian God, e.g. Clem.

<sup>98</sup> Dio Cass. 77. 13. 7; Eus. Chron. Ol. 230. 4.

<sup>99</sup> Epist. 95 p. 695 Hercher.

<sup>100</sup> For example, in Synes. H. 3 compare 20-3 with Mesom. 2. 17-23 H.; 31-5 with Mesom. 4. 21-4; 42 γλήνας with Mesom. 4. 18.

Strom. 7. 7. 43. 2 ὁ τῶν ἀγαθῶν δοτήρ.<sup>101</sup> It was this Alexandrian confluence of Christian doctrine with Hellenic culture that put the title at our hymnodist's disposal. The continuing influence of Greek poetic tradition betrays itself in his use of the exclusively epic form δωτήρ, which originated as an artificial substitute for δοτήρ under the influence of δώτωρ.<sup>102</sup>

I turn now to the music, and to Wellesz's claim that it does not belong to the Greek tradition but reflects oriental principles of composition. First, to detach it as much as possible from the Greek tradition, he plays down its anapaestic character:

Its rhythm has no longer that intimate, if not rigid, connexion with the metre of the text which was characteristic of the Greek classical style of composition. Metrically short syllables are often set to lengthened notes; and, in an age when spoken Greek was becoming a stressed language, the accentuated syllables are not consistently related to the musical ictus. The notes which have to be lengthened are marked by vertical [read: horizontal] strokes, and notes which have to be accentuated are distinguished from others by a dot.<sup>103</sup>

He proceeds to deny that the longer notes are to be interpreted as twice the length of the shorter:

we have to deal with rhythmical nuances which are too subtle to be expressed by doubling the time-value of the note to be lengthened. We must write all notes as quavers and indicate by an episema (a term known from Gregorian chant, i.e. a horizontal stroke), those notes which have to be lengthened.

There are several confusions and arbitrary assertions here. It is hardly the case that short syllables are 'often' set to long notes. The interpretation of 2 ]ϣτᾶνηω as πρ[υτανείωι is quite uncertain (οὐ τὰν δείλαν, ο]ϣ τὰν ῥῶ Reinach). 4. πατέρᾱ and πνεῦμᾱ are in the doxological formula which the poet felt unable to modify; certainly his admission of these scansion shows lower standards than we should like to see, but he has contrived to make each of the vowels in question the last in a dimeter, and at this period writers of anapaests often treated this position as anceps.<sup>104</sup> A relation of accented syllables to 'the musical ictus' is found nowhere in the Greek musical documents. And Wellesz is under the misapprehension that the ᾶρσις marked by a dot over a note is the ictus or downbeat: on the contrary, it is the upbeat. As the whole notation is entirely conventional, there can be no question of taking the sign ¯ as anything other than the diseme symbol, indicating a note of double length.<sup>105</sup>

<sup>101</sup> Cf. 7. 7. 36. 4 τῶι δοτήρι τῶν ὅλων; Origen De orat. 2. 331. 8; Martyr. S. Ignatii 7. 3.

<sup>102</sup> Ernst Fraenkel, Geschichte der griechischen Nomina agentis, 1910-12, I 15; E. Benveniste, Noms d' agent et noms d' action en indo-européen, 1948, 29.

<sup>103</sup> CQ 39, 1945, 41.

<sup>104</sup> For example, in the hymn in Porph. ap. Eus. PE 3. 14. 4 (GDRK 51), line 9, πάγνυτο νᾶσος, πάγνυτο κῶμα (and 5, 11); Synes. H. 1. 149 ff. ἐν ἐνὸς πρότερον, ὄντων σπέρμα, πάντων κέντρον. The technique of using rests in anapaestic music not only at the end of a bar (as after πνεῦμα) but also at the beginning (as before σιγάτω, ὑμνοῦντων) is paralleled in P. Oxy. 3704 verso.

<sup>105</sup> Cf. Winnington-Ingram, Symb. Osl. 31, 1955, 80 n. 2.

As regards the melody, Wellesz points to three features: 1. its ‘florid’ character, i.e. very frequent setting of a syllable to two or three notes; 2. the presence of melodic formulae as a structural feature; 3. the similarity of a couple of musical phrases with cadences found in some Byzantine church music.

1. Wellesz considered that the hymn’s floridity distinguished it from Greek music, in which ‘with the exception of a few passages’ a single note corresponded to a syllable of the text.<sup>106</sup> Since he wrote, however, our evidence has been augmented by a number of new texts from the Roman period such as the Oslo and Michigan papyri (Pöhlmann, Nos. 36-37, 39-40) and the Oxyrhynchus papyri 2436 (Pöhlmann, No. 38) and 3161, which show that Greek music in the second and third centuries was becoming increasingly florid. If this tendency is slightly more developed in the Christian hymn than in the other texts, it is no more so than might be expected in view of the hymn’s date. Individually the melisms it contains are no more extravagant than those seen in the Michigan papyrus, which is dated to the second century. The technicalities match what we find in the other texts: occasional division of monosemes into ♩, more frequent division of disemes into ♪ or ♪♪.

## 2. Wellesz states that the hymn

is built up from a number of melodic formulae linked together by varying short passages in the manner of a recitative. This principle of composition is to be found everywhere in the Middle East, but is unknown in old Greek music; it is the same principle of composition which has been discovered in both Gregorian and Byzantine melodies.<sup>107</sup>

He does not define the term ‘melodic formula’, or explain whether it means something more precise than ‘recurring phrase’. In default of such elucidation I can make no sense of the assertion that melodic formulae are unknown in old Greek music. They can be found in the Euripides fragments, the Delphic Paeans, and the songs of Mesomedes. And what is meant by ‘everywhere in the Middle East’? Our knowledge of Middle Eastern melody in pre-Byzantine times is confined to some Hurrian fragments from about 1400 BC, which were not known to Wellesz and are not relevant here,<sup>108</sup> and to Hebrew melodies reconstructed from agreements between the traditional music of widely separated Jewish communities in the modern era.<sup>109</sup>

3. Wellesz draws comparisons between a couple of melodic patterns in the hymn and some found in the twelfth-century Athos Heirmologion.<sup>110</sup> His reasoning is: the music of the hymn is

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<sup>106</sup> History of Byzantine Music and Hymnography, 156. The Berlin Paeon is noted as showing some floridity.

<sup>107</sup> Op. cit., 156.

<sup>108</sup> Existing interpretations of the Babylonian notation used in these pieces are, I believe, all erroneous. For a new and, I hope, definitive decipherment see my forthcoming study in Music and Letters.

<sup>109</sup> A. Z. Idelsohn, Jewish Music in its Historical Development, 1929; A. Sendrey, Music in Ancient Israel, 1969.

<sup>110</sup> CQ 39, 1945, 44 f. R. Wagner had drawn some comparisons with antiphons in Philologus 79, 1924, 213-5.

related to Byzantine church music; Byzantine church music can be traced back to Syro-Palestinian origins because (a) it is based on non-metrical or accentually scanned texts adapted from Syriac models, (b) it uses the supposedly Middle Eastern and un-Greek principle of composition from melodic formulae; and therefore the music of our hymn is to be assigned to this Syro-Palestinian tradition.

Against this it is to be observed firstly that whatever Byzantine ecclesiastical music may have owed to liturgical tradition going back to the Primitive Church (and ultimately to Jewish chant), there is nothing implausible in its also owing something to earlier Greek music. Secondly, if the hymn here and there shows similarities with later Byzantine hymns, it shows others at least as noteworthy with first- or second-century Greek fragments both religious and secular:

Christian hymn, line 1



Berlin Paean, line 5



ibid. line 1



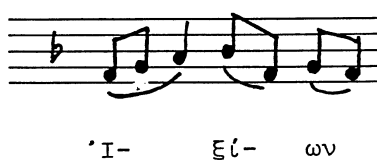
ibid. line 2



ibid. line 5



P. Oslo 1413 line 4<sup>111</sup>



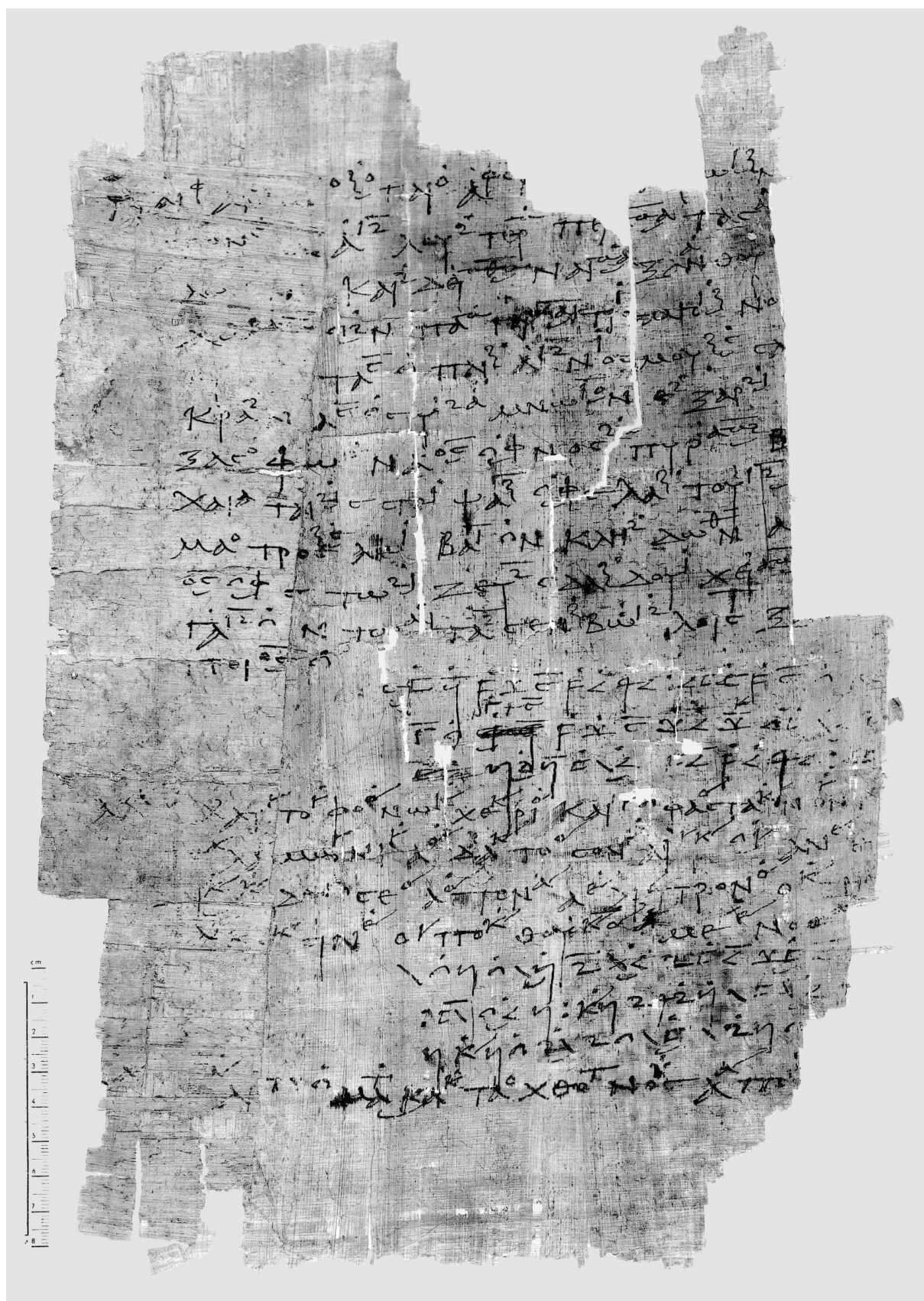
<sup>111</sup> Reading the notes as  $\Phi\zeta \bar{\theta} \xi\phi \bar{\zeta}\phi$ .

I rest my case. I can discover no feature of the hymn that cannot be illustrated from the extant musical documents from Roman Egypt of the second and third centuries of our era. Musically speaking the hymn stands squarely in the Greek tradition. We have seen that the same is true to a significant extent of the poetic flesh that clothes the Christian bones.

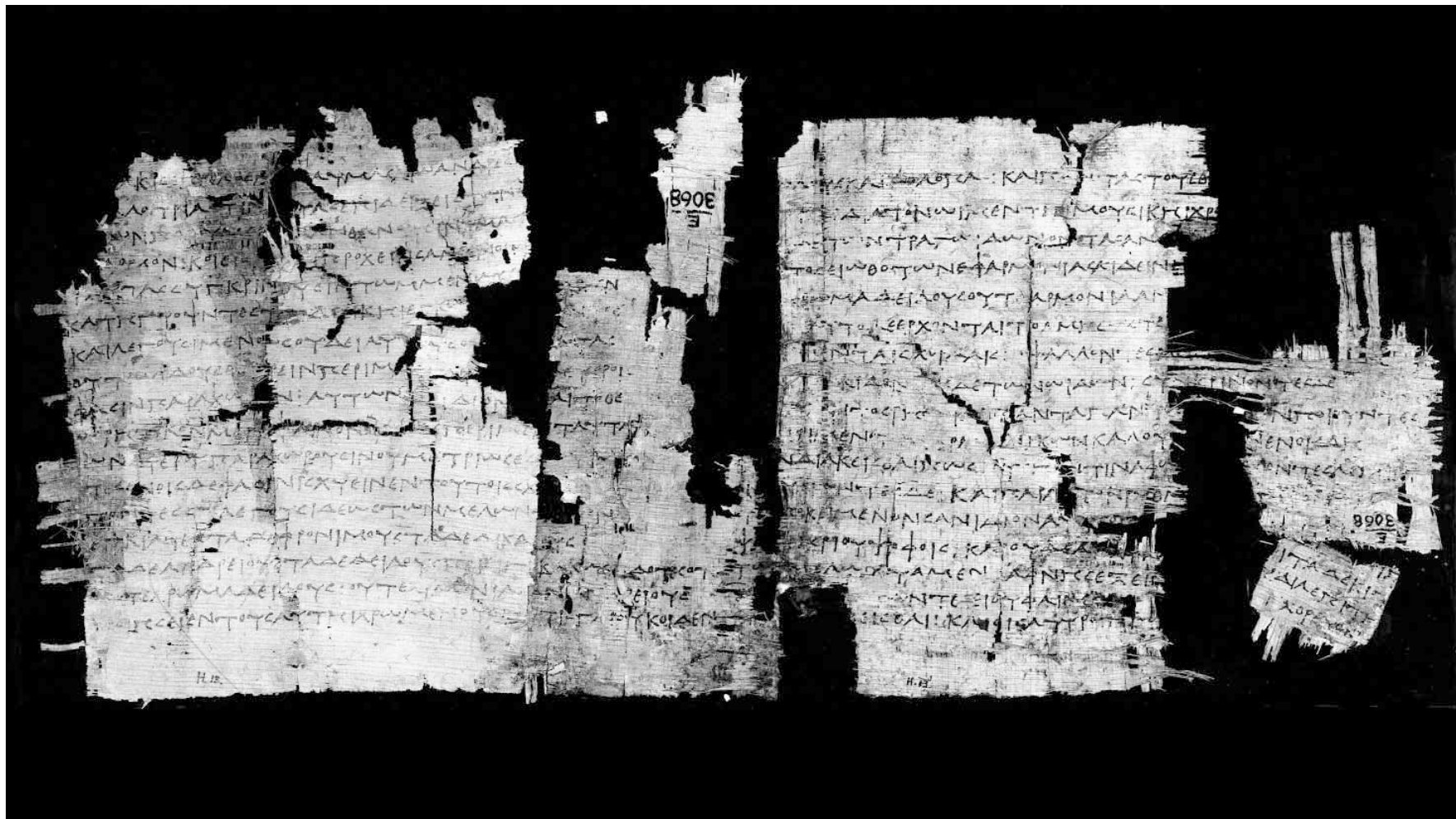
All Souls College, Oxford

M. L. West





P.Berol. 6870: musical excerpts. By permission of the Ägyptisches Museum, Berlin



P.Hibeh 13: Alcidas (?), Κατὰ τῶν ἁρμονικῶν. By permission of the University Museum, University of Pennsylvania (inv. E 3068, neg. no. S4-137225)