

ΑΡΙΣΤΟΞΕΝΟΥ ΑΡΜΟΝΙΚΩΝ ΣΤΟΙΧΕΙΩΝ ΠΡΩΤΟΝ

Meibom.

Τῆς περὶ μέλους ἐπιστήμης πολυμεροῦς οὔσης καὶ διηρη-
μένης εἰς πλείους ἰδέας μίαν τινὰ αὐτῶν | ὑπολαβεῖν δεῖ τὴν
5 ἁρμονικὴν καλουμένην εἶναι πραγματείαν, τῇ τε τάξει
πρώτην οὔσαν ἔχουσάν τε δύνάμιν στοιχειώδη. τυγχάνει
γὰρ οὔσα τῶν πρώτων θεωρητικῇ· ταῦτα δ' ἐστὶν ὅσα
10 συντείνει πρὸς τὴν τῶν συστημάτων τε καὶ τόνων θεωρίαν.
προσῆκει γὰρ μηθεὺν πορρωτέρω τούτων ἀξιοῦν παρὰ τοῦ τὴν
ἐξηρημένην ἔχοντος ἐπιστήμην. τέλος γὰρ τοῦτό ἐστι τῆς |
πραγματείας ταύτης. τὰ δ' ἀνωτέ||ρον ὅσα θεωρεῖται χρωμένης
ἤδη τῆς ποιητικῆς τοῖς τε συστήμασι καὶ τοῖς τόνοις οὐκέτι
2 ταύτης ἐστίν, ἀλλὰ τῆς ταύτης τε καὶ τὰς ἄλλας περι-
εχούσης | ἐπιστήμης δι' ὧν πάντα θεωρεῖται τὰ κατὰ μουσι-
15 κήν. αὕτη δ' ἐστὶν ἡ τοῦ μουσικοῦ ἑξίς.

Τοὺς μὲν οὖν ἔμπροσθεν (ἡμμένους τῆς ἁρμονικῆς πρα-
γματείας συμβέβηκεν ὡς ἀληθῶς) ἁρμονικοὺς εἶναι βούλεσθαι
μόνον, αὐτῆς γὰρ τῆς ἁρμονίας ἤπτοντο μόνον, τῶν | δ' ἄλλων
20 γενῶν οὐδεμίαν πώποτ' ἔννοιαν εἶχον. σημεῖον δέ· τὰ γὰρ
διαγράμματα αὐτοῖς τῶν ἐναρμονίων ἔκκειται μόνον συστη-

De variis Titulorum lectionibus vid. Intr. B § 3 7 τῶν πρώτων
θεωρητικῇ Westphal : πρώτη τῶν θεωρητικῶν codd. 8 τόνων] τῶν
Mx 9 παρὰ τοῦ R : παρ' αὐτοῦ τοῦ VBS : παρ' αὐτοῦ Ma, sed add.
τοῦ Mx 14 τὰ add. Mx : τὴν (α suprascr.) B 17 ἡμμένους
... ἀληθῶς restituit Westphal ex Procli Comm. in Plat. Timaeum (ed.
Basil. 1534) p. 192, ll. 1, 2 20 ἔχων Ma : corr. Mb 21 αὐτοῖς]
αὐτῆς S ἐναρμονίων Marquard : ἁρμονικῶν H : ἁρμονιῶν rell.

μάτων, διατόνων δ' ἡ χρωματικῶν οὐδεὶς πώποθ' ἐώρακεν. |
 15 Καί τοι τὰ διαγράμματα γ' αὐτῶν ἐδήλουν τὴν πᾶσαν τῆς
 μελωδίας τάξιν, ἐν οἷς περὶ συστημάτων ὀκταχόρδων ἑναρ-
 μονίων μόνον ἔλεγον· περὶ δὲ τῶν ἄλλων μεγεθῶν τε καὶ
 20 σχημάτων (τῶν) ἐν αὐτῷ | τε τῷ γένει τούτῳ καὶ τοῖς λοιποῖς 5
 οὐδ' ἐπεχειρεῖ οὐδεὶς καταμανθάνειν, ἀλλ' ἀποτεμνόμενοι τῆς
 ὅλης μελωδίας τοῦ τρίτου μέρους ἐν τι [γένος] μέγεθος [δέ],
 25 τὸ διὰ πασῶν, περὶ τούτου πᾶσαν πεποίηται πραγματεῖαν.
 ὅτι δ' οὐδένα πεπραγμάτευνται τρόπον οὐδὲ περὶ αὐτῶν
 τούτων ὦν ἡμέμνοι τυγχάνουσι σχεδὸν μὲν ἡμῖν γεγένηται 10
 30 φανερόν ἐν τοῖς ἔμπροσθεν ὅτε ἐπεσκοποῦμεν τὰς | τῶν
 ἁρμονικῶν δόξας, οὐ μὴν ἀλλ' ἔτι μᾶλλον νῦν ἔσται ἐνσύν-
 οπτον διεξιόντων ἡμῶν τὰ μέρη τῆς πραγματείας ὅσα ἐστὶ
 καὶ ἦντινα ἕκαστον αὐτῶν δύναμιν ἔχει· τῶν μὲν γὰρ ὅλως
 3 οὐδ' ἡμ||μένους εὐρήσομεν αὐτοὺς τῶν δ' οὐχ ἱκανῶς. ὥσθ' 15
 ἅμα τοῦτό τε φανερόν ἔσται καὶ τὸν τύπον κατοφύμεθα τῆς
 πραγματείας ἥτις ποτ' ἐστίν.
 5 Πρῶτον μὲν οὖν ἀπάντων τὴν τῆς φωνῆς κίνησιν
 διοριστέον τῷ μέλλοντι πραγματεύεσθαι περὶ μέλους αὐτὴν
 τὴν κατὰ τόπον. οὐ γὰρ εἰς τρόπος αὐτῆς ὦν τυγχάνει· 20
 10 κινεῖται μὲν γὰρ καὶ | διαλεγομένων ἡμῶν καὶ μελωδούντων
 τὴν εἰρημένην κίνησιν, ὃξὺ γὰρ καὶ βαρὺ δῆλον ὥς ἐν
 ἀμφοτέροις τούτοις ἔνεστιν—αὕτη δ' ἐστὶν ἡ κατὰ τόπον

1 διάτονον δὲ ἡ χρωματικὸν corr. ex -ων δὲ ἡ -κῶν S 2 ἐδήλω S
 3 ἑναρμονίων Marquard : ἁρμονικῶν H : ἁρμονιῶν rell. 4 ἔλεγεν R
 μεγεθῶν conieci: γενῶν codd. 5 τῶν post σχημάτων addidi
 τε om. R 6 οὐδεὶς ante οὐδ' ponunt BR ἐπεχειρεῖ BV (ex
 ἐπιχ.): ἐπιεχειρεῖ A: ἐπιχειρεῖ rell. 7 γένος et δέ seclusi
 8 πεποίηκε R πραγματεῖαν B 9 ὅτε (i suprascr.) B δ' om.
 M Vb S οὐδὲ ἕνα S πεπραγμάτευνται BV (ν fortasse postea
 additum): πεπραγμάτευνται rell. οὐδὲ] ὃ δὲ H 11 ὅτι (ε
 suprascr.) B ἐσκοποῦμεν H: ἐπισκοποῦμεν R 12 οὐ μὴν ἀλλ' R
 14 ἕκαστον] στ Mb e corr. 16 ἡμῖν post φανερόν add. B, rubra
 lineā subscr. R ἔστω R 17 ἐστίν] deinde lac. 3 litt. M
 19 μέλλον τι M αὐτὴν om. H 20 τὴν supra lineam S
 23 ἔνεστιν BR: ἐστίν rell. ἡ B

καθ' ἣν ὀξύ τε καὶ βαρὺ γίγνεται—ἀλλ' οὐ | ταῦτόν εἶδος 15
 τῆς κινήσεως ἐκατέρας ἐστίν. ἐπιμελὲς δ' οὐδενὶ πώποτε
 γεγένηται περὶ τούτου διορίσαι τίς ἐκατέρας αὐτῶν ἢ διαφορά·
 καὶ τοι τούτου μὴ διορισθέντος οὐ πάνν ῥάδιον εἰπεῖν | περὶ 20
 5 φθόγγου τί ποτ' ἐστίν. ἀναγκαῖον δὲ τὸν βουλόμενον μὴ
 πάσχειν ὅπερ Λάσος τε καὶ τῶν Ἐπιγονείων τωὲς ἔπαθον,
 πλάτος αὐτὸν οἰηθέντες ἔχειν, εἰπεῖν περὶ αὐτοῦ μικρὸν
 ἀκριβέστερον. τούτου | γὰρ διορισθέντος περὶ πολλὰ τῶν 25
 ἔπειτα μᾶλλον ἔσται σαφῶς (λέγειν). Ἀναγκαῖον δ' εἰς τὴν
 10 τούτων ξύνεσιν πρὸς τοῖς εἰρημένοις περὶ τ' ἀνέσεως καὶ
 ἐπιτάσεως καὶ βαρύτητος καὶ ὀξύτητος καὶ τά|σεως 30
 εἰπεῖν τί ποτ' ἀλλήλων διαφέρουσιν. οὐδεὶς γὰρ οὐδὲν περὶ
 τούτων εἴρηκεν, ἀλλὰ τὰ μὲν αὐτῶν ὅλως οὐδὲ νενόηται τὰ
 δὲ συγκεχυμένως. Μετὰ ταῦτα δὲ περὶ τῆς τοῦ βαρέος
 15 τε καὶ ὀξέος διαστά||σεως λεκτέον πότερον εἰς ἄπειρον 4
 αὔξησιν τε καὶ ἐλάττωσιν ἔχει ἢ οὐ ἢ πῇ μὲν πῇ δ' οὐ.
 Τούτων δὲ διορισμένων περὶ διαστήματος καθόλου λε-
 κτέον ἔπειτα διαιρετέον ὡσαύτως δύναται διαιρεῖσθαι, εἴτα 5
 20 περὶ συστήματος· καθόλου δὲ διελθόντα λεκτέον εἰς ὅσας
 πλείους ἐκείνου διαιρέσεις. Εἴτα περὶ μέλους ὑποδη-
 λωτέον καὶ τυπωτέον οἶαν ἔχει | φύσιν τὸ κατὰ μουσικὴν, 10
 ἐπειδὴ πλείους εἰσὶ φύσεις μέλους, μία δ' ἐστὶ τις ἐκ πασῶν
 αὐτοῦ ἢ τοῦ ἡρμοσμένου καὶ μελωδουμένου. διὰ τὴν ἐπα-

1 οὗτ' αὐτὸ H : ταυτὸ M, sed postea una litt. eras. 2 τῆς] τῆς
 τῆς S ἐπιμελὲς conieci : ἐπιμελῶς codd. 3 γεγένηται ex δὲ.
 γένηται B τίς] τῆς B ἢ om. S 4 μὴδὲ διορισθέντος R
 post διορισθέντος lac. 7 litt. M ; lac. 8-9 syllabb. R de B ita scripsit
 Marquard 'alinea B quod alibi nusquam fit' ; quod non intellego
 6 Λάσος (sic) M, sed acut. ab alia manu : Λαῦσος R : ὁ Λάσος H : Λάσος
 rell. Ἐπιγονείων BVS : Ἐπιγονείων sed εἰ e corr. M ἔπασχον
 R 9 σαφὲς Meibom λέγειν addidi 13 οὐδὲ νοεῖται MS :
 οὐδ' ἐννοεῖται BR 14 συγκεχυμένως Marquard : συγκεχυμένα
 codd. 15 διατάσεως BSR 17 δὲ om. VS λεκτέον
 conieci : δίκαιον codd. : post δίκαιον add. εἰπεῖν H 19 ante
 συστήματος add. τοῦ VbB διελθόντα Marquard : διελόντα codd.
 20 μέλους ex μέρους corr. M

15 γωγὴν δὲ τὴν ἐπὶ τοῦτο γιγνομένην κατὰ τὸν χωρισμὸν τὸν
 ἀπὸ τῶν ἄλλων ἀναγκαῖόν πως καὶ τῶν ἄλλων ἐπαφᾶσθαι
 φύσεων. Ἀφορισθέντος δὲ τοῦ μουσικοῦ μέλους οὕτως ὥς
 ἐνδέχεται μηδέπω τῶν καθ' ἕκαστα τεθεωρημένων ἀλλ' ὥς ἐν
 20 τύπῳ καὶ περιγραφῇ, διαιρετέον τὸ καθόλου καὶ μεριστέον 5
 εἰς ὅσα φαίνεται γένη διαιρεῖσθαι. Μετὰ τοῦτο δὲ λεκτέον
 περί τε συνεχείας καὶ τοῦ ἐξῆς τί ποτ' ἐστὶν ἐν τοῖς
 25 συστήμασι καὶ πῶς ἐγγιγνόμενον.
 Εἴτ' ἀποδοτέον τὰς τῶν γενῶν διαφορὰς [αὐτῆς] τὰς
 ἐν τοῖς κινουμένοις τῶν φθόγγων, ἀποδοτέον δὲ καὶ τοὺς 10
 τόπους ἐν οἷς κινοῦνται. τούτων δ' οὐδεὶς περὶ οὐδενὸς
 30 πώποτ' ἔσχηκεν ἐννοίαν οὐδ' ἡντινοῦν, ἀλλὰ περὶ πάντων τῶν
 εἰρημένων αὐτοῖς ἡμῖν ἀναγκαῖον ἐξ ἀρχῆς πραγματεύεσθαι,
 παρειλήφαμεν γὰρ οὐδὲν περὶ αὐτῶν ἀξιόλογον. Μετὰ δὲ
 5 τοῦτο περὶ διαστημάτων ἀσυν||θέτων πρῶτον λεκτέον, 15
 εἴτα περὶ συνθέτων. ἀναγκαῖον δὲ ἀπτομένοις ἡμῖν συνθέ-
 των διαστημάτων οἷς ἅμα καὶ συστήμασιν εἶναι πῶς συμ-
 5 βαίνει περὶ | συνθέσεως ἔχειν τι λέγειν τῆς τῶν ἀσυνθέτων
 διαστημάτων. περὶ ἧς οἱ πλείστοι τῶν ἀρμονικῶν οὐδ' ὅτι
 πραγματευτέον ᾗσθοντο· δῆλον δ' ἡμῖν ἐν τοῖς ἔμπροσθεν 20
 10 γέγονεν. οἱ δὲ περὶ Ἑρατοκλέα τοσοῦτον εἰρήκασι μόνον
 ὅτι ἀπὸ τοῦ διὰ τεττάρων ἐφ' ἑκάτερα δίχα σχίζεται τὸ
 μέλος, οὐδὲν οὐτ' εἰ ἀπὸ παντὸς τοῦτο γίγνεται διορίσαντες
 15 οὔτε διὰ τίνα αἰτίαν εἰπόντες οὐθ' ὑπὲρ τῶν ἀλλ|λων διαστη-
 μάτων ἐπισκεψάμενοι τίνα πρὸς ἄλληλα συντίθενται τρόπον, 25
 καὶ πότερον παντὸς διαστήματος πρὸς πᾶν ὠρισμένος τίς
 20 ἐστι λόγος τῆς συνθέσεως καὶ πῶς μὲν ἐξ αὐτῶν πῶς | δ'

1 δὲ om. Va : add. Vb τοῦτο γενομένην BR : τούτῳ γιγνομένην
 rell. κατὰ τὸν S : καὶ τὸν rell. 6 γένη Meibom : μέρη codd.
 9 αὐτῆς seclusi : αὐτὰς Westphal : αὐτῆς ante διαφορὰς ponit H
 10 δὲ om. S 11 δ' om. B 12 ἡντινοῦν Ma Vb BR, S linea
 subducta : accent. acut. supra ἦν et α supra τιν add. Mc 18 τι |
 τε R 21 ἐργατοκλέα V 22 δίχα σχίζεται] διαιρεῖται H
 23 οὐδὲ εἰ H 25 εἰ τινα S

οὐ γίνεταί συστήματα ἢ (εἰ) τοῦτο ἀόριστόν ἐστιν· περὶ
 γὰρ τούτων οὐτ' ἀποδεικτικὸς οὐτ' ἀναπόδεικτος ὑπ' οὐδενὸς
 πώποτ' εἴρηται λόγος. οὔσης δὲ θαυμαστῆς τῆς τάξεως
 περὶ τὴν τοῦ μέλους σύστασιν | ἀταξία πλείστη μουσικῆς 25
 5 ὑπ' ἐνίων κατέγνωσται διὰ τοὺς μετακεχειρισμένους τὴν
 εἰρημένην πραγματείαν. οὐδὲν δὲ τῶν αἰσθητῶν τοσαύτην
 ἔχει τάξιν οὐδὲ τοιαύτην. ἔσται δ' ἡμῖν δῆλον τοῦθ' | οὕτως 30
 ἔχον, ὅταν ἐν αὐτῇ γενώμεθα τῇ πραγματείᾳ. νῦν δὲ τὰ
 λοιπὰ τῶν μερῶν λεκτέον. Ἀποδειχθέντων γὰρ τῶν ἀσυν-
 10 θέτων διαστημάτων ὃν τρόπον || πρὸς ἄλληλα συντίθεται 6
 περὶ τῶν συστάντων ἐξ αὐτῶν συστημάτων λεκτέον περί
 τε τῶν ἄλλων καὶ τοῦ τελείου, ἐξ ἐκεῖνων ἀποδεικνύοντας
 πόσα ἐστὶ καὶ ποῶ | ἅττα, τὰς τε κατὰ μέγεθος αὐτῶν ἀπο- 5
 διδόντας διαφορὰς καὶ τῶν μεγεθῶν ἐκάστου τὰς τε κατὰ
 15 σύνθεσιν καὶ τὰς κατὰ [τὸ] σχῆμα διαφορὰς ὅπως μηδὲν τῶν
 μελωδουμένων μήτε μέγεθος μήτε σχῆμα μήτε | σύνθεσις 10
 [μήτε θέσις] ἀναπόδεικτος ἦ. τούτου δὲ τοῦ μέρους τῆς πρα-
 γματείας ἄλλος μὲν οὐδεὶς πώποθ' ἠψατο. Ἐρατοκλῆς δ'
 ἐπεχείρησεν ἀναποδείκτως ἐξαριθμεῖν ἐπὶ τι μέρος· ὅτι
 20 δ' οὐδὲν εἴρηκεν | ἀλλὰ πάντα ψευδῇ καὶ τῶν φαινομένων 15
 τῇ αἰσθήσει διημάρτηκε, τεθεώρηται μὲν ἔμπροσθεν ὅτ' αὐτὴν
 καθ' αὐτὴν ἐξητάζομεν τὴν πραγματείαν ταύτην. τῶν δ'
 ἄλλων καθόλου μὲν | καθάπερ ἔμπροσθεν εἵπομεν οὐδεὶς 20
 ἦπται, ἐνὸς δὲ συστήματος Ἐρατοκλῆς ἐπεχείρησε καθ' ἐν
 25 γένος ἐξαριθμῆσαι τὰ σχήματα τοῦ διὰ πασῶν ἀναποδεικτῶς

1 εἰ addidi 5 ὑπ' Meibom H : ἐπ' rell. μετακεχειρισμένους Ma
 V, B in marg. : μεταχειρισμένους R : μετακεχειρισμένους rell. 8 τῇ
 om. H 9 ἀποδειχθέντων M : ἀποδειχθέντων Mc et rell. 10 ὃν
 sed post o et ν ras. M 13 πόσα ἐστὶ plerique : πόσατ' ἐστὶ B R :
 ποῖα ἐστὶ H ποῖ' ἅττα Meursius : πόσ' ἅττα V S : πόσά ἅττα H :
 πόσ' ἅττα rell. 15 post σύνθεσιν lac. 30 fere litt. M καὶ τὰς
 κατὰ τὸ σχῆμα διαφορὰς H : om. rell. καὶ κατὰ θέσιν add. Marquard
 post σύνθεσιν 17 μήτε θέσις om. H ἀναπόδεικτον H ἦ H :
 om. rell. 18 ἐρατοκλῆς V 25 ἀναποδείκτως Monro :
 ἀποδεικτικῶς codd.

25 τῇ περιφορᾷ τῶν διαστημάτων | δεικνύς, οὐ καταμαθὼν ὅτι
 μὴ προαποδειχθέντων τῶν τε τοῦ διὰ πέντε σχημάτων καὶ
 τῶν τοῦ διὰ τεσσάρων πρὸς δὲ τούτοις καὶ τῆς συνθέσεως
 αὐτῶν τίς ποτ' ἐστὶ καθ' ἣν ἐμμελῶς συντίθενται πολλα-
 30 πλάσια τῶν ἑπτὰ συμβαίνειν γίνεσθαι δείκνυται· ἐτιθέμεθα 5
 δ' ἐν τοῖς ἔμπροσθεν ὅτι οὕτως ἔχει, διόπερ ταῦτα μὲν
 7 ἀφείσθω, τὰ δὲ λοιπὰ λεγέσθω τῶν τῆς πραγματείας με||ρῶν.
 Ἐξηριθμημένων γὰρ τῶν συστημάτων (τῶν) καθ' ἕκαστον
 τῶν γενῶν κατὰ πᾶσαν διαφορὰν τὴν εἰρημένην μιγνυμένων
 πάλιν τῶν γενῶν ταῦτο τοῦτο ποιητέον· (περὶ οὗ οἱ πλείστοι 10
 5 τῶν ἀρμονικῶν οὐκ ᾔσθοντο ὅτι) πραγματευτέον· οὐδὲ γὰρ
 αὐτὴν τὴν μίξιν τί ποτ' ἐστὶ καταμεμαθήκεσαν. Τούτων δ'
 ἐχόμενόν ἐστι περὶ φθόγγων εἰπεῖν, ἐπειδὴ περ οὐκ αὐτάρκη
 10 τὰ διαστήματα πρὸς τὴν τῶν φθόγγων διά|γνωσιν. Ἐπεὶ
 δὲ τῶν συστημάτων ἕκαστον ἐν τόπῳ τινὶ τῆς φωνῆς τεθὲν 15
 μελωδεῖται καὶ, καθ' αὐτὸ διαφορὰν οὐδεμίαν λαμβάνοντος
 αὐτοῦ, τὸ γιγνόμενον ἐν αὐτῷ μέλος οὐ τὴν τυχοῦσαν |
 15 λαμβάνει διαφορὰν ἀλλὰ σχεδὸν τὴν μεγίστην, ἀναγκαῖον
 ἂν εἴη τῷ τὴν εἰρημένην μεταχειριζομένῳ πραγματεῖαν περὶ
 τοῦ τῆς φωνῆς τόπου καθόλου καὶ κατὰ μέρος εἰπεῖν ἐφ' 20
 20 ὅσον ἐστὶ | δίκαιον· ἔστι δ' ἐπὶ τοσοῦτον ἐφ' ὅσον ἡ τῶν
 συστημάτων αὐτῶν σημαίνει φύσις. περὶ δὲ συστημάτων
 καὶ τόπων οἰκειότητος καὶ τῶν τόνων λεκτέον οὐ πρὸς τὴν

2 προαποδειχθέντων Monro: πρὸς ἀποδειχθέντων B: προσαποδειχθέν-
 των rell. τῶν τε τοῦ] τούτων M: τούτων cum τε suprascr. Mc: τοῦ
 τε m: τῶν τε BH: τε τῶν τοῦ Vb e corr., S 3 τοῦ om. H
 καὶ BR: om. rell. 5 ἐτιθέμεθα Meibom: τιθέμεθα codd.
 6 τοιαῦτα R 8 τῶν post συστημάτων addidi 9 καὶ post
 γενῶν addidit Marquard 10 ποιητέον coniecti: ποιεῖται codd.
 περὶ οὗ . . . ὅτι addidi 11 πραγματευτόν H 12 κατεμαθή-
 κεισαν H 15 τιθὲν BR 16 καθ' αὐτὸ S, ex κατ' αὐτὸ M:
 καθ' αὐτὸν rell. 17 ἐν om. H αὐτῷ] αὐτὸ H οὐ om. S
 19 εἰρημένην ex εἰρήνην Ma 20 τε post καθόλου add. H καὶ
 om. R 21 ἐστὶ δίκαιον . . . ἐφ' ὅσον om. R ἐπὶ om. H ἡ
 τῶν συστημάτων in ras. Ma 22 διασημαίνει B sed in marg. ση-
 μαίνει ἢ ante φύσις add. H τῆς τῶν post δὲ add. H 23 ὁμοίό-
 τητος H

καταπύκνωσιν βλέποντας καθάπερ | οἱ ἁρμονικοὶ ἀλλὰ τὴν 25
 πρὸς ἄλληλα μελωδίαν τῶν συστημάτων οἷς ἐπὶ τίνων τόνων
 κειμένοις μελωδεῖσθαι συμβαίνει πρὸς ἄλληλα. περὶ τούτου
 δὲ τοῦ μέρους (ὅτι) ἐπὶ βραχὺ τῶν ἁρμονικῶν ἐνίοις | συμβέ- 30
 5 βηκεν εἰρηκέναι κατὰ τύχην, οὐ περὶ τούτου λέγουσιν ἀλλὰ
 καταπυκνῶσαι βουλομένοις τὸ διάγραμμα, καθόλου δὲ οὐδενὶ
 σχεδὸν ἐν τοῖς ἔμπροσθεν φανερόν γεγένηται τοῦθ' ἡμῖν.
 ἔστι δ' ὥς εἰπεῖν καθόλου τὸ μέρος || τοῦτο τῆς περὶ μετα- 8
 βολῆς πραγματείας τὸ συντεῖνουν εἰς τὴν περὶ μέλους
 10 θεωρίαν.

Τὰ μὲν οὖν τῆς ἁρμονικῆς καλουμένης ἐπιστήμης μέρη 5
 ταῦτά τε καὶ τοσαῦτά ἐστι, τὰς δ' ἄνωτέρω τούτων πρα-
 γματείας ἥπερ εἵπομεν ἀρχόμενοι τελειότερου τινὸς ὑπολη-
 πτέον εἶναι· | περὶ μὲν οὖν ἐκείνων ἐν τοῖς καθήκουσι καιροῖς 10
 15 λεκτέον τίνες τ' εἰσὶ καὶ πόσαι καὶ ποία τις ἐκάστη αὐτῶν,
 περὶ δὲ τῆς πρώτης νῦν πειρατέον διελθεῖν.

Πρῶτον μὲν οὖν ἀπάντων αὐτῆς τῆς κατὰ τόπον κι-
 νήσεως τὰς διαφορὰς | θεωρῆσαι τίνες εἰσὶ πειρατέον. 15
 πάσης δὲ φωνῆς δυναμένης κινεῖσθαι τὸν εἰρημένον αὐτὸν
 20 τρόπον δύο τινές εἰσιν ἰδέαι κινήσεως, ἥ τε συνεχῆς καὶ ἡ
 διαστηματική. κατὰ μὲν οὖν τὴν συνεχῆ τό|πον τινὰ διε- 20
 ξιέναι φαίνεται ἡ φωνὴ τῇ αἰσθήσει οὕτως ὥς ἂν μηδαμοῦ
 ἰσταμένη μηδ' ἐπ' αὐτῶν τῶν περάτων κατὰ γε τὴν τῆς
 αἰσθήσεως φαντασίαν, ἀλλὰ φερομένη συνεχῶς μέχρι σιω-
 25 πῆς, κατὰ δὲ τὴν ἐτέραν ἣν ὀνομάζομεν διαστηματικὴν 25

1 κατὰ πύκνωσιν B τὴν πρὸς] πρὸς τὴν H 2 τίνων conieci:
 om. H: τῶν rell. 4 ἐνίοις Westphal: ἐνίους codd. ὅτι addidi
 6 περὶ δὲ τοῦ ante καθόλου, ὡς post σχεδὸν add. Marquard οὐδενὶ
 Marquard: οὐδεὶ B R: οὐδεὶς rell. 7 φανερόν H B R: φανερώς
 M V S, in marg. B γεγένηται M V S, in marg. B: πεποίηκε H:
 πεπίγναι supra lin. Mc: πεποίηται B R 12 ἄνωτέρω (as suprascr.)
 B 13 ἥπερ Westphal: εἵπερ codd.: ἐπέπερ Marquard τελειο-
 τέρου B R: τελειωτέρου rell. 15 τ' om. R 19 τὸν εἰρημένον
 Meibom: τῶν εἰρημένων codd. 20 ἰδία (ε supra i secundum
 script.) B 21 τὴν ex τὸν M x: τὸν V B S 25 ἐτέραν] post
 ρ ras. M

ἐναντίως φαίνεται κινεῖσθαι· διαβαίνουσα γὰρ ἴστησιν αὐτὴν
ἐπὶ μιᾷ τάσεως εἶτα πάλιν ἐφ' ἑτέρας καὶ τοῦτο ποιούσα
30 συνεχῶς—λέγω δὲ | συνεχῶς κατὰ τὸν χρόνον—ὑπερβαί-
νουσα μὲν τοὺς περιεχομένους ὑπὸ τῶν τάσεων τόπους,
ἵσταμένη δ' ἐπ' αὐτῶν τῶν τάσεων καὶ φθεγγομένη ταύ- 5
9 τας μόνον αὐτὰς μελῳδεῖν λέγεται καὶ κινεῖ|σθαι διαστη-
ματικὴν κίνησιν. Δηπτόον δὲ ἐκάτερον τούτων κατὰ τὴν
τῆς αἰσθήσεως φαντασίαν· πρότερον μὲν γὰρ δυνατόν ἢ
5 ἀδύνατον φωνὴν κινεῖσθαι καὶ πάλιν | ἵστασθαι αὐτὴν ἐπὶ
μιᾷ τάσεως ἑτέρας ἐστὶ σκέψεως καὶ πρὸς τὴν ἐνεστῶσαν 10
πραγματεῖαν οὐκ ἀναγκαῖον †τὸ δὲ κινῆσαι τούτων ἐκάτερον†
10 ὁποτέρως γὰρ ἔχει, τὸ αὐτὸ ποιεῖ πρὸς γε τὸ χω|ρίσαι τὴν
ἐμμελὴ κίνησιν τῆς φωνῆς ἀπὸ τῶν ἄλλων κινήσεων.
Ἀπλῶς γὰρ ὅταν μὲν οὕτω κινῆται ἡ φωνὴ ὥστε μηδαμοῦ
δοκεῖν ἵστασθαι τῇ ἀκοῇ, συνεχῇ λέγομεν ταύτην τὴν κίνη- 15
15 σιν· ὅταν | δὲ στήναί πον δόξασα εἶτα πάλιν διαβαίνειν
τινὰ τόπον φωνῇ καὶ τοῦτο ποιήσασα πάλιν ἐφ' ἑτέρας
τάσεως στήναι δόξῃ καὶ τοῦτο ἐναλλαξ ποιεῖν φαινομένη
20 συνεχῶς διατελῇ, δια|στηματικὴν τὴν τοιαύτην κίνησιν λέ-
γομεν. Τὴν μὲν οὖν συνεχῇ λογικὴν εἶναι φάμεν, διαλε- 20
γομένων γὰρ ἡμῶν οὕτως ἡ φωνὴ κινεῖται κατὰ τόπον ὥστε
25 μηδαμοῦ δοκεῖν ἵστασθαι. Κατὰ δὲ | τὴν ἑτέραν ἣν ὀνομά-
ζομεν διαστηματικὴν ἐναντίως πέφυκε γίνεσθαι· ἀλλὰ γὰρ
ἵστασθαι τε δοκεῖ καὶ πάντες τὸν τοῦτο φαινόμενον ποιεῖν
30 οὐκέτι λέγειν φασὶν ἀλλ' ᾄδειν. Διό|περ ἐν τῷ διαλέγεσθαι 25
φεύγομεν τὸ ἰστάναι τὴν φωνήν, ἂν μὴ διὰ πάθος ποτὲ εἰς

1 αὐτὴν Meibom : αὐτὴν codd. 2 ἐφ' ἑκατέρας B in marg.
5 ἐπ'] ἐ in ras. Mc : ὑπ' VBR 6 κατ' αὐτὰς BR, Mc (κατ' parvis
litt. supra lin. add.) 7 λοιπτόον H 9 καὶ Marquard : ἢ
codd. 11 τὸ διερευνῆσαι Meibom : τὸ διακρίναι Marquard ἐκά-
τερον om. M, supra lin. add. Mc 12 ὁποτέρως ἂν ἔχη, ἔστι πρὸς τὸ
χωρίσαι H 13 ἐχῇ B ποιεῖ Marquard : ποιεῖν codd. 14 μὲν
om. M Va κινεῖται S δοκεῖν μηδαμῇ H 15 συνεχῇ B
16 πού S post δόξασα una litt. eras. M 17 ἑτέρας] ἐ in ras. M :
ἐκατέρας VS, B in marg. 18 δόξῃ] ὁ in ras. M 23 πέφυκε]
υκε in ras. M 26 ἵστασθαι H : ἐν τῷ ἰστάναι V, B in marg., S

τοιαύτην κίνησιν ἀναγκασθῶμεν ἐλθεῖν, ἐν δὲ τῷ μελωδεῖν
 τοῦναντίον ποιούμεν, τὸ μὲν || γὰρ συνεχὲς φεύγομεν, τὸ 10
 δ' ἐστάναι τὴν φωνὴν ὡς μάλιστα διώκομεν. ὅσῳ γὰρ
 μᾶλλον ἐκάστην τῶν φωνῶν μίαν τε καὶ ἐστηκυῖαν καὶ τὴν
 5 αὐτὴν | ποιήσομεν, τοσοῦτ' φαίνεται τῇ αἰσθήσει τὸ μέλος 5
 ἀκριβέστερον. Ὅτι μὲν οὖν δύο κινήσεων οὐσῶν κατὰ
 τόπον τῆς φωνῆς ἡ μὲν συνεχὴς λογικὴ τίς ἐστιν ἡ δὲ
 διαστηματικὴ μελωδική, | σχεδὸν δῆλον ἐκ τῶν εἰρημένων. 10
 Φανεροῦ δ' ἄντος ὅτι δεῖ τὴν φωνὴν ἐν τῷ μελωδεῖν τὰς
 10 μὲν ἐπιτάσεις τε καὶ ἀνέσεις ἀφανεῖς ποιεῖσθαι τὰς δὲ τὰ-
 σεις αὐτὰς φθεγγομένην | φανερὰς καθιστάναι,—ἐπεὶ δὲ τὸν 15
 μὲν τοῦ διαστήματος τόπον ὃν διεξέρχεται ὅτε μὲν ἀνιεμένη
 ὅτε δ' ἐπιτειομένη λαμβάνειν αὐτὴν δεῖ διεξιούσαν, τοὺς δὲ
 ὀρίζοντας φθόγγους τὰ διαστήματα ἐναργεῖς τε καὶ ἐστηκότας 20
 5 ἀποδιδόναι—ὥστ' ἐπεὶ τοῦτ' ἔστι δῆλον λεκτέον ἂν εἴη
 περὶ ἐπιτάσεως καὶ ἀνέσεως ἔτι δ' ὀξύτητος καὶ βα-
 ρύτητος πρὸς δὲ τούτοις τάσεως. Ἡ μὲν οὖν ἐπίτασις
 ἐστι | κίνησις τῆς φωνῆς συνεχὴς ἐκ βαρυτέρου τόπου εἰς 25
 ὀξύτερον, ἡ δ' ἀνέσις ἐξ ὀξυτέρου τόπου εἰς βαρύτερον· ὀξύτης
 20 δὲ τὸ γενόμενον διὰ τῆς ἐπιτάσεως, βαρύτης δὲ τὸ γενόμενον
 διὰ τῆς ἀνέσεως. | Τάχα οὖν παράδοξον ἂν φαίνοιτο τοῖς ἐλα- 30
 φρότερον τὰ τοιαῦτα ἐπισκοποῦμένοις τὸ τιθῆναι τέτταρα
 ταῦτα καὶ μὴ δύο· σχεδὸν γὰρ οἷ γε πολλοὶ ἐπίτασιν μὲν
 ὀξύτητι ταῦτ' ὀνομάζουσιν || ἀνέσιν δὲ βαρύτητι. Ἰσως οὖν οὐ 11
 25 χεῖρον καταμαθεῖν ὅτι συγκεχυμένως πως δοξάζουσιν περὶ

1 τοιαύτην corr. ex τὴν S 2 τὸ δ' ἐστάναι . . . διώκομεν om. M,
 in marg. Mc Vb 3 μὲν post ὅσῳ add. H ἂν post γὰρ add. B R
 5 ποιήσωμεν B R 10 δεστάσεις R 11 αὐτὰς Bellermann,
 duce Anonymo (p. 49, sect. 36) : αὐτὴν codd. φθεγγομένην] λεγο-
 μένην B in marg. 14 ἐναργεῖ B 19 ἀνέσις κίνησις ἐστιν ἐκ
 τοῦ ὀξυτέρου H 20 γινομένον B R post ἐπιτάσεως add. ἀποτέ-
 λεσμα B 21 ἐλαφρότερον H : ἐλαφροτέροις rell. : ἐλαφροτέρως Mar-
 quard 22 post τέτταρα add. γὰρ M V S 23 πολλοί] π in ras. M
 24 τῇ ante ὀξύτητι add. H ταῦτ' ὀνομάζουσιν (post δ' una litt. eras.) M
 τῇ ante βαρύτητι add. H

5 αὐτῶν. Δεῖ δὲ πειρᾶσθαι κατανοεῖν εἰς αὐτὸ ἀποβλέ|ποντας
 τὸ γιγνόμενον τί ποτ' ἐστὶν ὃ ποιοῦμεν ὅταν ἀρμοττόμενοι
 τῶν χορδῶν ἐκάστην ἀνιῶμεν ἢ ἐπιτείνωμεν. Δῆλον δὲ τοῖς
 γε μὴ παντελῶς ἀπείροις ὀργάνων, ὅτι ἐπιτείνοντες μὲν εἰς |
 10 ὀξύτητα τὴν χορδὴν ἄγομεν ἀνιέντες δ' εἰς βαρύτητα· καθ' ἣν
 ὁν δὲ χρόνον) ἄγομέν τε καὶ μετακινούμεν εἰς ὀξύτητα τὴν
 χορδὴν, οὐκ ἐνδέχεται πού ἤδη εἶναι τήν γε μέλλουσάν ἔσε-
 σθαι ὀξύτητα διὰ τῆς ἐπιτάσεως. τότε γὰρ ἔσται ὀξύτης ὅταν
 τῆς ἐπιτάσεως ἀγαγούσης εἰς τὴν προσήκουσαν τάσιν στή ἢ |
 15 χορδὴ καὶ μηκέτι κινήται. τοῦτο δ' ἔσται τῆς ἐπιτάσεως ἀπηλ- 10
 λαγμένης καὶ μηκέτι οὔσης, οὐ γὰρ ἐνδέχεται κινεῖσθαι ἅμα
 20 τὴν χορδὴν καὶ ἐστάναι, ἣν δ' ἢ μὲν ἐπίτασις | κινουμένης τῆς
 χορδῆς, ἢ δ' ὀξύτης ἡρεμούσης ἤδη καὶ ἐστηκυίας. Ταῦτα δὲ
 ἐροῦμεν καὶ περὶ τῆς ἀνέσεως τε καὶ βαρύτητος πλὴν ἐπὶ τὸν
 25 ἐναντίον τόπον. Δῆλον δὲ διὰ τῶν εἰρημένων, ὅτι ἢ τ' ἀνε- 15
 σις τῆς βαρύτητος ἕτερόν τί ἐστίν, ὥς τὸ ποιοῦν τοῦ ποιου-
 μένου, ἢ τ' ἐπίτασις τῆς ὀξύτητος τὸν αὐτὸν τρόπον. Ὅτι
 30 μὲν οὖν ἕτερα ἀλλήλων | ἐστὶν ἐπίτασις μὲν ὀξύτητος ἀνέσις
 δὲ βαρύτητος σχεδὸν δῆλον ἐκ τῶν εἰρημένων, ὅτι δὲ καὶ τὸ
 τρίτον ὃ δὴ τάσιν ὀνομάζομεν ἕτερόν ἐστίν ἐκάστου τῶν εἰρη- 20
 12 μένων, || πειρατέον κατανοῆσαι. Ὁ μὲν οὖν βουλόμεθα λέγειν
 τὴν τάσιν σχεδὸν ἐστὶ τοιοῦτον οἶον μονή τις καὶ στάσις τῆς
 5 φωνῆς. Μὴ ταρρατέωσαν δ' ἡμᾶς αἱ τῶν εἰς | κινήσεις
 ἀγόντων τοὺς φθόγγους δόξαι καὶ καθόλου τὴν φωνὴν κίνησιν
 εἶναι φασκόντων, ὥς συμπεσουμένου λέγειν ἡμῖν ὅτι συμ- 25

5 ἄγομεν . . . χρόνον restituit Marquard 5, 6 ὀξύτητα τὴν χορδὴν
 ἄγομέν τε καὶ μετακινούμεν εἰς om. Ma R : in marg. add. Mb : sed
 perfol. Mc : praeterea εἰ δ' εἰς ex εἰς Mx : εἰ δ' εἰς VS, B in marg.
 7 καὶ ante οὐκ add. R γε om. B 9 τῆς om. R ἀγαγούσης
 Marquard : ἀγούσης codd. 10 κινεῖται BS 13 ante ταῦτα
 lac. 5 litt. M : ταῦτα M VBS 14 τὸν ἐναντίον τόπον B : τοῦ
 ἐναντίου τόπου R : τῶν ἐναντίων τόπων rell. 17 καὶ ἢ ἐπίτασις H
 19 δῆλον post εἰρημένων ponit H 20 τρίτον] πέμπτον Westphal
 22 καὶ στάσις] ἰ στ Vb e corr. 23 ταρρατέωσαν] ἔτωσαν in ras.
 Mb τὰς ante κινήσεις add. BR

βήσεται ποτε τῇ κινήσει μὴ κινεῖσθαι ἀλλ' ἡρεμεῖν τε καὶ
 ἐστάναι. | Διαφέρει γὰρ οὐδὲν ἡμῖν τὸ λέγειν ὁμαλότητά 10
 κινήσεως ἢ ταυτότητα τὴν τάσιν ἢ εἰ ἄλλο τι τούτων εὐρί-
 σκοιτο γνωριμώτερον ὄνομα. οὐδὲν γὰρ ἦττον ἡμεῖς τότε
 5 φήσομεν ἐστάναι τὴν φωνήν, ὅταν ἡμῖν ἡ αἰσθησις αὐτὴν 15
 ἀποφύγῃ μήτ' ἐπὶ τὸ ὀξύ μήτ' ἐπὶ τὸ βαρὺ ὀρμώσαν, οὐδὲν
 ἄλλο ποιοῦντες πλὴν τῷ τοιούτῳ πάθει τῆς φωνῆς τοῦτο τὸ
 ὄνομα τίθέμενοι. Φαίνεται δὲ τοῦτο | ποιεῖν ἐν τῷ μελωδεῖν 20
 ἢ φωνῇ· κινεῖται μὲν γὰρ ἐν τῷ διάστημά τι ποιεῖν, ἵσταται
 10 δ' ἐν τῷ φθόγγῳ. Εἰ δὲ κινεῖται μὲν τὴν ὑφ' ἡμῶν λεγομένην
 κίνησιν, ἐκείνης τῆς κινήσεως τῆς ὑπ' ἐκείνων λεγομένης 25
 τὴν κατὰ τάχος διαφορὰν λαμβανούσης, ἡρεμεῖ δὲ πάλιν αὖ
 τὴν ὑφ' ἡμῶν λεγομένην ἡρεμίαν, στάντος τοῦ τάχους καὶ
 λαβόντος μίαν τινα καὶ τὴν αὐτὴν ἀγωγὴν, οὐδὲν ἂν ἡμῖν
 15 διαφέρει. | σχεδὸν γὰρ δῆλόν ἐστιν ὅτι ἡμεῖς λέγομεν κίνησιν 30
 τε καὶ ἡρεμίαν φωνῆς [καὶ] ὃ ἐκείνοι κίνησιν. Ταῦτα μὲν
 οὖν ἐνταῦθα ἱκανῶς, ἐν ἄλλοις δὲ ἐπιπλείον τε καὶ σαφέ-
 στερον διώρισται. Ἡ δὲ || τάσις ὅτι μὲν οὗτ' ἐπίτασις οὗτ' 13
 ἀνεσίς ἐστι παντελῶς δῆλον,—τὴν μὲν γὰρ εἶναί φαμεν
 20 ἡρεμίαν φωνῆς, τὰς δ' ἐν τοῖς ἔμπροσθεν εὑρομεν οὕσας
 κινήσεις τινάς,—ὅτι δὲ καὶ τῶν λοιπῶν, τῆς βαρύτητος καὶ 5
 τῆς ὀξύτητος, ἕτερόν ἐστιν ἡ τάσις πειρατέον κατανοῆσαι.
 Ὅτι μὲν οὖν ἡρεμεῖν συμβαίνει τῇ φωνῇ καὶ εἰς βαρύτητα
 καὶ εἰς ὀξύτητα | ἀφικομένη, δῆλον ἐκ τῶν ἔμπροσθεν· ὅτι 10
 25 δὲ καὶ τῆς τάσεως ἡρεμίας τινὸς τεθείσης οὐδὲν μᾶλλον
 ἐκείνων ἑκατέρᾳ ταῦτόν τάσις ἐστίν, ἐκ τῶν ῥηθησομένων

3 εἰ om. R εὐρίσκοι τὸ B R 5 αὐτὴν S : αὐτὸ R : αὐτὴ
 rell. 7 ποιοῦντες ex ποιοῦντας Mx τοῦτο τὸ ὄνομα τίθεμ. ex
 τοῦτω τῷ (ut vid.) ὀνόματι θέμ. Mb 9 γὰρ om. H διαστήματι S
 12 τὴν] τῆς M post ἡρεμεῖ ras. M αὐτὴν ex αὐτὴν Mb : αὐ
 om. H 15 ὅτι conieci : ὃ θ' codd. ἡμεῖς ex ἱμεῖς Vb 16 καὶ
 seclusi 18 ἢ ex τὴν (ut vid.) in ras. Mb δὲ Bellermann : τε
 codd. τάσις ex τάσιν Mb 23 ἡρεμεῖν] εἶν in ras. Mx
 24 ἀφικομένη Vb, ἀφικο in ras. Mx : ἀφικνουμένη Va B S : ἀφικνουμένη R
 26 ἑκατέρᾳ conieci : ἑκατέρων codd.

15 ἔσται φανερόν. Δεῖ δὴ καταμανθάνειν | ὅτι τὸ μὲν ἐστάναι
τὴν φωνὴν τὸ μένειν ἐπὶ μιᾶς τάσεώς ἐστι. συμβήσεται
δ' αὐτῇ τοῦτο, ἐάν τ' ἐπὶ βαρύτητος ἐάν τ' ἐπ' ὀξύτητος
ιστῇται. Εἰ δ' ἡ μὲν τάσις ἐν ἀμφοτέροις ὑπάρξει—καὶ
20 γὰρ ἐπὶ | τῶν βαρέων καὶ ἐπὶ τῶν ὀξέων τὸ ἴστασθαι τὴν 5
φωνὴν ἀναγκαῖον ἦν—, ἡ δ' ὀξύτης μηδέποτε τῇ βαρύτητι
συνυπάρξει μηδ' ἡ βαρύτης τῇ ὀξύτητι, δῆλον ὥς ἑτερόν
25 ἐστὶν ἐκατέρου τούτων ἡ τάσις ὡς | [μηδὲν] κοινὸν γιγνό-
μενον ἐν ἀμφοτέροις. Ὅτι μὲν οὖν πέντε ταῦτ' ἐστὶν
ἀλλήλων ἕτερα, τάσις τε καὶ ὀξύτης καὶ βαρύτης πρὸς δὲ 10
30 τούτοις ἀνεσίς τε καὶ ἐπίτασις, σχεδὸν δῆλον ἐκ τῶν | εἰρη-
μένων.

Τούτων δ' ὄντων γνωρίμων ἐχόμενον ἂν εἴη διελθεῖν περὶ
τῆς τοῦ βαρέος τε καὶ ὀξέος διαστάσεως, πότερον
14 ἄπειρος ἐφ' ἐκάτερά ἐστιν ἢ πε||περασμένη. Ὅτι μὲν οὖν 15
εἷς γε τὴν φωνὴν τιθεμένη οὐκ ἔστιν ἄπειρος, οὐ χαλεπὸν
συνιδεῖν. ἀπάσης γὰρ φωνῆς ὀργανικῆς τε καὶ ἀνθρωπικῆς
5 ὠρι|σμένος ἐστί τις τόπος ὃν διεξέρχεται μελωδοῦσα ὃ τε
μέγιστος καὶ ὁ ἐλάχιστος. οὔτε γὰρ ἐπὶ τὸ μέγα δύναται
ἡ φωνὴ εἰς ἄπειρον αὔξειν τὴν τοῦ βαρέος τε καὶ ὀξέος 20
10 διάστασιν οὔτ' ἐπὶ | τὸ μικρὸν συνάγειν, ἀλλ' ἴσταται ποτε
ἐφ' ἐκάτερα. Διοριστέον οὖν ἐκάτερον αὐτῶν πρὸς δύο
ποιουμένους τὴν ἀναφοράν, πρὸς τε τὸ φθεγγόμενον καὶ τὸ
15 κρίνον· ταῦτα δ' ἐστὶν ἢ τε φωνὴ καὶ ἡ | ἀκοή. ὃ γὰρ
ἀδυνατοῦσιν αὐται ἡ μὲν ποιεῖν ἡ δὲ κρίνειν, τοῦτ' ἕξω 25

2 μέλλον B 3 ἐπ' in ras., erat ἀπ' Ma 4 ἴσσηται M B S :
ιστῇται Mc Vb R εἰ δ' ἡ μὲν] ἡ δὲ sed ras. post δὲ M : ἡ δ' εἰ μὲν
Vb : ἡ δ' εἰ μὲν B in marg. : ἡ δ' ἡ μὲν S 8 μηδὲν del. Marquard,
recte 14 διαστάσεως M (?) B : διατάσεως V S R, B in marg.
15 ἐκάτερά Meibom : ἐκατέρας codd. ἡ ex ἡ Mb : ἡ B 16 γε
conieci : om. H : τε rell. 18 τόπος Meursius : τόνος codd.
20 ἡ ante εἷς add. S 21 διάστασιν] σ ante τ eras. M : διάτασιν
rell. ἴστασθαι B R 23 διαφορὰν R πρὸς post καὶ add. H
24 δ' om. B 25 ποιεῖν] εἶν in ras. Mb ἕξω Bellermann :
ἕξωθεν codd.

θετέον τῆς τε χρησίμου καὶ δυνατῆς ἐν φωνῇ γενέσθαι δια-
 στάσεως. Ἐπὶ μὲν οὖν τὸ μικρὸν ἅμα πως εἰκόσιν ἢ τε
 φωνὴ καὶ | ἢ αἴσθησις ἐξαδυνατεῖν· οὔτε γὰρ ἢ φωνὴ διέ- 20
 σεως τῆς ἐλαχίστης ἐλαττον ἐτι διάστημα δύναται διασαφεῖν
 5 οὐδ' ἢ ἀκοὴ διαισθάνεσθαι ὥστε καὶ ξυνιέναι τί μέρος ἐστί
 διέσεως εἴτ' ἄλλον τιτὸς τῶν γνωρίμων διαστημάτων. | Ἐπὶ 25
 δὲ τὸ μέγα τάχ' ἂν δόξειεν ὑπερτείνειν ἢ ἀκοὴ τὴν φωνὴν
 οὐ μέντοι γε πολλῶ τι. Ἄλλ' οὖν εἴτ' ἐπ' ἀμφοτέρα δεῖ
 ταῦτὸν λαμβάνειν | πέρας τῆς διαστάσεως, εἰς τε τὴν φωνὴν 30
 10 καὶ τὴν ἀκοὴν βλέποντας, εἴτ' ἐπὶ μὲν τὸ ἐλάχιστον ταῦτον
 ἐπὶ δὲ τὸ μέγιστον ἕτερον· ἔσται τι μέγιστον καὶ ἐλάχιστον
 μέγεθος τῆς διαστά||σεως ἥτοι κοινὸν τοῦ φθεγγομένου καὶ 15
 τοῦ κρίνοντος ἢ ἰδίου ἐκατέρου. Ὅτι μὲν οὖν εἰς τε τὴν
 φωνὴν καὶ τὴν ἀκοὴν τεθεῖσα ἢ τοῦ βαρέος τε καὶ ὀξέος
 15 δι|άστασις οὐκ εἰς ἄπειρον ἐφ' ἐκάτερα κινήσεται, σχεδὸν 5
 δῆλον. εἰ δ' αὐτὴ καθ' αὐτὴν νοηθεῖ ἢ τοῦ μέλους σύ-
 στασις, τὴν αὐξήσιν εἰς ἄπειρον γίνεσθαι (εἰ) συμβήσεται
 τάχ' ἂν ἄλλος εἴη περὶ τούτων | λόγος, οὐκ ἀναγκαῖος εἰς τὸ 10
 παρὸν, διόπερ ἐν τοῖς ἔπειτα τοῦτ' ἐπισκέψασθαι πειρατέον.
 20 Τούτου δ' ὄντος γνωρίμον λεκτέον περὶ φθόγγου τί
 ποτ' ἐστί. | Συντόμως μὲν οὖν εἰπεῖν φωνῆς πτώσις ἐπὶ μίαν 15
 τάσιν ὁ φθόγγος ἐστί· τότε γὰρ φαίνεται φθόγγος εἶναι
 τοιοῦτος οἷος εἰς μέλος τάττεσθαι | ἡρμοσμένον, (ὅταν ἢ 20
 φωνὴ φανῇ) ἐστάναι ἐπὶ μιᾷ τάσεως. Ὁ μὲν οὖν φθόγγος
 25 τοιοῦτος ἐστίν· διάστημα δ' ἐστί τὸ ὑπὸ δύο φθόγ|γων 25
 ὠρισμένον μὴ τὴν αὐτὴν τάσιν ἐχόντων. Φαίνεται γάρ, ὥς

1 διαστάσεως M (σ ante τ eras.), S, B in marg.: διατάσεως R, Vb
 fort. e corr., B 5 ἢ om. B 6 εἴτε ante διέσεως parvis litt.
 supra lin. add. Mc, in marg. B, R: om. rell. 9 διατάσεως BSR
 12 διαστάσεως] σ ante τ eras. M: διατάσεως BR 13 εἴ (σ
 suprascr.) τε B 15 εἰς] ἐπ' H 16 νοηθεῖ] ἀχθείη H 17 εἰ
 restituit Bellermann 22 ὁ om. H 23 ὅρος φθόγγου add. in marg.
 Mb Vc ἐστί τότε γὰρ φαίνεται φθόγγος add. in marg. Ma 23 ὅταν
 ἢ φωνὴ φανῇ restituit Meibom 25 ὅρος διαστήματος add. in marg.
 Mb Vc

τύπῳ εἰπεῖν, διαφορά τις εἶναι τάσεων τὸ διάστημα καὶ
τόπος δεκτικὸς φθόγγων ὀξύτερων μὲν τῆς βαρυτέρας τῶν |
30 ὀρίζουσῶν τὸ διάστημα τάσεων, βαρυτέρων δὲ τῆς ὀξύτερας·
διαφορὰ δὲ ἐστὶ τάσεων τὸ μᾶλλον ἢ ἥττον τετάσθαι. Περὶ
μὲν οὖν διαστήματος οὕτως ἂν τις ἀφορίσειε· τὸ δὲ σύ- 5
16στημα σύνθετόν τι || νοητέον ἐκ πλειόνων ἢ ἐνὸς διαστη-
μάτων. Δεῖ δ' ἕκαστον τούτων εὖ πως ἐκλαμβάνειν
πειράσθαι τὸν ἀκούοντα μὴ παρατηροῦντα τὸν ἀποδιδόμενον
5 λόγον | ἐκάστου αὐτῶν εἴτ' ἐστὶν ἀκριβῆς εἴτε καὶ τυπω-
δέστερος, ἀλλ' αὐτὸν συμπροθυμούμενον κατανοῆσαι καὶ 10
τότε οἰόμενον ἱκανῶς εἰρῆσθαι πρὸς τὸ καταμαθεῖν, ὅταν
10 ἐμβιβάσσαι οἷός τε γένηται ὁ | λόγος εἰς τὸ συνιέναι τὸ
λεγόμενον. Χαλεπὸν γὰρ ὑπὲρ πάντων μὲν ἴσως τῶν ἐν
ἀρχῇ λόγον ἀνεπίληπτόν τε καὶ διηκριβωμένην ἐρμηνείαν
15 ἔχοντα ρηθῆναι, οὐχ ἥκιστα δὲ περὶ τριῶν τούτων, | φθόγγου 15
τε καὶ διαστήματος καὶ συστήματος.

Τούτων δ' οὕτως ὠρισμένων πρῶτον μὲν τὸ διάστημα
20 πειρατέον διελεῖν εἰς ὅσας πέφυκε διαιρέσεις διαιρεῖσθαι
χρησίμους, ἔπειτα τὸ σύστημα. Πρώτη μὲν οὖν ἐστὶ
διαστημάτων διαίρεσις καθ' ἣν μεγέθει ἀλλήλων διαφέρει· 20
25 δευτέρα δὲ καθ' ἣν τὰ σύμφωνα τῶν διαφώνων· τρίτη δὲ
καθ' ἣν τὰ σύνθετα τῶν ἀσυνθέτων· τετάρτη δ' ἡ κατὰ
30 γένος· | πέμπτη δὲ καθ' ἣν διαφέρει τὰ ῥητὰ τῶν ἀλόγων.
Τὰς δὲ λοιπὰς τῶν διαιρέσεων ὡς οὐ χρησίμους οὕσας εἰς
17 ταύτην τὴνπραγματείαν ἀφετέον τὰ νῦν. || Σύστημα δὲ 25

3 ὀρίζοντων R τό τε διάστημα R 11 οἰόμενοι S εἰρεῖσθαι
S 12 ἐκβιβάσαι R γένηται] ηται in ras. Mb τὸ λεγόμενον]
τὸ : post ὁ ras. M 13 ante μὲν una litt. eras. M μὲν] εἶναι BR
τῶν] τὸ R : τὸν VBS τῶν . . . ἥκιστα δὲ om. H 14 λόγων M
15 φθόγγων R 16 συστήματος] διαστήματος BR 18 διελεῖν V S
sed εἰν Vb in ras. : διελεῖν M διαιρέσεις om. B sed in marg. add.
19 χρησίμου H ἔπειτα in ras. Vb : καὶ ἔτι in ras. Ma
20 διαιρέσεις διαστήματος deinde numeri α. β. κτέ. in marg. Mb
Vc 23 διαφέρει om. H λόγων BR : ῥητὰ τῶν ἀλόγων in
ras. Mb

συστήματος ταύταις τε διοίσει ταῖς (αὐταῖς) διαφοραῖς πλὴν
 μίας—μεγέθει τε γὰρ δῆλον ὡς διαφέρει συστήματος σύ- 5
 στημα καὶ τῷ [τε] συμφώνους ἢ διαφώνους εἶναι τοὺς ὀρίζοντας
 φθόγγους τὸ μέγεθος. τὴν δὲ τρίτην τῶν ῥηθειςῶν ἐπὶ
 5 τῶν τοῦ διαστήματος διαφορῶν ἀδύνατον ὑπάρχει | συστή- 10
 ματι πρὸς σύστημα, δῆλον γὰρ ὡς οὐκ ἐνδέχεται τὰ μὲν
 σύνθετα τὰ δ' ἀσύνθετα εἶναι τῶν συστημάτων τοῦτόν γε
 τὸν τρόπον ὅνπερ τῶν διαστημάτων τὰ μὲν ἦν σύνθετα τὰ
 δ' ἀσύνθετα. τὴν | δὲ τετάρτην—αὕτη δ' ἦν ἡ κατὰ γένος 15
 10 —ἀναγκαῖον καὶ τοῖς συστήμασιν ὑπάρχειν, τὰ μὲν γὰρ
 αὐτῶν ἐστὶ διάτονα τὰ δὲ χρωματικὰ τὰ δὲ ἐναρμόνια.
 δῆλον δ' ὅτι καὶ (τὴν) πέμπτην, τὰ μὲν | γὰρ αὐτῶν ἀλόγῳ 20
 διαστήματι ὦρισται τὰ δὲ ῥητῷ. Πρὸς δὲ ταύταις τρεῖς
 ἑτέρας προσθετέον διαιρέσεις· τὴν τ' εἰς συναφὴν καὶ διά-
 15 ζευξιν καὶ τὸ συναμφότερον μερίζουσιν τὰ συστήματα· |
 (πάν γὰρ σύστημα) ἀπὸ τινος μεγέθους ἀρξάμενον ἢ συνημ- 25
 μένον ἢ διεζευγμένον ἢ μικτὸν ἐξ ἀμφοτέρων γίνεταί (καὶ
 δείκνυται τοῦτο γιγνόμενον ἐν ἐνίοις)· ἔπειτα τὴν τ' εἰς
 ὑπερβατὸν καὶ συνεχὲς μερίζουσιν, πάν γὰρ σύστημα ἥτοι 30
 20 συνεχὲς ἢ ὑπερβατόν ἐστι, τὴν τ' εἰς ἀπλοῦν καὶ διπλοῦν
 καὶ πολλαπλοῦν διαίρεσιν, πάν || γὰρ τὸ λαμβανόμενον 18
 σύστημα ἥτοι ἀπλοῦν ἢ διπλοῦν ἢ πολλαπλοῦν ἐστίν. Τί
 δ' ἐστὶ τούτων ἕκαστον ἐν τοῖς ἔπειτα δειχθήσεται. |

Τούτων δ' οὕτως ἀφωρισμένων τε καὶ προδιηρημένων 5

I συστήματος διαιρέσεις Mb Vc in marg. ut supra αὐταῖς restituit
 Westphal : ante ταῖς ras. in qua erat ταῖς αὐ M 2 τε in ras. in
 qua erat τε δη Ma : δὲ B γὰρ H : om. rell. 3 καὶ in ras. Ma :
 om. rell. τε seclisit Marquard 4 δὲ in ras. Mb : μέντοι BR
 5 διαστήματος Vb BS : συστήματος M R 7 τὰ δ' ἀσύνθετα om. R
 εἶναι . . . τὰ δ' ἀσύνθετα om. S 9 τὸ post κατὰ add. H 12 τὴν
 restituit Marquard 13 ῥητῷ. Πρὸς δὲ om. B, sed in marg. add.
 14 ἑτέρας ante τρεῖς ponit H εἰς in ras. Mb 16 πάν γὰρ
 σύστημα restituit Marquard 17 ἢ διεζευγμένον ante ἢ συνημμένον
 ponunt codd. : ordinem restituit Marquard 18 τε post εἰς ponit
 H : ε in marg. Mb 20 καὶ διπλοῦν om. R : ζ in marg. Mb
 22 ἢ διπλοῦν om. B 23 δεχθήσεται S

περὶ μέλους ἂν εἴη ἡμῖν πειρατέον ὑποτυπῶσαι τί ποτ'
 ἐστὶν ἢ φύσις αὐτοῦ. "Οτι μὲν οὖν διαστηματικὴν ἐν αὐτῷ
 10 δεῖ τὴν τῆς φωνῆς κίνησιν εἶναι προεῖρηται, ὥστε τοῦ γε
 λογώδους κεχώρισται ταύτῃ τὸ μουσικὸν μέλος· λέγεται
 γὰρ δὴ καὶ λογῶδες τι μέλος, τὸ συγκεῖμενον ἐκ τῶν προσφ- 5
 15 διῶν τῶν ἐν τοῖς ὀνόμασιν· | φυσικὸν γὰρ τὸ ἐπιτείνειν καὶ
 ἀνιέναι ἐν τῷ διαλέγεσθαι. Ἐπεὶ δ' οὐ μόνον ἐκ διαστη-
 μάτων τε καὶ φθόγγων συνεστάναι δεῖ τὸ ἡρμοσμένον μέλος,
 20 ἀλλὰ προσδεῖται συνθέσεώς τινος ποιῶς | καὶ οὐ τῆς τυχού-
 σης—δηλὸν γὰρ ὡς τό γ' ἐκ διαστημάτων τε καὶ φθόγγων 10
 συνεστάναι κοινόν ἐστιν, ὑπάρχει γὰρ καὶ τῷ ἀναρμόστῳ—,
 ὥστ' ἐπειδὴ τοῦθ' οὕτως ἔχει, τὸ μέγιστον μέρος καὶ πλείστην
 25 | ἔχον ῥοπὴν εἰς τὴν ὀρθῶς γιγνομένην σύστασιν τοῦ μέλους
 (τὸ) περὶ τὴν σύνθεσιν καθόλου καὶ τὴν ταύτης ιδιότητα
 ὑποληπτέον εἶναι. Σχεδὸν δὴ φανερόν, ὅτι τοῦ μὲν ἐπὶ 15
 30 τῆς λέξεως γιγνομένου μέλους τῷ διαστηματικῇ χρῆσθαι τῇ
 τῆς φωνῆς κινήσει διοίσει τὸ μουσικὸν μέλος, τοῦ δ' ἀναρ-
 μόστου καὶ διημαρτημένου τῇ τῆς συνθέσεως διαφορᾷ τῆς
 19 τῶν ἀσυνθέτων || διαστημάτων, περὶ ἧς ἐν τοῖς ἔπειτα
 δειχθήσεται τίς ἐστὶν αὐτῆς ὁ τρόπος. πλὴν ἐπὶ τοσοῦτόν 20
 5 γ' εἰρήσθω καθόλου καὶ νῦν, ὅτι πολλὰς ἔχοντος δια|φορὰς
 τοῦ ἡρμοσμένου κατὰ τὴν τῶν διαστημάτων σύνθεσιν, ὅμως
 ἔστι τι τοιοῦτον ὃ κατὰ παντὸς ἡρμοσμένου ῥηθήσεται ἔν
 τε καὶ ταῦτόν, τοιαύτην ἔχον δύναμιν οἶαν αὐτὴν ἀναιρου-
 10 μένην | ἀναιρεῖν τὸ ἡρμοσμένον. ἀπλοῦν δ' ἔσται προοιούσης 25

1 περὶ μέλους in marg. Mb Vc ἐπιτυπῶσαι R 2 διαστηματικὴν
 B 3 γε] γ S 4 λέγεται . . . μέλος om. B sed in marg. add.
 5 δὴ] τί S 6 τῶν ἐν τοῖς Meursius : τὸ ἐν τοῖς codd. 7 ἐπεὶ
 δ' BR : ἔπειτα rell. 8 συνιστάναι B 9 τύχης R 13 ὀρθῶς
 . . . περὶ τὴν parvis litt. supra lin. Mc, in marg. Vb 14 τὸ restituit
 Marquard καθόλου coniecti : κάπου H : καὶ πον rell. καὶ secluserit
 Bellermann 15 ἐπὶ τῆς λέξεως Bellermann, duce Anonymo
 (p. 55) : ἐπιτηδεύς codd. 16 διαστηματικῇ χρῆσθαι Meibom :
 διαστήματι κεχρησθαι codd. 18 διημαρτημένου B 20 δ om. H
 21 εἰρήσθω S 24 ταῦτόν] ταῦτδ (post δ litt. eras.) M : ταῦτόν V :
 ταῦτδ rell. ἀναιρουμένην om. B

τῆς πραγματείας. Τὸ μὲν οὖν μουσικὸν μέλος ἀπὸ τῶν ἄλλων οὕτως ἀφωρίσθω. ὑποληπτέον δὲ τὸν εἰρημένον ἀφορισμὸν τύπῳ εἰ|ρῆσθαι οὕτως ὥς μηδέπω τῶν καθ' ἕκαστα 15 τεθεωρημένων.

5 Ἐχόμενον δ' ἂν εἴη τῶν εἰρημένων τὸ καθόλου λεγόμενον μέλος διελεῖν εἰς ὅσα φαίνεται γένη διαιρεῖσθαι. Φαίνεται | δ' εἰς τρία· πᾶν γὰρ τὸ λαμβανόμενον μέλος τῶν 20 εἰς ταῦτ' ἡρμοσμένων ἥτοι διάτονόν ἐστιν ἢ χρωματικὸν ἢ ἑναρμόνιον. Πρῶτον μὲν οὖν καὶ πρεσβύτατον αὐτῶν θετέον 10 τὸ διάτονον, πρῶτον γὰρ | αὐτοῦ ἢ τοῦ ἀνθρώπου φύσις προσ- 25 τυγχάνει, δευτέρον δὲ τὸ χρωματικόν, τρίτον δὲ καὶ ἀνώτατον τὸ ἑναρμόνιον, τελευταίῳ γὰρ αὐτῷ καὶ μόλις μετὰ πολλοῦ πόνου συνεθίζεται ἢ αἴσθησις. |

Τούτων δ' εἰς τοῦτον τὸν ἀριθμὸν διηρημένων τῶν δια- 30 15 στηματικῶν διαφορῶν τῆς δευτέρας ῥηθείσης θάτερον μέρος πειρατέον διασκέψασθαι—ἦν δὲ τὰ μέρη ταῦτα διαφωνία τε καὶ || συμφωνία—ληπτέον τε τὴν συμφωνίαν εἰς τὴν ἐπί- 20 σκεψῶ. Φαίνεται δὲ διάστημα σύμφωνον συμφώνου διαφέρειν κατὰ πλείους διαφορὰς ὧν μία | μὲν ἐστιν ἢ κατὰ 5 20 μέγεθος, περὶ ἧς ἀφοριστέον ἢ φαίνεται ἔχειν. Δοκεῖ δὲ τὸ μὲν ἐλάχιστον τῶν συμφώνων διαστημάτων ὑπ' αὐτῆς τῆς τοῦ μέλους φύσεως ἀφωρίσθαι, μελωδεῖται μὲν γὰρ | τοῦ διὰ τεσσάρων ἐλάττω διαστήματα πολλά, διάφωνα μὲν- 10 10 τοι πάντα. Τὸ μὲν οὖν ἐλάχιστον κατ' αὐτὴν τὴν τῆς φωνῆς

2 ἀφωρίσθω ex ἀφωριείσθω Ma τὸν] τὸ M (corr. Mc) 3 εἰ-
ρῆσθαι ex εἰρήσθω Mc: εἰρεῖσθαι S ἕκαστον R 6 εἰς om. S
8 ταῦτ' om. conici: τὸ codd. ἡρμοσμένων conici: ἡρμοσμένων codd.
τὸ εἰς τὸ ἡρμοσμένον Marquard 10 γὰρ Marquard: τε codd.
ἀνθρώπου] ἀνῶ S προστυγχάνει Vb R S: προτυγχάνει rell.
11 νεώτατον H 12 τὸ ἑναρμόνιον ex τὴν ἁρμονίαν Mb 14 δι-
ηρημένον B 16 σκέψασθαι R καθ' ἣν τὰ σύμφωνα τῶν
διαφώνων διαφέρει in marg. add. Mb Vc 17 ληπτέον τε] τε om. B:
δὲ S 22 ἀφωρίσθω ex ἀφωριείσθαι Mb: σ in ras. Vb μὲν
om. H 24 τὸ om. B: supra lin. add. Mb τὴν om. B: supra
lin. add. Mb

φύσιν ὥριται, τὸ δὲ μέγιστον οὕτω μὲν [οὖν] οὐκ ἔοικεν
 15 ὀρί|ξεσθαι· φαίνεται γὰρ εἰς ἄπειρον αὖξεσθαι κατὰ γ' αὐτὴν
 τὴν τοῦ μέλους φύσιν καθάπερ καὶ τὸ διάφωνον. παντὸς
 γὰρ προστιθεμένου συμφώνου διαστήματος πρὸς τῷ διὰ
 20 πασῶν | καὶ μείζονος καὶ ἐλάττονος καὶ ἴσου τὸ ὅλον γίγνε- 5
 ται σύμφωνον. Οὕτω μὲν οὖν οὐκ ἔοικεν εἶναι τι μέγιστον
 σύμφωνον διάστημα· κατὰ μέντοι τὴν ἡμετέραν χρῆσις—
 25 λέγω δ' ἡμετέραν | τὴν τε διὰ τῆς ἀνθρώπου φωνῆς γιγνο-
 μένην καὶ τὴν διὰ τῶν ὀργάνων—φαίνεται τι μέγιστον εἶναι
 τῶν συμφώνων. τοῦτο δ' ἐστὶ τὸ διὰ πέντε καὶ τὸ δις διὰ 10
 30 πασῶν, τὸ γὰρ τρις διὰ | πασῶν οὐκ ἔτι διατείνωμεν. Δεῖ
 δὲ τὴν διάστασιν ὀρίζειν ἐνός τινος ὀργάνου τόπῳ καὶ πέ-
 ρασιν. τάχα γὰρ ὁ τῶν παρθενίων αὐλῶν ὀξύτατος φθόγγος
 πρὸς τὸν τῶν ὑπερτελείων βαρύτατον μείζον ἂν ποιήσῃε
 21 τοῦ εἰρημένου τρις διὰ πασῶν || διάστημα καὶ κατασπασθείσης 15
 γε τῆς σύριγγος ὁ τοῦ συρίττοντος ὀξύτατος πρὸς τὸν τοῦ αὐ-
 λούντος βαρύτατον μείζον ἂν ποιήσῃε τοῦ ῥηθέντος διαστή-
 5 μα|τος· ταῦτόν δὲ καὶ παιδὸς φωνὴ μικροῦ πρὸς ἀνδρὸς
 φωνὴν πάθοι ἄν. ὅθεν καὶ κατανοεῖται τὰ μεγάλα τῶν
 συμφώνων· ἐκ διαφορουσῶν γὰρ ἡλικιῶν καὶ διαφερόντων 20
 10 μέτρων τεθεωρήκαμεν, | ὅτι καὶ τὸ τρις διὰ πασῶν συμφωνεῖ

1 μέγιστον Meibom H: μέγεθος rell. οὖν seclisit Marquard
 2 ὀριεῖσθαι MVS: ὠρίσθαι H γὰρ supra lin. Mb: δὲ (γὰρ
 suprascr.) B a corr. manu: δὲ R 3 διάφωνον ex διάφορον
 Mb: δίφωνον B 5 ὅλον] ὅλων S: ὀλιγον R 6 οὖν om. B
 10 τοῦτο] τοῦ S τὸ δις] τὸ supra lin. B
 δις διὰ πασῶν διὰ ἐ
 δ ις κδ
 ἐξαπλάσιον } in marg. Mb Vc 11 τὸ γὰρ Vb BRS:

τοῦ γὰρ M (γὰρ in ras. Ma ut vid.): μέχρι γὰρ τοῦ Marquard: γὰρ om. H
 ὅρα Πορφύριον ἐν τῷ εἰς ἀρμονικὰ ὑπομνήματι add. in marg. H οὐκέτι ex
 οὖν ἐστι Ma διατείνωμεν B 12 διάτασιν R τόπῳ Westphal:
 τόνῳ codd. 13 παρθενίων M Vb R παρθ. αὐλ. linea subducta S
 14 τὸν om. R βαρύτατον Marquard: βαρυτάταν codd. 15 τοῦ
 R: τοῦτ' rell. κατασπασθείσης M H 17 ποιήσῃε διάστημα τοῦ
 τρις διὰ πασῶν εἰρημένου διαστήματος H ῥηθέντος] post β ras. M
 18 ἡ ante παιδὸς add. et φωνὴ post μικροῦ ponit H

καὶ τὸ τετράκις καὶ τὸ μείζον. Ὅτι μὲν οὖν ἐπὶ μὲν τὸ
μικρὸν ἢ τοῦ μέλους φύσις αὐτὴ τὸ διὰ τεσσάρων ἐλάχιστον
ἀποδίδωσι τῶν συμφώνων, ἐπὶ δὲ τὸ μέ|γα τῇ ἡμετέρᾳ πως 15
τὸ μέγιστον ὀρίζεται δυνάμει, σχεδὸν δῆλον ἐκ τῶν εἰρη-
5 μένων· ὅτι δ' ὀκτὼ μεγέθη συμφώνων διαστημάτων συμβαίνει
γίγνεσθαι ῥάδιον συνιδεῖν.]

Τούτων δ' ὄντων γνωρίμων τὸ τουιαῖον διάστημα πει- 20
ρατέον ἀφορίσαι. Ἔστι δὲ τόνος ἡ τῶν πρώτων συμφώνων
κατὰ μέγεθος διαφορά. Διαιρείσθω δ' εἰς τρεῖς διαιρέσεις·
10 μελωδέισθω γὰρ | αὐτοῦ τό τε ἥμισυ καὶ τὸ τρίτον μέρος καὶ 25
(τὸ) τέταρτον· τὰ δὲ τούτων ἐλάττονα διαστήματα πάντα
ἔστω ἀμελῶδητα. Καλείσθω δὲ τὸ μὲν ἐλάχιστον δίεσις
ἐναρμόνιος ἐλαχίστη, τὸ δ' ἐχόμενον | δίεσις χρωματικὴ 30
ἐλαχίστη, τὸ δὲ μέγιστον ἡμιτόνιον.

15 Τούτων δ' οὕτως ἀφωρισμένων τὰς τῶν γενῶν διαφο-
ρὰς ὅθεν γίνονται καὶ ὃν τρόπον πειρατέον καταμαθεῖν.
Δεῖ δὲ || νοῆσαι τῶν συμφώνων διαστημάτων (τὸ) ἐλάχιστον 22
τὸ κατεχόμενον τὰ γε πλείστα ὑπὸ τεττάρων φθόγγων·
ὅθεν δὴ καὶ τὴν προσηγορίαν ὑπὸ τῶν παλαιῶν ἔσχεν . . . |
20 [τίνα δὴ τάξιν πλειόνων οὐσῶν νοητέον; ἐν ἣ ἴσα τὰ τε 5
κινούμενά εἰσι καὶ τὰ ἡρεμοῦντα ἐν ταῖς τῶν γενῶν διαφοραῖς.
Γίνεται δ' ἐν τῷ τοιούτῳ οἷον τὸ ἀπὸ μέσης ἐφ' ὑπάτην
ἐν τούτῳ γὰρ δύο μὲν οἱ περιέχοντες φθόγγοι ἀκίνητοί 10

3 τῇ ἡμέρᾳ S 5 ὀκτὼ Westphal: ἐκ τῶν codd. μεγέθει
M V R S καὶ ante διαστημάτων B R, parvis litt. in marg. Mc
7 ὅρος τόνου add. Mb Vc in marg. 8 ἡ om. S 11 τὸ restituit
Marquard δὲ e corr. M 15 ἀφορισμένων S 17 δὲ] ἐ in
ras. B τὸ restituit Marquard 18 κατεχόμενον conieci:
καλούμενον codd. γε conieci: om. H: τε rell. 20 seqq. τίνα
. . . κινούνται seclussit Westphal ut glossema 20 τίνα δὴ τάξιν R:
τιν (α suprascr.) δαλ τάξιν (δαλ τά in ras.) Mc: τινὰ πρᾶξιν V S, B in
marg.: τινὰ δὲ τάξιν B: τίνα πρᾶξιν H post οὐσῶν add. χορδῶν
supra lin. Mc, χορδῶν cum duobus punctis praepositis, punctis in marg.
repett. B, χορῶν cum cruce R, συγχορδιῶν Westphal

εἰσιν ἐν ταῖς τῶν γενῶν διαφοραῖς, δύο δ' οἱ περιεχόμενοι
 κινούνται.] Τοῦτο μὲν οὖν οὕτω κείσθω. τῶν δὲ συγχωρο-
 διῶν πλειόνων τ' οὐσῶν τῶν τὴν εἰρημένην τάξιν τοῦ διὰ |
 15 τεσσάρων κατεχουσῶν καὶ ὀνόμασιν ἰδίους ἐκάστης αὐτῶν
 ὠρισμένης, μία τίς ἐστὶν ἡ μέσης καὶ λιχανοῦ καὶ παρυπάτης 5
 καὶ ὑπάτης σχεδὸν γνωριμωτάτῃ τοῖς ἀποτέμοις μουσικῆς
 20 ἐν ἣ τὰς | τῶν γενῶν διαφορὰς ἀναγκαῖον ἐπισκέψασθαι
 τίνα τρόπον γίνονται. Ὅτι μὲν οὖν αἱ τῶν κινεῖσθαι
 πεφυκότων φθόγγων ἐπιτάσεις τε καὶ ἀνέσεις αἰτιαί εἰσι
 25 τῆς τῶν γενῶν διαφορᾶς φανερόν. τίς δ' | ὁ τόπος τῆς 10
 κινήσεως ἐκατέρου τῶν φθόγγων τούτων λεκτέον. Λιχανοῦ
 μὲν οὖν ἐστὶ τονιαῖος ὁ σύμπας τόπος ἐν ᾧ κινεῖται, οὔτε
 30 γὰρ ἔλαττον ἀφίσταται μέσης τονιαίου διαστήματος οὔτε
 μείζον διτόνου. Τούτων δὲ τὸ μὲν ἔλαττον παρὰ μὲν τῶν
 ἤδη κατανενοηκότων τὸ διάτουν γένος [οὐχ] ὁμολογεῖται, 15
 23 παρὰ δὲ τῶν μήπω συνεωρακότων συγχωροῦτ' ἂν || ἐπα-
 χθέντων αὐτῶν· τὸ δὲ μείζον οἱ μὲν συγχωροῦσιν οἱ δ' οὐ.
 δι' ἣν δὲ γίνυται τοῦτο αἰτία, ἐν τοῖς ἔπειτα ῥηθήσεται.
 Ὅτι δ' ἐστὶ τις μελοποιῖα διτόνου λιχανοῦ δεομένη καὶ οὐχ
 5 ἡ φαυλοτάτη γε ἀλλὰ σχεδὸν ἡ καλλίστη, | τοῖς μὲν πολλοῖς 20
 τῶν νῦν ἀποτέμων μουσικῆς οὐ πάνυ εὐδελόν ἐστι, γένοιτο

1 γενῶν] φθόγγων H 2 τοῦτο ex τούτων Mc, duobus punctis
 subscr. et ὡν suprascr. B: τούτων VS συγχόρδων H 3 τῶν
 τῆν] τῶν B in ras.: om. R 4 ὀνόμασιν post ἰδίους ponit H
 5 λίχανος (ut constanter fere) Ma: in λιχανὸς corr. Mc: Va semper
 λίχανος: γρ' λιχάνου Vb in marg. 6 καὶ ὑπάτης om. VS ὑπάτης
 in marg. Mc(?) τοῖς ex τῆς Mb: τῆς R ἀποτέμνης MVR
 9 τε om. H 10 τόπος Marquard: τρόπος codd. 11 ἐκάστου H
 13 ἀφίσταται Marquard H: ἀφίστασθαι rell.: ἀφίστασθαι φαίνεται
 Westphal 14 διτόνου] post ι litt. a eras. τό renovatum
 Mb: διατόνου ex διτόνου Vb (ut vid.): διτόνου (α super ι scriptum)
 B: διατόνου S τῶν ἤδη] τῶν ἥ in ras. Mb 15 διτόνον H
 οὐχ seclisi: οὐχ ὁμολογεῖται in ras. Mb 16 παρὰ] περὶ S
 συγχωροῦτ' BR ἐπαχθέντων αὐ in ras. Mb 17 αὐτῶ R
 18 τοῦτο post ἔπειτα add. M (eras.), VS, B (suprascr.) 19 δια-
 τόνον (duobus punctis sub. α) B δεομένη] η in ras. Mb οὐχ
 ἥ] οὐχί MVS R 20 φαυλότητι B γε om. H

μέντ' ἀπαχθείσιν αὐτοῖς· τοῖς δὲ συνειθισμένοις τῶν
 ἀρ|χαῖκῶν τρόπων τοῖς τε πρώτοις καὶ τοῖς δευτέροις ἰκανῶς 10
 δῆλόν ἐστι τὸ λεγόμενον. Οἱ μὲν γὰρ τῇ νῦν κατεχούσῃ
 μελοποιῖα συνῆθεις μόνον ὄντες εἰκότως τὴν δίτονον λιχανὸν
 5 ἐξορίζουσι· | συντονωτέραις γὰρ χρώνται σχεδὸν οἱ πλείστοι 15
 τῶν νῦν. τούτου δ' αἴτιον τὸ βούλεσθαι γλυκαίνειν αἰεί,
 σημεῖον δ' ὅτι τούτου στοχάζονται, μάλιστα μὲν γὰρ καὶ
 πλείστον χρόνον ἐν τῷ χρώματι δια|τρίβουσιν, ὅταν δ' 20
 ἀφίκωνται ποτε εἰς τὴν ἀρμονίαν, ἐγγὺς τοῦ χρώματος προσ-
 10 ἀγουσι συνεπισπωμένου τοῦ ἥθους. Περὶ τούτων μὲν οὖν
 ἐπὶ τοσοῦτον ἀρκείτω· ὁ δὲ τῆς λιχανοῦ τόπος τουιαῖος |
 ὑποκείσθω, ὁ δὲ τῆς παρυπάτης διέσεως ἐλαχίστης. οὔτε 25
 γὰρ ἐγγυτέρω τῆς ὑπάτης προσέρχεται διέσεως οὔτε πλείον
 ἀφίσταται ἡμίσεος τόνου. οὐ γὰρ ἐπαλλάττουσιν οἱ τόποι,
 15 ἀλλ' ἔστιν αὐτῶν πέρας ἢ | συναφή, ὅταν γὰρ ἐπὶ τὴν αὐτὴν 30
 τάσιν ἀφίκωνται ἢ τε παρυπάτη καὶ ἢ λιχανός, ἢ μὲν ἐπι-
 τεινομένη ἢ δ' ἀνιεμένη, πέρας ἔχουσιν οἱ τόποι· καὶ ἔστιν
 ὁ μὲν ἐπὶ τὸ βαρὺ παρυπάτης, ὁ δ' ἐπὶ τὸ || ὀξὺ λιχανοῦ. 24
 Περὶ μὲν οὖν τῶν ὅλων τόπων λιχανοῦ τε καὶ παρυπάτης
 20 οὕτως ὠρίσθω, περὶ δὲ τῶν κατὰ <τὰ> γένη τε καὶ τὰς χροάς
 λεκτέον. Τὸ μὲν οὖν διὰ τεσσάρων ὃν τρόπον | ἐξεταστέον, 5
 εἴτε μετρεῖται τιμὴ τῶν ἐλαττόνων διαστημάτων εἴτε πᾶσιν
 ἔστιν ἀσύμμετρον, ἐν τοῖς διὰ συμφωνίας λαμβανομένοις
 λέγεται· ὥς φαινομένου δ' [ἐξ] ἐκείνου δύο τόνων καὶ

I ἐπαχθῆσιν H συνειθισμένοις (ei ex η) Mb: συνηθισμένοις S:
 συνεθισμένοις H 4 μόνον post ὄντες ponit H δίτονον] post ι
 litt. eras. M χαλινὸν sed. in marg. λιχανὸν B 5 ὀρίζουσι
 R συντονωτέραις S 6 αἰεί B 10 ἥθους Meibom: ἔθους H:
 ἔθους rell. 11 δὴ Marquard: δὲ codd. 14 ἐπαλλάττουσιν
 ex ἐλαττοῦσιν Mc, Vb in marg. cum signo γρ', R: ἐλαττοῦσιν Va SB in
 marg. 18 λιχανός BR 19 περὶ ... λιχανοῦ om. M, et καὶ
 περὶ τούτων μὲν add. in marg. Mb: eadem Va S, B in marg.: quae in
 textu scripta data in B R et Vb in marg. cum signo γρ' 20 ὠρίσθαι
 B sed ω suprascr., M sed ι in ras. Mb: ὀρίσθω Va τὰ restituit
 Marquard post τε ras. M 22 διαστημάτων om. Va S: add. Vb
 in marg. 24 ἐξ del. Marquard δυοῖν H

10 ἡμί|σεος, κείσθω τοῦτο ἂν εἶναι τὸ μέγεθος. Πυκνὸν δὲ
 λεγέσθω τὸ ἐκ δύο διαστημάτων συνεστηκὸς ἂ συνετεθέντα
 ἔλαττον διάστημα περιέξει τοῦ λειπομένου διαστήματος ἐν
 15 τῷ διὰ τεσσάρων. | Τούτων (δ') οὕτως ὀρισμένων πρὸς τῷ
 βαρυτέρῳ τῶν μενόντων φθόγγων εἰλήφθω τὸ ἐλάχιστον 5
 πυκνόν· τοῦτο δ' ἔσται τὸ ἐκ δύο διέσεων (ἐναρμονίων ἐλα-
 χίστων· ἔπειτα δεύτερον πρὸς τῷ αὐτῷ· τοῦτο δὲ ἔσται τὸ
 ἐκ δύο διέσεων) χρωματικῶν ἐλαχίστων. ἔσονται δὲ (αἱ)
 20 δύο λι|χανοὶ εἰλημμένοι δύο γενῶν βαρύταται, ἡ μὲν ἁρ-
 μονίας ἡ δὲ χρώματος. καθόλου γὰρ βαρύταται μὲν αἱ 10
 25 ἐναρμόνιοι λιχανοὶ ἦσαν, ἐχόμεναι δ' αἱ χρωματικαί, συν|τον-
 ώταται δ' αἱ διάτονοι. Μετὰ ταῦτα τρίτον εἰλήφθω πυκνὸν
 πρὸς τῷ αὐτῷ· τέταρτον (δ') εἰλήφθω πυκνὸν τονιαῖον·
 πέμπτον δὲ πρὸς τῷ αὐτῷ, τὸ ἐξ ἡμιτονίου καὶ ἡμιόλιου
 30 διαστή|ματος συνεστηκὸς σύστημα εἰλήφθω· ἕκτον δὲ τὸ 15
 ἐξ ἡμιτονίου καὶ τόνου. Αἱ μὲν οὖν τὰ δύο [τὰ] πρῶτα
 ληφθέντα πυκνὰ ὀρίζουσαι λιχανοὶ εἰρηνται· ἡ δὲ τὸ τρίτον
 25 πυκνὸν ὀρίζουσα || λιχανὸς χρωματικὴ μὲν ἔστιν, καλεῖται
 δὲ τὸ χρῶμα ἐν ᾧ ἔστιν ἡμιόλιον. Ἡ δὲ τὸ τέταρτον πυκνὸν
 5 ὀρίζουσα λιχανὸς χρωματικὴ μὲν ἔστιν, καλεῖται | δὲ τὸ 20
 χρῶμα ἐν ᾧ ἔστι τονιαῖον. ἡ δὲ τὸ πέμπτον ληφθὲν σύ-
 στημα ὀρίζουσα λιχανός, δὲ μείζον ἤδη πυκνοῦ ἦν, ἐπειδήπερ
 ἴσα ἔσσι τὰ δύο τῷ ἐνί, βαρυτάτῃ διάτονός ἐστιν. ἡ δὲ τὸ
 10 ἕκτον ληφθὲν | σύστημα ὀρίζουσα λιχανὸς συντονωτάτῃ

2 τὸ ex τὰ Mc δυοῖν H 4 δ' restituit Marquard 5 μενόντων
 om. B 6 δυοῖν H ἐναρμονίων . . . διέσεων] om. M V S: ἐναρ-
 μονίων καὶ parvis litt. supra lin. reliquis omissis Mc: ἐναρμονίων τε
 καὶ reliquis omissis B R: verba in textu scripta restituit Marquard
 8 χρωματιστικῶν S αἱ restituit Marquard: δύο δὲ M Va: δύο (δὲ et
 αἱ omissis) S: δὲ δύο rell. 9 εἰλημμένων (αι suprascr.) B
 11 ἐναρμόνιοι] ἐν supra lin. add., spir. in a eras. Mb: ἁρμόνιοι B Ma
 συντονώταται ex συντονώτατοι Ma (?): συντονώτατοι V B: συντονωτάτ
 δ' αἱ S 13 δ' restituit Marquard 14 ἡμιτόνιον H 16 τὰ
 del. Marquard 17 τὸ supra lin. B 19 ἡμιόλιον . . . ἐν ᾧ ἔστι
 om. H: ἡμιόλιον . . . χρῶμα om. R τὸ ante ἡμιόλιον add. M V S
 22 δ] ἡ H μείζον Vb S: μείζων M B R 24 σύστημα] σημεία R

διάτονός ἐστιν. Ἡ μὲν οὖν βαρυτάτη χρωματικὴ λιχανὸς
 τῆς ἐναρμονίου βαρυτάτης ἕκτω μέρει τόνου ὀξύτερα ἐστίν,
 ἐπειδήπερ ἡ χρωματικὴ διέσις τῆς ἐναρμονίου διέσεως δω- 15
 δεκατημορίῳ τόνου μείζων ἐστί. Δεῖ γὰρ τὸ τοῦ αὐτοῦ
 5 τριτημόριον τοῦ τετάρτου μέρους δωδεκατημορίῳ ὑπερέχειν,
 αἱ δὲ δύο χρωματικαὶ τῶν δύο | ἐναρμονίων δῆλον ὡς τῷ 20
 διπλασίῳ. τοῦτο δὲ ἐστὶν ἕκτημόριον, ἑλαττον διάστημα
 τοῦ ἐλαχίστου τῶν μελωδουμένων. Τὰ δὲ τοιαῦτα ἀμελφ-
 δητὰ ἐστίν, ἀμελφδητον γὰρ λέγομεν ὃ μὴ | τάττεται καθ' 25
 10 ἑαυτὸ ἐν συστήματι. Ἡ δὲ βαρυτάτη διάτονος τῆς βαρυ-
 τάτης χρωματικῆς ἡμιτονίῳ καὶ δωδεκατημορίῳ τόνου ὀξύτερα
 ἐστίν. ἐπὶ μὲν γὰρ τὴν τοῦ ἡμιολίου χρώματος λιχανὸν |
 ἡμιτόνιον ἦν ἀπ' αὐτῆς, ἀπὸ δὲ τῆς ἡμιολίου ἐπὶ τὴν ἐναρ- 30
 μόνιον διέσις, ἀπὸ δὲ τῆς ἐναρμονίου ἐπὶ τὴν βαρυτάτην
 15 χρωματικὴν ἕκτημόριον, ἀπὸ δὲ τῆς βαρυτάτης χρωματικῆς
 ἐπὶ τὴν ἡμιόλιον δωδεκατημόριον τόνου. τὸ || δὲ τεταρτη- 26
 μόριον ἐκ τριῶν δωδεκατημορίων σύγκειται, ὥστ' εἶναι φανε-
 ρόν, ὅτι τὸ εἰρημένον διάστημά ἐστιν ἀπὸ τῆς βαρυτάτης
 διατόνου ἐπὶ τὴν | βαρυτάτην χρωματικὴν. Ἡ δὲ συντονω- 5
 20 τάτη διάτονος τῆς βαρυτάτης διατόνου διέσει ἐστι συντονω-
 τέρα. Ἐκ τούτων δὴ φανεροὶ γίνονται οἱ τόποι τῶν λιχανῶν
 ἐκάστης· ἡ τε γὰρ βαρυτέρα τῆς χρωματικῆς πᾶσά ἐστιν 10
 ἐναρμόνιος λιχανὸς ἡ τε τῆς διατόνου βαρυτέρα πᾶσά ἐστι

3 δωδεκατημορίου M V S 4 μειζών Vb: μείζων M S Hoc loco
 in marg. M et Va et H multa adscripta sunt, quae videas in Comm.
 5 ὑπερέχειν] ν supra lin. add. Mb 6 καὶ post χρωματικαὶ add.
 M R Va 8 τῶν ἐλαχίστων H ἀμελφδητὰ S 10 ἑαυτὸ
 ex ἑαυτῷ Mb τῷ ante συστήματι add. H 11, 12 in marg. Mx Vc
 haec: ἡ αἰ ἡ K χρῶμα ἐστὶ τὸ δ μετὰ τοῦ ἡ 13 ἡμιτόνον H ἀπ']
 ἐπ' R 14 διέσις ex διέσιν Mc: διέσιν VBS 16 δεκατη-
 μόριον H in marg. Mx Vc haec: ἐναρμόν. διέσις τ' (τόνου?) τὸ
 τέταρτον 17 τριῶν supra lin. Mb δωδεκατημορίου Ma, sed on
 supra on scr. Mb 18 τῆς om. Ma: ins. Mb 21 τόποι]
 τόνοι B in marg. 22 βαρυτέρα Meibom: βαρυτάτη codd.
 23 ἐναρμόνιος] spir. in α eras. ἐν supra lin. add. Mb ἡ τε]
 καὶ ἡ H

(χρωματικὴ μέχρι τῆς βαρυτάτης χρωματικῆς ἢ τε τῆς δια-
 τόνου συντονωτάτης βαρυτέρα πᾶσά ἐστι) διάτονος μέχρι
 τῆς βαρυτάτης διατόνου. Νοητέον γὰρ ἀπείρους τὸν ἀριθμὸν
 15 τὰς λιχανούς· οὗ γὰρ | ἂν στήσης τὴν φωνὴν τοῦ ἀπο-
 δεδειγμένου λιχανῶ τόπου λιχανὸς ἔσται, διάκενον δ' οὐδέν 5
 ἐστὶ τοῦ λιχανοειδοῦς τόπου οὐδὲ τοιοῦτον οἶον μὴ δέχεσθαι
 20 λιχανόν. Ὡστ' εἶναι μὴ περὶ μικροῦ τὴν | ἀμφισβήτησιν
 οἱ μὲν γὰρ ἄλλοι διαφέρονται περὶ τοῦ διαστήματος μόνον,
 οἶον πότερον δίτονός ἐστὶν ἢ λιχανὸς ἢ συντονωτέρα ὡς μιᾶς
 25 οὔσης ἐναρμονίον· ἡμεῖς δ' οὐ μόνον πλείους ἐν | ἐκάστῳ 10
 γένει φαμέν εἶναι λιχανοὺς μιᾶς ἀλλὰ καὶ προστίθεμεν ὅτι
 ἀπειροὶ εἰσι τὸν ἀριθμόν. Τὰ μὲν οὖν περὶ τῶν λιχανῶν
 οὕτως ἀφωρίσθω· παρυπάτης δὲ δύο εἰσὶ τόποι, ὁ μὲν |
 30 κοινὸς τοῦ τε διατόνου καὶ τοῦ χρώματος, ὁ δ' ἕτερος ἴδιος
 τῆς ἁρμονίας· κοινωνεῖ γὰρ τὰ δύο γένη τῶν παρυπατῶν. 15
 ἐναρμόνιος μὲν οὖν ἐστὶ παρυπάτη πᾶσα ἢ βαρυτέρα τῆς
 27 βαρυτάτης χρωματικῆς, χρωματικὴ δὲ καὶ διάτο||νος ἢ λοιπὴ
 πᾶσα μέχρι τῆς ἀφωρισμένης. Τῶν δὲ διαστημάτων τὸ μὲν
 ὑπάτης καὶ παρυπάτης τῷ παρυπάτης καὶ λιχανοῦ ἦτοι ἴσον
 5 μελωδεῖται ἢ ἔλατ|τον, τὸ δὲ παρυπάτης καὶ λιχανοῦ τῷ 20
 λιχανοῦ καὶ μέσης καὶ ἴσον καὶ ἄνισον ἀμφοτέρως. τούτου
 δ' αἴτιον τὸ κοινὰς εἶναι τὰς παρυπάτας τῶν γενῶν, γίνεταί
 10 γὰρ ἐμμελὲς τετράχορδον ἐκ παρυ|πάτης τε χρωματικῆς (τῆς)
 βαρυτάτης καὶ διατόνου λιχανοῦ τῆς συντονωτάτης. Ὁ δὲ

1 χρωματικὴ . . . πᾶσά ἐστι restituit Marquard 4 τὰς] τοὺς sed
 supra ο ras. in qua a fuisse vid. Ma: τοὺς VS, B (sed οὐ in ras. et
 a suprascr.) οὐ ex οὐ Mc: οὐ VS τοῦ ἀποδεδειγμένου τόπω
 λιχάνω Ma, sed ω supra του, ω supra ἀποδεδειγμένου et ου supra λιχανω
 add. Mc: τόπω λιχάνω VS: τόπου (ω suprascr.) λιχανοῦ B 5 δ']
 γὰρ H 8 μόνου H 9 δίτονός Meibom: διάτονός codd.
 αὐτῆς post μιᾶς add. R 15 τὰ add. Mx 16 ἐστὶ] ἔτι B:
 ἐστὶ B in marg. 18 τὸ μὲν . . . παρυπάτης om. R 20 τὸ]
 τῷ S τῷ λιχανοῦ om. R 21 ἀμφοτέρως Marquard: ἀμφοτέροις
 codd. 23 τῆς βαρυτάτης conieci: παρυπάτης codd. (R et B
 in marg.): βαρυτέρας τινὸς τῆς ἡμιτονιαίας ante παρυπάτης add.
 Marquard

τῆς παρυνπάτης τόπος φανερός ἐστὶ ἐκ τῶν ἔμπροσθεν,
διαιρεθεὶς τε καὶ συντεθεὶς ὅσος ἐστίν. |

Περὶ δὲ συνεχείας καὶ τοῦ ἐξῆς ἀκριβῶς οὐ πάνυ 15
ῥάδιον ἐν ἀρχῇ διορίσαι, τύπῳ δὲ πειρατέον ὑποσημῆναι.
5 Φαίνεται δὲ τοιαύτη τις φύσις εἶναι τοῦ συνεχοῦς ἐν τῇ μελ-
ωδίᾳ οἷα καὶ ἐν τῇ λέξει περὶ τὴν τῶν γραμμάτων σύν- 20
θεσιν· καὶ γὰρ ἐν τῷ διαλέγεσθαι φύσει ἢ φωνῇ καθ' ἐκάστην
τῶν συλλαβῶν πρῶτόν τι καὶ δεύτερον τῶν γραμμάτων τίθησι
καὶ τρίτον καὶ τέταρτον καὶ κατὰ | τοὺς λοιποὺς ἀριθμοὺς 25
10 ὡσαύτως, οὐ πᾶν μετὰ πᾶν, ἀλλ' ἔστι τοιαύτη τις φυσικὴ
αὔξησης τῆς συνθέσεως. παραπλησίως δὲ καὶ ἐν τῷ μελ-
ωδεῖν ἔοικεν ἢ φωνῇ τιθέναι κατὰ συνέχειαν | τὰ τε διαστή- 30
ματα καὶ τοὺς φθόγγους φυσικὴν τινα σύνθεσιν διαφυλάτ-
τουσα, οὐ πᾶν μετὰ πᾶν διάστημα μελωδοῦσα οὐτ' ἴσον οὐτ'
15 ἄνισον. Ζητητέον δὲ τὸ συνεχὲς οὐχ ὥς οἱ ἀρ||μονικοὶ ἐν 28
ταῖς τῶν διαγραμμάτων καταπυκνώσεσιν ἀποδιδόναι πειρῶν-
ται, τούτους ἀποφαίνοντες τῶν φθόγγων ἐξῆς ἀλλήλων
κείσθαι οἷς συμ|βέβηκε τὸ ἐλάχιστον διάστημα διέχειν ἀφ' 5
αὐτῶν. οὐ γὰρ ὅτι [μὴ] δυνατὸν διέσεις ὀκτῶ καὶ εἴκοσιν
20 ἐξῆς μελωδῆσαι τῇ φωνῇ ἐστίν, ἀλλὰ τὴν τρίτην διέσω
πάντα ποιοῦσα οὐχ οἷα | τέ ἐστι προστιθέναι, ἀλλ' ἐπὶ μὲν 10
τὸ ὀξὺ ἐλάχιστον μελωδεῖ τὸ λοιπὸν τοῦ διὰ τεσσάρων,—
τὰ δ' ἐλάττω πάντα ἐξαδυνατεῖ—τοῦτο δ' ἐστὶν ἥτοι ὀκτα-
πλάσιον τῆς ἐλαχίστης διέσεως ἢ μικρῷ τιw | παντελῶς καὶ 15

2 συντεθεὶς M V B S : συντιθεὶς R : ἐντεθεὶς Marquard 4 ὑποση-
μεῖναι S 7 ἢ] ἢ B φωνῇ B καθ' ἐκάστη H 8 τι] τε
B R 9 λοιποὺς om. H 10 ἀλλ' ἐστὶ . . . συνθέσεως om. M,
in marg. Mc (οἱ in τοιαύτη in ras.): Vb in marg. sed τοιαύτη et τις om.
τοιαύτη τις] τις αὕτη S τις om. B 16 γραμμάτων S 17 ἐξῆς
ex ἐξ ἥs Mc : ἐξ ἥs V : ἐφεξῆς H ἀλλήλων post κείσθαι ponit H
19 οὐ γὰρ μόνον τὸ μὴ δύνασθαι δ. ὁ. κ. ἐ. ἐ. μελωδεῖσθαι τῆς φωνῆς ἐστίν
Marquard ὅτι conici : τοῦ codd. μὴ seclusi δυνατὸν conici :
δύνασθαι codd. διέσεις B 20 μελωδῆσαι conici : μελωδεῖσθαι
codd. 24 διέσεως] δι in ras. Mb

ἀμελῶδῆτῳ ἔλαττον, ἐπὶ δὲ τὸ βαρὺ τῶν δύο διέσεων τονιαίου
 ἔλαττον οὐ δύναται μελωδεῖν. Οὐ δὴ προσεκτέον εἰ τὸ
 20 συνεχὲς ὅτε μὲν ἐξ ἴσων ὅτε δ' ἐξ ἀνίσων γίγνεται, | ἀλλὰ
 πρὸς τὴν τῆς μελωδίας φύσιν πειρατέον βλέπειν κατανοεῖν
 τε προθυμούμενον τί μετὰ τί πέφυκεν ἢ φωνὴ διάστημα 5
 τιθέναι κατὰ μέλος. εἰ γὰρ μετὰ παρυνπάτην καὶ λιχανὸν μὴ |
 25 δυνατὸν ἐγγυτέρω μελωδῆσαι φθόγγον μέσης, αὕτη ἂν εἴη
 μετὰ τὴν λιχανόν, εἴτε διπλάσιον εἴτε πολλαπλάσιον διά-
 στημα ὀρίζει (τοῦ) παρυνπάτης καὶ λιχανοῦ. Τίνα μὲν οὖν
 30 τρόπον τό τε συνεχὲς καὶ | τὸ ἐξῆς δεῖ ζητεῖν, σχεδὸν δῆλον 10
 ἐκ τῶν εἰρημένων· πῶς δὲ γίγνεται καὶ τί μετὰ τί διάστημα
 29 τίθεται τε καὶ οὐ τίθεται, ἐν τοῖς || στοιχείοις δειχθήσεται.
 Ὑποκείσθω μετὰ τὸ πυκνὸν ἢ τὸ ἄπυκνον τιθέμενον
 σύστημα ἐπὶ μὲν τὸ ὀξὺ μὴ τίθεσθαι ἔλαττον διάστημα τοῦ
 5 λειπομένου τῆς | πρώτης συμφωνίας, ἐπὶ δὲ τὸ βαρὺ μὴ 15
 ἔλαττον τονιαίου· ὑποκείσθω δὲ καὶ τῶν ἐξῆς κειμένων
 φθόγγων κατὰ μέλος ἐν ἐκάστῳ γένει ἥτοι τοὺς τετάρτους
 10 [τοῖς τέτρασι] διὰ τεττάρων συμφωνεῖν ἢ τοὺς πέμπτους
 [τοῖς πέντε] διὰ πέντε ἢ ἀμφοτέρως· ᾧ δ' ἂν τῶν φθόγγων
 μηδὲν ἢ τούτων συμβεβηκός, ἐκμελῇ τοῦτον εἶναι πρὸς τοὺς οἷς 20
 15 ἀσύμφωνός ἐστιν. Ὑποκείσθω δὲ καὶ | τεττάρων γιγνο-
 μένων διαστημάτων ἐν τῷ διὰ πέντε, δύο μὲν ἴσων ὥς ἐπὶ
 τὸ πολὺ, τῶν τὸ πυκνὸν κατεχόντων, δύο δ' ἀνίσων, τοῦ τε
 λειπομένου τῆς πρώτης συμφωνίας καὶ τῆς ὑπεροχῆς ἢ τὸ
 20 διὰ | πέντε τοῦ διὰ τεσσάρων ὑπερέχει, ἐναντίως τίθεσθαι 25

1 ἀμελῶδῆτῳ] ἡ in ras. Mb ἔλαττον Meibom: ἐλάττονι M V S R:
 ἐλάττωνι B τονιαίου Meibom: τονιαίων M V R: τονιαῖον B S
 2 ἔλαττον supra lin. Mx. om. Va, add. in marg. Vb δυνατὸν H
 δὴ] δὲ H εἰ conieci: εἰς codd. 7 δυνατὸν om. B: δυνατὴ S, Vb
 (sed ἡ in ras.) 9 τοῦ restituit Marquard 12 τε om. H
 13 μετὰ conieci: μὲν codd. τὸ ἄπυκνον ex τὸν πυκνὸν (ut vid.) Mb
 14 μὴ τίθεσθαι] μετατίθεσθαι M 15 λοιπομένου H 18 τοῖς
 τέτρασι del. Meibom 19 τοῖς πέντε del. Meibom 20 εἶναι
 om. H τοὺς οἷς] τούτοις R 24 λοιπομένου H ἢ ex ἡ Mb:
 ἡ S τὸ ex τοῦ Ma (?) S: τὸ Vb cum ras. post δ 25 ὑπερέχει
 Meibom: ὑπερέχειν codd.

πρὸς τοῖς ἴσοις τὰ [δὲ] ἄνισα ἐπὶ τε τὸ ὀξὺ καὶ τὸ βαρύ.
 Ὑποκείσθω δὲ καὶ τοὺς τοῖς ἐξῆς φθόγγοις συμφωνοῦντας
 διὰ τῆς αὐτῆς συμφωνίας ἐξῆς αὐτοῖς εἶναι. Ἀσύνθετον δὲ 25
 ὑποκείσθω ἐν ἐκάστῳ γένει εἶναι διάστημα κατὰ μέλος ὃ ἡ
 5 φωνὴ μελωδοῦσα μὴ δύναται διαιρεῖν εἰς διαστήματα. Ὑπο-
 κείσθω δὲ καὶ τῶν συμφώνων ἕκαστον μὴ διαιρεῖσθαι εἰς 30
 ἀσύνθετα πάντα μεγέθη. Ἀγωγὴ δ' ἔστω ἡ διὰ τῶν ἐξῆς
 φθόγγων (ῶν), ἔσωθεν τῶν ἄκρων, [ῶν] ἐν (ἐκάστου) ἐκα-
 τέρωθεν ἀσύνθετον κεῖται διάστημα· ἐνθεῖα δ' ἡ ἐπὶ τὸ αὐτό.

.

1 δὲ del. Meibom τε om. R τὸ ante βαρύ om. S 2 τοὺς
 ex τὸ Mc: τὸ VS συμφωνοῦντας ex συμφώνου τὰς Mc: συμφώνου
 τὰς VS: καὶ τὸ συμφώνου τὰς in marg. B 3 αὐτοῖς Marquard:
 αὐτοῖς codd. 4 ante δ una litt. eras. M ἡ supra lin. add. Mx:
 om. VS ἡ ante ἡ add. B 5 φωνῇ] ἡ in ras. Vb διάστημα
 B sed in marg. διαστήματα 7 πάντα supra lin. add. Mc: om. VS
 8 ὧν addidi ἔσωθεν coniec: ἔξωθεν codd. ἄκρων coniec: ἀρχῶν
 codd. ὧν seclusi: supra lin. B χῶν ὧν et acc. in ἐν Mc Vb;
 antea in utroque cod. lacuna erat: ἐ S: ἐν rell. ἐκάστου addidi

ΑΡΙΣΤΟΤΕΛΕΩΣ ΑΡΜΟΝΙΚΩΝ ΣΤΟΙΧΕΙΩΝ ΔΕΥΤΕΡΟΝ

30, 10 Βέλτιον ἴσως ἐστὶ τὸ προδι|ελθεῖν τὸν τρόπον τῆς πρα-
γματείας τίς ποτ' ἐστίν, ἵνα προγιγνώσκοντες ὥσπερ ὁδὸν ἢ
βαδιστέον ῥάδιον πορευόμεθα εἰδότες τε κατὰ τί μέρος ἐσμέν 5
15 αὐτῆς | καὶ μὴ λάθωμεν ἡμᾶς αὐτοὺς παρνολαμβάνοντες τὸ
πρᾶγμα. Καθάπερ Ἀριστοτέλης αἰεὶ διηγείτο τοὺς πλείστους
τῶν ἀκουσάντων παρὰ Πλάτωνος τὴν περὶ τἀγαθοῦ ἀκρόασιν
20 παθεῖν. | προσιέναι μὲν γὰρ ἕκαστον ὑπολαμβάνοντα λή-
ψεσθαί τι τῶν νομιζομένων τούτων ἀνθρωπίνων ἀγαθῶν οἷον 10
πλοῦτον ὑγίειαν ἰσχὺν τὸ ὅλον εὐδαιμονίαν τινὰ θαυμαστήν·
25 ὅτε δὲ | φανείησαν οἱ λόγοι περὶ μαθημάτων καὶ ἀριθμῶν
καὶ γεωμετρίας καὶ ἀστρολογίας καὶ τὸ πέρασ ὅτι ἀγαθόν
31 ἐστὶν ἔν, παντελῶς οἶμαι παράδο||ξόν τι ἐφαίνετο αὐτοῖς·
εἴθ' οἱ μὲν ὑποκατεφρόνουσι τοῦ πράγματος οἱ δὲ κατε- 15
μέμφοντο. Τί οὖν τὸ αἷτιον; οὐ προήδεσαν, ἀλλ' ὥσπερ
5 οἱ ἐριστικοὶ | πρὸς τοῦνομα αὐτὸ ὑποκεχηνότες προσήεσαν·
εἰ δέ γέ τις οἶμαι προεξετίθει τὸ ὅλον, ἀπεγίνωσκεν ἂν ὁ
μέλλων ἀκούειν ἢ εἴπερ ἤρεσκεν αὐτῷ διέμενεν ἂν ἐν τῇ
10 εἰρημένῃ ὑπολήψει. | Προέλεγε μὲν οὖν καὶ αὐτὸς Ἀριστο- 20

3 προελθεῖν (δι suprascr.) B 4 τίς Marquard: τί codd.
6 παρνολαμβανόντων Ma, sed es supra ων scr. Mb 11 πλοῦτον]
post o ante ν ras. M ὑγίειαν M V B S εὐδαιμονίας τιμὴν R
12 δὲ supra lin. add. Mb 17 οἱ om. lac. 4 syllabb. R 18 προ-
εξετίθη Ma praeter θη quod cum ei superposito ab Mb in ras. qua plus
una littera deleta erat ἐπεγίνωσκεν ex ἀπεγ. M: ἐπεγίνωσκεν
rell. 19 καὶ infra lin. ante ἡ add. Mb 20 εἰλημένῃ
Marquard

τέλης δι' αὐτὰς ταύτας τὰς αἰτίας, ὥς ἔφη, τοῖς μέλλουσιν
ἀκροᾶσθαι παρ' αὐτοῦ, περὶ τίνων τ' ἐστὶν ἡ πραγματεία καὶ
τίς. Βέλτιον δὲ καὶ ἡμῖν | φαίνεται, καθάπερ εἶπομεν ἐν 15
ἀρχῇ, τὸ προειδέναι. Γίνεται γὰρ ἐνίοτε ἐφ' ἐκάτερα
5 ἁμαρτία· οἱ μὲν γὰρ μέγα τι ὑπολαμβάνουσιν εἶναι τὸ
μάθημα καὶ ἔσεσθαι ἔνιοι μὲν οὐ μόνον μουσικοὶ ἀκού- 20
σαντες τὰ ἁρμονικά, ἀλλὰ καὶ βελτίους τὸ ἦθος,—παρακού-
σαντες τῶν ἐν ταῖς δειξέσι λόγων ὅτι πειρώμεθα ποιεῖν τῶν
μελοποιῶν ἐκάστην καὶ τὸ ὅλον, τῆς μουσικῆς | ὅτι ἡ 25
10 μὲν τοιαύτη βλάπτει τὰ ἦθη ἡ δὲ τοιαύτη ὠφελεῖ, τοῦτο
αὐτὸ παρακούσαντες, τὸ δ' ὅτι καθ' ὅσον μουσικὴ δύναται
ὠφελεῖν οὐδ' ἀκούσαντες ὅλως—οἱ δὲ πάλιν ὥς οὐδὲν | ἄλλ' 30
ἢ μικρόν τι καὶ βουλόμενοι μὴ εἶναι ἔμπειροι μηδὲ τί ποτ'
ἐστίν. Οὐδέτερον δὲ τούτων ἀληθές ἐστιν, οὔτε γὰρ εὐκατα-
15 φρόνητόν ἐστί τινα ὃς νῦν ἔχει τὸ μάθημα—δηλον δ' ἔσται
προϊόν||τος τοῦ λόγου—, οὔτε τηλικούτον ὥστ' αὐταρκες 32
εἶναι πρὸς πάντα, καθάπερ οἴονται τινες. πολλὰ γὰρ δὴ καὶ
ἕτερα ὑπάρχει [ἡ] καθάπερ ἀεὶ λέγεται τῷ | μουσικῷ· μέρος 5
γάρ ἐστιν ἡ ἁρμονικὴ πραγματεία τῆς τοῦ μουσικοῦ ἕξεως,
20 καθάπερ ἡ τε ῥυθμικὴ καὶ ἡ μετρικὴ καὶ ἡ ὀργανικὴ. Λεκτέον
οὖν περὶ αὐτῆς τε καὶ τῶν μερῶν.

Καθόλου μὲν οὖν νοητέον οὔσαν ἡμῖν τὴν θεωρίαν περὶ 10
μέλους παντὸς πῶς ποτὲ πέφυκεν ἡ φωνὴ ἐπιτεινομένη καὶ
ἀνιεμένη τιθέναι τὰ διαστήματα. φυ|σικὴν γὰρ δὴ τινά 15

1 ἔφη coniecti: ἔφην codd.

in ras. M: δὲ pro μὲν BR

ἀκούοντες (σαν suprascr.) B

tes B 9 μελωποιῶν S

καθ' ὅσον add. Marquard

13 ἔμπειροι coniecti: ἄπειροι codd.

παρέστιν R 14 ἀγνοεῖν πρόσσει post ποτ' ἐστίν add. Marquard δὲ]

γὰρ R ἀληθές ἐστιν] ἐστίν om. R lac.

coniecti: ἐστίν ὥς νῦν ἔχει codd.

om. R lac. 18 ἡ seclusi

om. R 20 καὶ ἡ μετρικὴ om. R

24 δὴ om. B

3 καὶ ἡμῖν] καὶ om. R

ἔσεσθαι post μὲν ponit Marquard

7 καὶ om. B

ἐκάστην καὶ om. R

11 καὶ ante

12 ἄλλ' ἢ Marquard: ἀλλὰ codd.

μηδὲ τί ποτ' ἐστίν] μηδέτι

15 ἐστί τινα ὃς νῦν ἔχει

16 λόγου om. R lac. αὐταρκες

τοῦτο post ἡ add. Westphal

22 οὔσης ἡμῖν τῆς θεωρίας H

φαμεν ἡμεῖς τὴν φωνὴν κίνησιν κινεῖσθαι καὶ οὐχ ὥς ἔτυχε
 διάστημα τιθέναι. Καὶ τούτων ἀποδείξεις πειρώμεθα λέγειν
 20 ὁμολογουμένας τοῖς φαινομένοις, οὐ καθάπερ οἱ ἔμπροσθεν,
 οἱ μὲν ἀλλοτριολογοῦντες καὶ τὴν μὲν αἰσθησιν ἐκκλίνοντες
 ὡς οὔσαν οὐκ ἀκριβῆ, νοητὰς δὲ κατασκευάζοντες αἰτίας καὶ 5
 25 φάσκοντες λόγους τέ τινας ἀριθμῶν εἶναι | καὶ τάχῃ πρὸς
 ἄλληλα ἐν οἷς τό τε ὁξὺ καὶ τὸ βαρὺ γίγνεται, πάντων
 ἀλλοτριωτάτους λόγους λέγοντες καὶ ἐναντιωτάτους τοῖς
 φαινομένοις· οἱ δ' ἀποθεσπίζοντες ἕκαστα ἄνευ αἰτίας καὶ |
 30 ἀποδείξεως οὐδ' αὐτὰ τὰ φαινόμενα καλῶς ἐξηριθμηκότες. 10
 'Ἡμεῖς δ' ἀρχὰς τε πειρώμεθα λαβεῖν φαινομένας ἀπάσας
 33 τοῖς ἐμπείροις μουσικῆς καὶ τὰ ἐκ τούτων συμ||βαίνοντα
 ἀποδεικνύναι.

*Ἔστι δὴ τὸ μὲν ὅλον ἡμῖν (ῆ) θεωρία περὶ μέλους παντὸς
 μουσικοῦ τοῦ γιγνομένου ἐν φωνῇ τε καὶ ὀργάνοις. Ἀνάγεται 15
 5 δ' ἡ πραγματεία | εἰς δύο, εἰς τε τὴν ἀκοὴν καὶ εἰς τὴν διά-
 νοιαν. τῇ μὲν γὰρ ἀκοῇ κρίνομεν τὰ τῶν διαστημάτων
 μεγέθη, τῇ δὲ διανοίᾳ θεωροῦμεν τὰς τῶν (φθόγγων) δυνάμεις.
 10 Δεῖ οὖν ἐπεθισθῆναι ἕκαστα | ἀκριβῶς κρίνειν. οὐ γὰρ ἔστιν
 ὥσπερ ἐπὶ τῶν διαγραμμάτων εἴθισται λέγεσθαι· ἔστω τοῦτο 20
 εὐθεία γραμμῇ,—οὕτω καὶ ἐπὶ τῶν διαστημάτων εἰπόντα
 15 ἀπηλλάχθαι [δεῖ]. Ὁ μὲν γὰρ γεωμέτρης | οὐδὲν χρῆται τῇ
 τῆς αἰσθήσεως δυνάμει, οὐ γὰρ ἐθίζει τὴν ὄψιν οὔτε τὸ εὐθὺ
 οὔτε τὸ περιφερὲς οὗτ' ἄλλο οὐδὲν τῶν τοιούτων οὔτε φαύλως
 20 οὔτε εὖ κρίνειν, ἀλλὰ μᾶλλον ὁ τέκτων καὶ | ὁ τορνευτῆς καὶ 25
 ἕτεραί τινες τῶν τεχνῶν περὶ ταῦτα πραγματεύονται· τῷ δὲ
 μουσικῷ σχεδόν ἔστιν ἀρχῆς ἔχουσα τάξις ἢ τῆς αἰσθήσεως

1 οὐχ ex οὐκ et ὥς supra lin. M 2 λελέγειν S 5 οὔσαν
 post ἀκριβῆ ponit H οὐκ om. S καὶ post δὲ add. R 7 τὸ
 βαρὺ H: τὸ om. rell. 8 ἐναντιωτάτους B 9 ἀποθεσπίζοντες H
 11 ἀπάσας om. R lac.: ἀπασι H 14 ἡ restituit Marquard 16 τε
 om. B 18 τῶν φθόγγων conieci: τούτων codd. 19 ἐπεθισθῆναι]
 ἐπεθι in ras. Mb: ἐθισθῆναι R, in marg. B 21 οὕτω] post ω litt.
 σ eras. M 22 ἀπηλλαχθῆναι H δεῖ seclusi τῇ add. Mb (?)
 23 οὔτε τὸ εὐθὺ om. R 27 ἡ supra lin. add. Ma (vel Mb)

ἀκρίβεια, οὐ γὰρ ἐνδέχεται φανύλως αἰσθανόμε|νον εὖ λέγειν 25
 περὶ τούτων ὧν μηδένα τρόπον αἰσθάνεται. Ἔσται δὲ τοῦτο
 φανερόν ἐπ' αὐτῆς τῆς πραγματείας. Οὐ δεῖ δ' ἀγνοεῖν, ὅτι
 ἡ τῆς μουσικῆς ξύνεσις ἅμα μένοντός τινος | καὶ κινουμένου 30
 5 ἔστι καὶ τοῦτο σχεδὸν διὰ πάσης καὶ κατὰ πᾶν μέρος αὐτῆς,
 ὥς εἰπεῖν ἀπλῶς, διατείνειν. Εὐθέως γὰρ τὰς τῶν γενῶν
 διαφορὰς αἰσθανόμεθα τοῦ μὲν περιέχοντος μένοντος, τῶν δὲ
 μέσων κινουμένων· καὶ πάλιν || ὅταν μένοντος τοῦ μεγέθους 34
 τόδε μὲν καλῶμεν ὑπάτην καὶ μέσην, τόδε δὲ παραμέσση καὶ
 10 νῆτην, μένοντος [γὰρ] τοῦ μεγέθους συμβαίνει κινεῖσθαι τὰς
 τῶν | φθόγγων δυνάμεις· καὶ πάλιν ὅταν τοῦ αὐτοῦ μεγέθους 5
 πλείω σχήματα γίνηται, καθάπερ τοῦ τε διὰ τεσσάρων καὶ
 διὰ πέντε καὶ ἑτέρων· ὡσαύτως δὲ καὶ ὅταν τοῦ αὐτοῦ
 διαστήματος ποῦ | μὲν τιθεμένου μεταβολὴ γίνηται, ποῦ δὲ 10
 15 μή. Πάλιν ἐν τοῖς περὶ τοὺς ῥυθμοὺς πολλὰ τοιαῦθ' ὀρώμεν
 γιγνώμενα· καὶ γὰρ μένοντος τοῦ λόγου καθ' ὃν διώριται τὰ
 γένη τὰ μεγέθη κινεῖται τῶν ποδῶν διὰ τὴν τῆς ἀγωγῆς 15
 δύναμιν, καὶ τῶν μεγεθῶν μενόντων ἀνόμοιοι γίνονται οἱ
 πόδες· καὶ τὸ αὐτὸ μέγεθος πόδα τε δύναται καὶ συζυγίαν·
 20 δῆλον δ' ὅτι καὶ (αἱ διαφοραὶ) αἱ τῶν διαιρέσε|ών τε καὶ 20
 σχημάτων περὶ μένον τι μέγεθος γίνονται. καθόλου δ'
 εἰπεῖν ἡ μὲν ῥυθμοποιία πολλὰς καὶ παντοδαπὰς κινήσεις
 κινεῖται, οἱ δὲ πόδες οἷς σημαινόμεθα τοὺς ῥυθμοὺς ἀπλᾶς
 τε | καὶ τὰς αὐτὰς ἀεί. Τοιαύτην δ' ἐχούσης φύσιν τῆς 25
 25 μουσικῆς ἀναγκαῖον καὶ ἐν τοῖς περὶ τὸ ἥρμοσμένον συνε-

1 οὐ Marquard : οὔτε codd.

in marg.

3 ἐπ' ἀπ' H

δντος Va B

5 αὐτῆς om. H

. . . μεγέθους om. S

VBS

13 διὰ πέντε] διὰ supra lin. add. Mc: om. VS, B

(sed add. in marg.)

SR

16 καθ' ὃν ex καθὼ Mc: καθὼ VSB

αὐτὸ coniecti: αὐτὸ τὸ codd.

post σχημάτων addidit Marquard)

μένοντι B

αἰσθανόμενος B

2 τῶν B: ὧν

4 μένοντος ex μὲν δντος Mc: μὲν

10 γὰρ seclusi συμβαίνει

12 γίνεται Ma (sed η suprascr. Mc)

14 ποῦ μὲν] ποιοῦμεν H

γίνεται

19 τὸ

20 αἱ διαφοραὶ addidi (διαφοραὶ

αἱ τῶν] αἱ om. R H

21 περι-

- θισθῆναι τὴν τε διάνοιαν καὶ τὴν αἴσθησιν καλῶς κρίνειν τό
 30 τε μένον καὶ τὸ κινοῦμενον. Ἀπλῶς μὲν οὖν εἰπεῖν τοιαύτη
 τίς ἐστίν ἡ ἁρμονικὴ κληθεῖσα ἐπιστήμη ὅταν διεληλύθαμεν
 συμβέβηκε δ' αὐτὴν διαιρεῖσθαι εἰς ἑπτὰ μέρη. ||
- 35 Ὡν ἐστὶν ἓν μὲν καὶ πρῶτον τὸ διορίσαι τὰ γένη καὶ 5
 ποιῆσαι φανερόν, τίνων ποτὲ μενόντων καὶ τίνων κινουμένων
 5 αἱ διαφοραὶ αὐταὶ γίνονται. Τοῦτο γὰρ οὐδεὶς πώποτε
 διώρισε τρόπον τινὰ εἰκότως· οὐ γὰρ ἐπραγματεύοντο περὶ
 τῶν δύο γενῶν, ἀλλὰ περὶ αὐτῆς τῆς ἁρμονίας· οὐ μὴν ἀλλ'
 10 ὅ γε διατρίβοντες περὶ τὰ ὄργανα διησθάνοντο | μὲν ἐκάστου 10
 τῶν γενῶν, αὐτὸ δὲ τὸ πότε ἄρχεται ἐξ ἁρμονίας χρώμά τι
 γίνεσθαι, οὐδεὶς οὐδ' ἐπέβλεψε πώποτ' αὐτῶν. οὔτε γὰρ
 κατὰ πᾶσαν χρῶαν ἐκάστου τῶν γενῶν διησθάνοντο διὰ τὸ
 15 μήτε | πάσης μελοποιίας ἔμπειροι εἶναι μήτε συνειθίσθαι
 περὶ τὰς τοιαύτας διαφορὰς ἀκριβολογεῖσθαι· οὐτ' αὐτό 15
 πῶς τοῦτο κατέμαθον ὅτι τόποι τινὲς ἦσαν τῶν κινουμένων
 20 φθόγγων ἐν ταῖς | τῶν γενῶν διαφοραῖς. Δι' ἃς μὲν οὖν
 αἰτίας οὐκ ἦν διωρισμένα τὰ γένη πρότερον, σχεδὸν εἰσιν αἱ
 εἰρημέναι· ὅτι δὲ διοριστέον εἰ μέλλομεν ἀκολουθεῖν ταῖς
 25 γιγνομέναις ἐν τοῖς μέλεσι δια|φοραῖς, φανερόν. 20
- Πρῶτον μὲν οὖν τῶν μερῶν ἐστὶ τὸ εἰρημένον· δεύτερον
 δὲ τὸ περὶ διαστημάτων εἰπεῖν, μηδεμίαν τῶν ὑπαρ-
 30 χουσῶν αὐτοῖς διαφορῶν εἰς δύναμιν παραλιμπάνοντας.
 Σχεδὸν δέ, ὡς ἀπλῶς εἰπεῖν, αἱ πλείους αὐτῶν εἰσὶν ἀθεώ-
 ρητοι. οὐ δεῖ δ' ἀγνοεῖν, ὅτι καθ' ἣν ἂν γενώμεθα τῶν 25

1 εἰ ante καλῶς et βουλοίμεθα ante κρίνειν add. H 3 κληθεῖσα B
 5 διορίσαι ex διωρίσαι Ma 6 ποτὲ om. R καὶ Marquard : ἡ
 codd. 8 διωρίσαι (ε suprascr.) S 10 γέ] μὲν H 11 δὲ
 in ras. Mb, fuisse vid. μὲν : μέντοι R 12 οὔτε Marquard : οὐδὲ
 codd. 15 οὐδ' R 16 κατέμαθον Marquard : κατεμήνον H :
 καταμένονθ' rell. : καταμαθόντες Meibom ὅτε H 17 ταῖς (ο
 suprascr.) B 20 μέλεσι conieci : γένεσι codd. : post τοῖς
 dat μελ S sed deletum 21 μὲν om. H 22 ὑπαρχουσῶν
 ex ὑπαρχόντων Ma 23 παραλιμπάνονται (ut vid.) B : παραλιμ-
 πάνοντες H

ἐκλιμπανουσῶν τε καὶ ἀθεωρήτων διαφορῶν, κατὰ ταύτην ἀγνοήσομεν || τὰς ἐν τοῖς μελωδουμένοις διαφοράς. 36

Ἐπεὶ δ' ἐστὶν οὐκ αὐτάρκη τὰ διαστήματα πρὸς τὴν τῶν φθόγγων διάγνωσιν—πᾶν γάρ, ὡς ἀπλῶς εἰπεῖν, δια|στή- 5
5 ματος μέγεθος πλειόνων τινῶν δυνάμεων κοινόν ἐστιν—, τρίτον ἂν τι μέρος εἴη τῆς ὅλης πραγματείας τὸ περὶ τῶν φθόγγων εἰπεῖν ὅσοι τ' εἰσὶ καὶ τίνι γνωρίζονται καὶ πό-
τε|ρον τάσεις τινές εἰσιν, ὥσπερ οἱ πολλοὶ ὑπολαμβάνουσιν, 10
ἢ δυνάμεις καὶ αὐτὸ τοῦτο τί ποτ' ἐστὶν ἡ δύναμις. Οὐδὲν
10 γὰρ τῶν τοιούτων διορᾶται καθαρῶς ὑπὸ τῶν τὰ τοιαῦτα
πραγματευομένων. |

Τέταρτον δ' ἂν εἴη μέρος τὰ συστήματα θεωρῆσαι 15
πόσα τ' ἐστὶ καὶ ποῦ ἅττα καὶ πῶς ἕκ τε τῶν διαστημάτων
καὶ φθόγγων συνεστηκότα. Οὐδέτερον γὰρ τῶν τρόπων
15 τεθεώρηται τὸ μέρος τοῦτο ὑπὸ | τῶν ἔμπροσθεν· οὔτε γὰρ εἰ 20
πάντα τρόπον ἕκ τῶν διαστημάτων συντίθεται τὰ συστήματα
καὶ μηδεμία τῶν συνθέσεων παρὰ φύσιν ἐστὶν ἐπισκέψεως
τετύχηκεν, οὔθ' αἱ διαφοραὶ πᾶσαι τῶν συστημά|των ὑπ' οὐ- 25
δενὸς ἐξηρίθμυνται. Περὶ μὲν γὰρ ἑμμελοῦς ἢ ἐκμελοῦς
20 ἀπλῶς οὐδένα λόγον πεποιήνται οἱ πρὸ ἡμῶν, τῶν δὲ συστη-
μάτων τὰς διαφορὰς οἱ μὲν ὅλως οὐκ ἐπεχειροῦν ἐξαριθμεῖν |
—ἀλλὰ περὶ αὐτῶν μόνον τῶν ἐπτὰ ὀκταχόρδων ἃ ἐκάλουν 30
ἁρμονίας τὴν ἐπίσκεψιν ἐποιοῦντο—, οἱ δ' ἐπιχειρήσαντες
οὐδένα τρόπον ἐξηριθμοῦντο, καθάπερ οἱ περὶ Πυθαγόραν
25 τὸν Ζακύνθιον καὶ Ἀγῇ||νορα τὸν Μιτυληναῖον. Ἔστι 37

1 ἐκλιμπανόντων Ma (sed ουσῶν suprascr. Mc) VBS: ἐκλιμπανο-
μένων H 2 ἀγνοήσωμεν M (ut vid.) VB 6 ἂν τι post μέρος
ponit H 7 τίνι ex τίνων corr. S 10 καθαρῶς om. H
12 θεωρεῖσθαι H 14 τῶν ante φθόγγων et συστήματα ante συνεστη-
κότα add. H οὐδέτερον] οὐ et ἐ in ras. Mb 16 συστήματα]
συστή in ras. Mb, fuerat fortasse διαστή 19 μὲν om. H ἢ H
21 ἀπεχειροῦν H 22 μόνων H ἐπτὰ ὀκταχόρδων Westphal:
ἐπταχόρδων codd., sed in M a poster. manu ex ἐπτὰ χορδῶν factum
23 τὴν om. H 24 τε ante περὶ Πυθαγόραν et οἱ περὶ ante Ἀγῇνορα
add. H

δὲ τοιαύτη τις ἢ περὶ τὸ ἐμμελές τε καὶ ἐκμελές τάξις
οἷα καὶ ἡ περὶ (τὴν) τῶν γραμμάτων σύνθεσιν ἐν τῷ
5 διαλέγεσθαι· οὐ γὰρ πάντα τρόπον ἐκ τῶν αὐτῶν γραμ-
μάτων συντιθεμένη ξυλλαβὴ γίγνεται, ἀλλὰ πὼς μὲν, πὼς
δ' οὐ.

Πέμπτον δ' ἐστὶ τῶν μερῶν τὸ περὶ τοὺς τόνους ἐφ'
10 ὧν τιθέμενα τὰ συστήματα μελωδεῖται. Περὶ ὧν οὐδεὶς
οὐδὲν εἶρηκεν, οὔτε τίνα τρόπον ληπτέον οὔτε πρὸς τί βλέ-
ποντας τὸν ἀριθμὸν αὐτῶν ἀποδοτέον ἐστίν. ἀλλὰ παντελῶς
15 ἔοικε τῇ τῶν ἡμερῶν ἀγωγῇ τῶν | ἁρμονικῶν ἢ περὶ τῶν τόνων 10
ἀπόδοσις, οἷον ὅταν Κορίνθιοι μὲν δεκάτην ἄγωσιν Ἀθηναῖοι
δὲ πέμπτην ἕτεροι δὲ τῶς ὀγδόην. οὕτω γὰρ οἱ μὲν τῶν
20 ἁρμονικῶν λέγουσι βαρύτατον μὲν τὸν | ὑποδώριον τῶν
τόνων, ἡμιτονίῳ δὲ ὀξύτερον τούτου τὸν μιζολύδιον, τούτου
δ' ἡμιτονίῳ τὸν δώριον, τοῦ δὲ δωρίου τόνῳ τὸν φρύγιον, 15
25 ὡσαύτως δὲ καὶ τοῦ φρυγίου τὸν λύδιον ἐτέρῳ τόνῳ· ἔτε|ροι
δὲ πρὸς τοῖς εἰρημένοις τὸν ὑποφρύγιον αὐλὸν προστιθέασιν
ἐπὶ τὸ βαρύν, οἱ δὲ αὖ πρὸς τὴν τῶν αὐλῶν τρύπησιν βλέ-
ποντες τρεῖς μὲν τοὺς βαρυτάτους τρισὶ διέσεσιν ἀπ'
30 ἀλλή|λων χωρίζουσιν, τόν τε ὑποφρύγιον καὶ τὸν ὑποδώριον 20
καὶ τὸν δώριον, τὸν δὲ φρύγιον ἀπὸ τοῦ δωρίου τόνῳ, τὸν
δὲ λύδιον ἀπὸ τοῦ φρυγίου πάλιν τρεῖς διέσεις ἀφιστᾶσιν·
ὡσαύτως δὲ καὶ τὸν μιζολύδιον τοῦ λυδίου. Τί δ' ἐστὶ πρὸς
38 ὃ βλέποντες || οὕτω ποιεῖσθαι τὴν διάστασιν τῶν τόνων
προτεθύμηνται, οὐδὲν εἰρήκασιν. Ὅτι δὲ ἐστὶν ἡ κατα- 25

1 τε om. H τὸ ante ἐκμελές add. H ἡ supra lin. add. Ma :
om. H 2 τὴν restituit Marquard σύνθεσιν Meibom : σύνθεσις
codd. 6 τόνους] prior. litt. in ras. Vb (Va fort. τρόπους) 9 ἐστίν
om. H 10 τῇ . . . ἀγωγῇ linea subducta S ἡμερῶν] ἡ in ras.
Mb, erat τῶν μερῶν περὶ τῶν B : om. S 11 Κορίνθιοι . . .
ὀγδόην linea subducta S 13 εἶναι post μὲν add., τὸν ὑποδώριον
om., τὸ ὑποδώριον post τόνων add. H 14 prius τούτου] τούτου Mc R :
τούτων Ma rell. alterum τούτου] τούτου Mc : τούτων rell. 17 πρὸς
om. H 18 τρίπησιν H 19 δὲ post τρισὶ add. VSB 21 καὶ
τὸν δώριον om. R 25 προτεθύμηνται οὐδὲν εἰρήκασιν supra lin.
add. Mb

πύκνωσις ἐκμελῆς καὶ πάντα τρόπον ἄχρηστος, φα|νερὸν ἐπ' 5
αὐτῆς ἔσται τῆς πραγματείας.

Ἐπεὶ δὲ τῶν μελωδουμένων ἐστὶ τὰ μὲν ἀπλᾶ τὰ δὲ με-
τάβολα, περὶ μεταβολῆς ἂν εἶη λεκτέον, πρῶτον | μὲν αὐτὸ 10
5 τί ποτ' ἐστὶν ἡ μεταβολὴ καὶ πῶς γιγνόμενον—λέγω δ' οἶον
πάθους τίνος συμβαίνοντος ἐν τῇ τῆς μελωδίας τάξει—,
ἔπειτα πόσαι εἰσὶν αἱ πᾶσαι μεταβολαὶ καὶ κατὰ πόσα |
διαστήματα. Περὶ γὰρ τούτων οὐδεὶς οὐδενὸς εἴρηται λόγος 15
οὗτ' ἀποδεικτικὸς οὗτ' ἀναπόδεικτος.

10 Τελευταῖον δὲ τῶν (μερῶν ἐστὶ) τὸ περὶ αὐτῆς τῆς με-
λοποιίας. Ἐπεὶ γὰρ ἐν τοῖς αὐτοῖς φθόγγοις ἀδιαφόροις 20
οὔσι τὸ καθ' αὐτοὺς πολλαὶ τε καὶ παντοδαπαὶ μορφαὶ μελῶν
γίγνονται, δῆλον ὅτι παρὰ τὴν χρῆσιν τοῦτο γένοιτ' ἂν.
καλοῦμεν δὲ τοῦτο μελοποιῖαν. Ἡ μὲν οὖν περὶ τὸ ἥρμο-
15 σμένον | πραγματεία διὰ τῶν εἰρημένων μερῶν πορευθεῖσα 25
τοιούτου λήψεται τέλος.

Ὅτι δ' ἐ(στὶ) τὸ ξυνιέναι τῶν μελωδουμένων τῇ τε ἀκοῇ
καὶ τῇ διανοίᾳ κατὰ πᾶσαν διαφορὰν τοῖς γιγνομένοις παρα- 30
κολουθεῖν (δῆλον)—ἐν γενέσει γὰρ δὴ τὸ μέλος, καθάπερ
20 καὶ τὰ λοιπὰ μέρη τῆς μουσικῆς —
. ἐκ δύο γὰρ τούτων ἡ τῆς μουσικῆς ξύνεσις ἐστίν,
αἰσθήσεώς τε καὶ μνήμης· αἰσθάνε||σθαι μὲν γὰρ· δεῖ τὸ 39
γιγνόμενον, μνημονεύειν δὲ τὸ γεγονός. κατ' ἄλλον δὲ τρόπον
οὐκ ἔστι τοῖς ἐν τῇ μουσικῇ παρακολουθεῖν.

3 μετάβολα Meibom: ἀμετάβολα codd. 5 λέγω] λέξ S 6 τίνος
coniecti: τίνος codd. 7 πᾶσαι post μεταβολαὶ ponunt R H
8 οὐδεὶς post οὐδενὸς ponit H 9 ἀπόδεικτος B 10 μερῶν
ἐστὶ restituit Meibom: τῶν μερῶν ἐστὶ om. R: μερῶν ἐστὶ τὸ om.
rell. μελοποιίας Meibom H: μελωδίας rell. 12 τὸ om. H
μορφαὶ om. B, sed a corr. supra lin. add. μελῶν post γίγνονται
ponit H 13 παρὰ] πρὸς H 14 μελωποιῖαν S οὖν] αὖ B
16 τοιούτου ex τοιούτου Mc: τοιούτου V B S 17 ἐστὶ addidi
ἐκαστον post μελωδουμένων add. Meibom 18 παρακολουθεῖν
coniecti: παρακολουθεῖ codd. (post εἰ ras. M) 19 δῆλον addidi
τὸ supra lin. add. Mb 21 ἐκ δύο . . . μουσικῆς in marg. Mb
22 αἰσθάνεσθαι μὲν] αἱ μὲν e corr. B δεῖ ex δὴ Mc: δὴ V B S

5 Ἄ δέ τινες ποιοῦνται τέλη τῆς | ἁρμονικῆς καλου-
 μένης πραγματείας οἱ μὲν τὸ παρασημαίνεσθαι τὰ μέλη
 φάσκοντες πέρας εἶναι τοῦ ξυνιέναι τῶν μελωδουμένων
 ἕκαστον, οἱ δὲ τὴν περὶ τοὺς αὐλοὺς θεωρίαν καὶ τὸ
 10 ἔχειν | εἰπεῖν τίνα τρόπον ἕκαστα τῶν αὐλουμένων καὶ 5
 πόθεν γίγνεται· τὸ δὴ ταῦτα λέγειν παντελῶς ἐστὶν ὅλου
 τινὸς διημαρτηκότος. Οὐ γὰρ ὅτι πέρας τῆς ἁρμονικῆς
 15 ἐπιστήμης ἐστὶν ἡ παραση|μαντική, ἀλλ' οὐδὲ μέρος οὐ-
 δέν, εἰ μὴ καὶ τῆς μετρικῆς τὸ γράψασθαι τῶν μέτρων
 ἕκαστον· εἰ δ' ὥσπερ ἐπὶ τούτων οὐκ ἀναγκαῖόν ἐστι 10
 τὸν δυνάμενον γράψασθαι τὸ ἱαμβικὸν (μέτρον καὶ εἰδέναι
 20 τί ἐστὶ τὸ ἱαμβικόν), | οὕτως ἔχει καὶ ἐπὶ τῶν μελωδου-
 μένων,—οὐ γὰρ ἀναγκαῖόν ἐστι τὸν γραψάμενον τὸ φρύγιον
 μέλος καὶ εἰδέναι τί ἐστὶ τὸ φρύγιον μέλος—δήλον ὅτι
 25 οὐκ ἂν εἴη τῆς εἰρημένης | ἐπιστήμης πέρας ἡ παραση- 15
 μαντική. Ὅτι δ' ἀληθὴ τὰ λεγόμενα καὶ ἔστιν ἀναγκαῖον
 τῷ παρασημαινομένῳ μόνον τὰ μεγέθη τῶν διαστημάτων
 30 διαισθάνεσθαι, φανερόν γένοιτ' ἂν | ἐπισκοπούμενοις. Ὁ
 γὰρ τιθέμενος σημεία τῶν διαστημάτων οὐ καθ' ἑκάστην τῶν
 ἐνυπαρχουσῶν αὐτοῖς διαφορῶν ἴδιον τίθεται σημείον, οἷον 20
 40 εἰ τοῦ διὰ τεσσάρων τυγχάνουσιν αἱ δι||αιρέσεις οὖσαι
 πλείους ἅς ποιοῦσιν αἱ τῶν γενῶν διαφοραί, ἢ σχήματα
 πλείονα ποιεῖ ἢ τῆς τῶν ἀσυνθέτων διαστημάτων τάξεως
 5 ἀλλοίωσις· τὸν αὐτὸν δὲ λόγον | καὶ περὶ τῶν δυνάμεων
 ἐροῦμεν ἅς αἱ τῶν τετραχόρδων φύσεις ποιοῦσι, τὸ γὰρ 25

3 τοῦ ex τὸ Mb	4 τὴν supra lin. add. Mb	7 διαμαρτη-
κότος B	ἀληθές post γὰρ add. H	οὐ post ὅτι add. Mar-
quard	9 γράψασθαι] γὰρ ἄψασθαι R	11 τὸν] τὸ M VS
μέτρον . . . ἱαμβικόν restituit Marquard	14 καὶ ἀριστά γε	
εἰδέναι in marg. Mc (?) R	καὶ post ἐστὶ add. H	17 τῷ ex
τὸ Mb	μόνῳ B	20 ὑπαρχουσῶν H: ἐνυπαρχουσῶν ex
ἐνυπαρχόντων Ma	αὐτοῖς supra lin. add. Mc	21 εἰ in ras. Mb
διὰ supra lin. add. Mc: om. VB in marg.	διὰ τεσσάρων] δ' S	
23 & post πλείονα add. Marquard	ἢ] ἢ R	συνθέτων B
24 λόγων S		

ὑπερβολαίων καὶ νητῶν καὶ μέσων καὶ ὑπατῶν τῷ αὐτῷ γρά-
φεται σημείῳ, τὰς δὲ τῶν δυνάμεων διαφορὰς οὐ διορίζει τὰ |
σημεῖα (ὥστε) μέχρι τῶν μεγεθῶν αὐτῶν κείσθαι, πορρωτέρω 10
δὲ μηδέν. "Οτι δ' οὐδέν ἐστι μέρος τῆς συμπάσης ξυνέσεως τὸ
5 διαισθάνεσθαι τῶν μεγεθῶν αὐτῶν, ἐλέχθη μὲν πως καὶ ἐν
ἀρχῇ, ῥάδιον | δὲ καὶ ἐκ τῶν ῥηθησομένων συνιδεῖν· οὔτε γὰρ 15
τὰς τῶν τετραχόρδων οὔτε τὰς τῶν φθόγγων δυνάμεις οὔτε τὰς
τῶν γενῶν διαφορὰς οὔτε, ἀπλῶς εἰπεῖν, τὴν τοῦ συνθέτου
καὶ τὴν τοῦ ἀσυν|θέτου διαφορὰν οὔτε τὸ ἀπλοῦν καὶ μετα- 20
10 βολὴν ἔχον οὔτε τοὺς τῶν μελοποιῶν τρόπους οὔτ' ἄλλο
οὐδέν, ὡσαύτως εἰπεῖν, δι' αὐτῶν τῶν μεγεθῶν γίγνεται
γνώριμον. Εἰ μὲν οὖν δι' ἄγνοίαν τὴν ὑπόληψιν ταύτην 25
ἐσχέκασιν οἱ καλούμενοι ἁρμονικοί, τὸ μὲν ἦθος οὐκ ἂν εἶεν
ἄτοποι, τὴν δὲ ἄγνοιαν ἰσχυράν τινα καὶ μεγάλην εἶναι παρ'
15 αὐτοῖς ἀναγκαῖον· εἰ δὲ συνορῶντες, ὅτι οὐκ | ἔστι τὸ παρα- 30
σημαίνεισθαι πέρας τῆς εἰρημένης ἐπιστήμης, χαριζόμενοι δὲ
τοῖς ἰδιώταις καὶ πειρώμενοι ἀποδιδόναι ὀφθαλμοειδές τι
ἔργον ταύτην ἐκτεθείκασιν τὴν ὑπόληψιν, μεγάλην || (ἂν) 41
αὐθις αὐτῶν ἀτοπίαν τοῦ τρόπου καταγνοίην· πρῶτον μὲν,
20 ὅτι κριτὴν οἶονται δεῖν κατασκευάζειν τῶν ἐπιστημῶν τὸν
ἰδιώτην—ἄτοπος γὰρ ἂν | εἴη τὸ αὐτὸ μαυθάνων τε καὶ 5
κρίνων ὁ αὐτός—, ἔπειθ' ὅτι (πέρας) τοῦ ξυνιέναι τιθέντες

1 ὑπερβολαίων καὶ νητῶν καὶ μέσων καὶ ὑπατῶν coniecti ὑπερ-
βολαίων καὶ νητῶν] τῆς ὑπερβολαίας H: ὑπερβολαίας νήτης B: ὑπερ-
βολαίας καὶ νήτης R: ὑπερβολαίας rell. (in marg. B) μέσων
καὶ ὑπατῶν] μέσης καὶ ὑπάτης codd. 2 διορίζει τὰ Marquard:
διορίζεται codd. 3 σημείῳ R ὥστε restituit Marquard
6 τοῦ ῥηθησομένου H τὰ κατὰ post γὰρ add. Westphal
8 ὡς ante ἀπλῶς add. H τὴν R: τὰς rell. τοῦ συνθέτου
Meibom: τῶν συνθέτων codd. 9 καὶ τῶν ἀσυνθέτων διαφορὰς
H 10 οὔτε a corr. suprascr. B μελοποιῶν V: μελοποιῶν
rell. 12 γνωρίμων B δι' ἄγνοιαν] διάνοιαν H 14 δέ]
δι' H 17 ἰδιώταις S ἀποδοῦναι H ὀφθαλμοειδεσσι Ma:
accent. acut. supra ε alterum, et τ supra σ add. Mc 18 ἐκτεθείκασιν
S ὑπόλειψιν H ἂν restituit Marquard 19 καταγνοίην] ν
add. Mb 21 ἰδιώτην S 22 πέρας restituit Marquard τοῦ]
τὸ M V S B: om. R

φανερὸν τι ἔργον ὥς οἴονται ἀνάπαλιν τιθέασιν· παντὸς γὰρ
 10 ὀφθαλμοφανοῦς ἔργου πέρασ ἐστὶν ἡ ξύνεσις. | τὸ γὰρ ἐπι-
 στατοῦν πᾶσι καὶ κρῖνον τοῦτ' ἐστι· [ἦ] τὰς <δὲ> χεῖρας ἢ
 τὴν φωνὴν ἢ τὸ στόμα ἢ τὸ πνεῦμα [ἦ] ὅστις οἶεται πολὺ τι
 15 διαφέρειν τῶν ἀψύχων ὀργάνων οὐκ ὀρθῶς διανοεῖται· | εἰ δὲ 5
 τὴν ψυχὴν που καταδεδυκός ἐστιν ἡ ξύνεσις καὶ μὴ πρόχειρον
 μηδὲ τοῖς πολλοῖς φανερὸν, καθάπερ αἱ τε χειρουργαί καὶ
 20 τὰ λοιπὰ τῶν τοιούτων, οὐ διὰ τοῦτο ἄλλως ὑποληπτέον
 ἔχειν τὰ εἰρημένα. διημαρτηκέναι γὰρ συμβήσεται τάλη-
 θοῦς, ἔαν τὸ μὲν κρῖνον μήτε πέρασ μήτε κύριον ποιῶμεν, τὸ 10
 25 δὲ κριζόμενον κύριόν τε καὶ πέρασ. Οὐχ ἦττον δέ | ἐστι
 ταύτης ἢ περὶ τοὺς αὐλοὺς ὑπόληψις ἄτοπος· μέγιστον
 μὲν οὖν καὶ καθόλου μάλιστα <ἄτοπον> τῶν ἁμαρτημάτων
 ἐστὶ τὸ εἰς ὄργανον ἀνάγειν τὴν τοῦ ἡρμοσμένου φύσιν· δι'
 30 οὐδὲν γὰρ τῶν | τοῖς ὀργάνοις ὑπαρχόντων τοιούτον ἐστὶ τὸ 15
 ἡρμοσμένον οὐδὲ τοιαύτην τάξιν ἔχον. οὐ γάρ, ὅτι ὁ αὐλὸς
 τρυπήματά τε καὶ κοιλίας ἔχει καὶ τὰ λοιπὰ τῶν τοιούτων,
 42 ὅτι δὲ χειρουργίαν τὴν || μὲν ἀπὸ τῶν χειρῶν τὴν δ' ἀπὸ
 τῶν λοιπῶν μερῶν οἷς ἐπιτείνειν τε καὶ ἀνιέναι πέφυκε, διὰ
 5 τοῦτο συμφωνεῖ διὰ τεσσάρων ἢ διὰ πέντε ἥτοι διὰ πασῶν, 20
 ἢ τῶν ἄλλων διαστημάτων ἕκαστον λαμβάνει τὸ προσῆκον
 μέγεθος. Πάντων γὰρ τούτων ὑπαρχόντων οὐδὲν ἦττον τὰ
 μὲν πλείω διαμαρτάνουσιν οἱ αὐληταὶ τῆς τοῦ ἡρμοσμένου
 10 τάξεως, ὀλίγα δ' ἐστὶν ἃ τυγχάνουσι ποιοῦντες πάντα ταῦτα,
 καὶ γὰρ ἀφαιροῦντες καὶ παραβάλλοντες καὶ τῷ πνεύματι 25

3 πᾶσι post ἐπιστατοῦν ponit H κρίναν H ἢ seclusi : in ras.
 Mb δὲ addidi 4 ἢ seclusi 5στις S B : ὅστις ex εἰ τις (ut
 vid.) Mb : § τις cum macula post § V R 5 διαφέρειν Marquard
 H : διαφέρει rell. 6 καταδεδυκός Meibom : καταδεδυκώς codd.
 12 αὐλοῦς Meibom : ἄλλους codd. 13 ἄτοπον restituit Marquard
 14 δι' om. H 15 τῶν τοῖς ὀργάνοις in ras. Mb τὸ om. H
 16 τοιαύτην] ταύτην H 17 τὰς ante κοιλίας add. H 18 ὁ
 αὐλητῆς ante χειρουργίαν add. Marquard τὴν μὲν] τὸν μὲν B
 20 τὸ ante διὰ τεσσάρων add. H S τὸ διὰ πέντε ἢ τὸ διὰ πασῶν H
 21 λαμβάνη R 23 αὐληταὶ] αὐλοὶ S 24 ἃ supra lin. add.
 Mb ἐπιτυγχάνουσι B (ου e corr.) R 25 τῷ πνι S

ἐπιτείνοντες καὶ ἀνιέντες καὶ ταῖς ἄλλαις αἰτίαις ἐνεργοῦντες.
 ὥστ' εἶναι | φανερόν, ὅτι οὐδὲν διαφέρει λέγειν τὸ καλῶς ἐν 15
 τοῖς αὐλοῖς τοῦ κακῶς· οὐκ ἔδει δὲ τοῦτο συμβαίνειν, εἴπερ
 τι ὄφελος ἦν τῆς εἰς ὄργανον τοῦ ἡρμοσμένου ἀναγωγῆς,
 5 ἀλλ' ἅμα τ' εἰς | τοὺς αὐλοὺς ἀνῆχθαι τὸ μέλος καὶ εὐθὺς 20
 ἀστραβὲς εἶναι καὶ ἀναμάρτητον καὶ ὀρθόν. ἀλλὰ γὰρ οὐτ'
 αὐλοὶ οὔτε τῶν ἄλλων οὐθὲν ὀργάνων ποτὲ βεβαιώσκει τὴν
 τοῦ ἡρμοσμένου φύσιν· τάξιν | γὰρ τινα καθόλου τῆς φύσεως 25
 τοῦ ἡρμοσμένου θαυμαστὴν μεταλαμβάνει τῶν ὀργάνων
 10 ἕκαστον ἐφ' ὅσον δύναται, τῆς αἰσθήσεως αὐτοῖς ἐπιστα-
 τούσης πρὸς ἣν ἀνάγεται καὶ ταῦτα καὶ τὰ λοιπὰ | τῶν κατὰ 30
 μουσικὴν. Εἰ (δέ) τις οἶεται, ὅτι τὰ τρυπήματα ὀρᾷ ταῦτα
 ἐκάστης ἡμέρας ἢ τὰς χορδὰς ἐντεταμένας τὰς αὐτάς, διὰ
 τοῦθ' εὐρήσειν τὸ ἡρμοσμένον ἐν αὐτοῖς διαμένον τε καὶ τὴν
 15 αὐτὴν τάξιν διασώζον, παν||τελῶς εὐήθης· ὥσπερ γὰρ ἐν 43
 ταῖς χορδαῖς οὐκ ἔστι τὸ ἡρμοσμένον, ἐὰν μὴ τις αὐτὸ διὰ
 τῆς χειρουργίας προσαγαγὼν ἀρμόσῃται, οὕτως οὐδὲ ἐν τοῖς |
 τρυπήμασιν, ἐὰν μὴ τις αὐτὸ χειρουργίᾳ προσαγαγὼν ἀρμό- 5
 σῇται. ὅτι δ' οὐδὲν τῶν ὀργάνων αὐτὸ ἀρμόττεται ἀλλὰ ἡ
 20 αἰσθησίς ἐστιν ἡ τούτου κυρία, δῆλον ὅτι οὐδὲ λόγου δεῖται,
 φανερόν γάρ. | Θαυμαστὸν δ' εἰ μὴδ' εἰς τὰ τοιαῦτα βλέ- 10
 ποντες ἀφίστανται τῆς τοιαύτης ὑπολήψεως ὁρῶντες ὅτι

1 καὶ ἀνιέντες] ἢ ἀνιέντες H καὶ ταῖς] ἐν ταῖς R 3 κακῶς]
 καλῶς B: om. R τοῦτο] τὸ M R: τοῦ S 4 εἰς ὄργανον τοῦ
 ἡρμοσμένου Meibom: εἰς τὸ ἡρμοσμένον ὄργανον codd. 5 μάλος H
 6 ἀστραβὲς ex ἀστραβές, deinde 2 litt. eras. Mb: ἀστραβές τε B
 7 ἄλλων in ras. Mb οὐθὲν post ὀργάνων ponit H 8 ἡρμοσμένου
 φύσιν. τάξιν γὰρ τινα καθόλου τῆς φύσεως τοῦ (ante τοῦ ras) in marg.
 Mb: φύσιν (om. καὶ sed supra lin. add.) γὰρ τῆς καθόλου φύσεως (τῆς
 in ras. in qua τινα vel τις erat, ante φύσεως 3 litt. eras.) Vb: item B
 sed in marg. τάξιν ut scripturae discrepantia pro φύσιν: τάξιν. καὶ
 γὰρ τῆς καθόλου φύσεως S 10 ante ἐφ' 4 litt. eras. M αὐτοῖς]
 αὐτῆς B ἐπιταττούσης R 12 εἰ] εἰς B δὲ restituit Marquard
 (leg. H) ταῦτα M V B S 13 ἢ om. M V S B 14 τε om. R
 15 αὐτὴν om. H διασώζων Ma: διασώζον Mb rell. 16 διὰ τῆς
 om. R, supra lin. add. Mb 17 χειρουργίᾳ R ἀρμόσεται (ἡ
 suprascr.) B οὕτως . . . ἀρμόσεται om. H 19 τῶν om. H
 20 μυρία (κυ supra μν scr.) H οὔτε H λόγον B H

- κινουῦνται οἱ αὐλοὶ καὶ οὐδέποθ' ὥσαύτως ἔχουσιν ἀλλ' ἕκαστα
 15 τῶν αὐλουμένων μεταβάλλει | (κατὰ) τὰς αἰτίας ἀφ' ὧν
 αὐλεῖται. Σχεδόν δὴ φανερόν, ὅτι δι' οὐδεμίαν αἰτίαν εἰς
 τοὺς αὐλοὺς ἀνακτέον τὸ μέλος, οὔτε γὰρ βεβαιώσει τὴν
 τοῦ ἡρμοσμένου τάξιν [τὸ εἰρημένον] ὄργανον οὐτ', εἴ τις | 5
 20 ὥρθη δεῖν εἰς ὄργανόν τι ποιείσθαι τὴν ἀναγωγὴν, εἰς τοὺς
 αὐλοὺς ἦν ποιητέον, ἐπειδὴ μάλιστα πλανᾶται καὶ κατὰ τὴν
 αὐλοποιῖαν καὶ κατὰ τὴν χειρουργίαν καὶ κατὰ τὴν ἰδίαν
 φύσιν. |
 25 Ἄ μὲν οὖν προδιέλθοι τις ἂν περὶ τῆς ἁρμονικῆς καλου- 10
 μένης πραγματείας σχεδόν ἔστι ταῦτα· μέλλοντας δ' ἐπι-
 χειρεῖν τῇ περὶ τὰ στοιχεῖα πραγματείᾳ δεῖ προδιανοηθῆναι
 30 τὰ τοιᾶδε· ὅτι οὐκ ἐνδέχεται καλῶς αὐτὴν διεξελεῖν μὴ
 προϋπαρξάντων τριῶν τῶν ῥηθησομένων· πρῶτον μὲν αὐτῶν
 τῶν φαινομένων καλῶς ληφθέντων, ἔπειτα διορισθέντων ἐν 15
 44 αὐτοῖς τῶν || τε προτέρων καὶ τῶν ὑστέρων ὀρθῶς, τρίτον δὲ
 τοῦ συμβαίνοντός τε καὶ ὁμολογουμένου κατὰ τρόπον συν-
 5 οφθέντος· Ἐπεὶ δὲ πάσης ἐπιστήμης, ἣ τις ἐκ προβλημάτων
 πλειόνων συνέστηκεν, ἀρχὰς προσήκόν ἔστι λαβεῖν ἐξ ὧν
 δειχθήσεται τὰ μετὰ τὰς ἀρχάς, ἀναγκαῖον ἂν εἴη λαμβάνειν 20
 προσέχοντας δύο τοῖσδε· πρῶτον μὲν ὅπως ἀληθές τε καὶ |
 10 φαινόμενον ἕκαστον ἔσται τῶν ἀρχοειδῶν προβλημάτων,
 ἔπειθ' ὅπως τοιοῦτον οἶον ἐν πρώτοις ὑπὸ τῆς αἰσθήσεως
 συνοράσθαι τῶν τῆς ἁρμονικῆς πραγματείας μερῶν· τὸ γὰρ
 15 πῶς ἀπαιτοῦν ἀπόδειξιν | οὐκ ἔστιν ἀρχοειδές. Καθόλου 25
 δ' ἐν τῷ ἀρχεσθαι παρατηρητέον, ὅπως μῆτ' εἰς τὴν
 ὑπερορίαν ἐμπίπτωμεν ἀπὸ τινος φωνῆς ἢ κινήσεως ἀέρος

1 post αὐλοὶ unum verbum eras. M 2 κατὰ restituit Meibom
 3 δὴ] δὲ H 4 μέλος H 5 τὸ εἰρημένον seclusi εἰ om.
 M V B S 6 ἀγωγὴν M V S R H 7 ἦν] ἦν ex ἦν Mb: ἦν
 V S B, H (ante εἰς τοὺς) 8 καὶ κατὰ τὴν χειρουργίαν in marg. Mb
 10 προέλθοι B in marg. 17 τὸν ante τρόπον add. M V S B
 συναφθέντος H 18 ἐπεὶ ex ἐπὶ Mb 19 προσέχοντα H
 24 μέτρων H 25 πῶς S ἀπετοῦν H 26 τὴν om. V S
 27 ἐμπίπτωμεν] lac. πτωμεν R: ἐμπίπτομεν H ἢ cōnieci: ἢ codd.

ἀρχόμενοι, μήτ' αὖ κάμπουντες ἐντὸς πολ|λὰ τῶν οἰκείων 20
ἀπολιμπάνωμεν
.

Τρία γένη τῶν μελωδουμένων ἐστίν· διάτονον χρώμα
5 ἁρμονία. αἱ μὲν οὖν διαφοραὶ τούτων ὕστερον ῥηθήσονται·
τοῦτο δ' αὐτὸ ἐκκείσθω, ὅτι πᾶν | μέλος ἔσται ἥτοι διάτονον 25
ἢ χρωματικὸν ἢ ἐναρμόνιον ἢ μικτὸν ἐκ τούτων ἢ κοινὸν
τούτων.

Δευτέρα δ' ἐστὶ διαίρεσις τῶν διαστημάτων εἶναι τὰ μὲν
10 σύμφωνα τὰ | δὲ διάφωνα. γνωριμώταται μὲν δοκοῦσιν εἶναι 30
αὗται δύο τῶν διαστηματικῶν διαφορῶν, ἥ τε μεγέθει δια-
φέρουσιν ἀλλήλων καὶ ἥ τὰ σύμφωνα τῶν διαφώνων· περιέ-
χεται δ' ἡ ὑστέρα ῥηθείσα || διαφορὰ τῇ προτέρᾳ, πᾶν γὰρ 45
σύμφωνον παντὸς διαφώνου διαφέρει μεγέθει. Ἐπεὶ δὲ τῶν
15 συμφώνων πλείους εἰσὶ πρὸς ἄλληλα διαφοραί, μία τις ἢ |
γνωριμωτάτη αὐτῶν ἐκκείσθω (πρώτη)· αὕτη δ' ἐστὶν ἡ κατὰ 5
μέγεθος. Ἐστω δὲ τῶν συμφώνων ὀκτὼ μεγέθη· ἐλάχιστον
μὲν τὸ διὰ τεσσάρων—συμβαίνει δὲ τοῦτο (αὐτῇ) τῇ τοῦ
(μέλους) φύσει ἐλάχιστον εἶναι· σημεῖον δὲ | τὸ μελωδεῖν 10
20 μὲν ἡμᾶς πολλὰ τοῦ διὰ τεσσάρων ἐλάττω, πάντα μέντοι
διάφωνα—. δεύτερον δὲ τὸ διὰ πέντε, ὃ τι δ' ἂν τούτων
ἀνὰ μέσον ἢ μέγεθος πᾶν ἔσται διάφωνον. τρίτον (δ') ἐκ
τῶν εἰρημέ|νων συμφώνων σύνθετον τὸ διὰ πασῶν, τὰ δὲ 15

4 Mb in marg. ἀρχή Vb in marg. πόσα γένη μελωδίας ἐστίν ins.
Mb: om. R 5 ἁρμονία] vid. fuisse ἁρμονίαν M 6 μέλος H
ἢ τοι ex δ τε Ma (b?) 7 ἐκ om. M V B R S 9 ἐστὶν post
διαστημάτων ponit H post ἐστὶ una litt. eras., vid. fuisse ἐστὶν M
12 διαφώνων ex διαφορῶν Ma 13 ἐν ante τῇ add. H 14 παντὸς
om. et μεγέθει ante διαφώνων ponit H ὅρα Πορφύριον ἐν τῷ εἰς
'Ἀρμονικὰ τοῦ Πτολεμαίου ὑπομνήματι in marg. H 16 πρώτη
restituit Marquard, sed ante ἐκκείσθω ponit 18 συμβέβηκε δὲ H
αὐτῇ restituit Westphal τῇ om. B τοῦ B: αὐτοῦ M V S R:
αὐτοῦ H 19 μέλους restituit Westphal 20 πολλὰ om. R
22 ἀνὰ μέσων B ἔσται H: εἶναι rell. post εἶναι add. λέγομεν
Marquard δ' restituit Marquard 23 συντεθέν H

- τούτων ἀνὰ μέσον διάφωνα ἔσται. Ταῦτα μὲν οὖν λέγομεν
 ἃ παρὰ τῶν ἔμπροσθεν παρειλήφαμεν, περὶ δὲ τῶν λοιπῶν
 20 ἡμῖν αὐτοῖς διοριστέον. | Πρῶτον μὲν οὖν λεκτέον, ὅτι πρὸς
 τῷ διὰ πασῶν πᾶν σύμφωνον προστιθέμενον διάστημα τὸ
 γιγνόμενον ἐξ αὐτῶν μέγεθος σύμφωνον ποιεῖ. καὶ ἔστιν 5
 25 ἴδιον τοῦτο τὸ πάθος τοῦ συμφώνου | τούτου, καὶ γὰρ ἐλάτ-
 τονος προστεθέντος καὶ ἴσου καὶ μείζονος τὸ γιγνόμενον ἐκ
 τῆς συνθέσεως σύμφωνον γίγνεται τοῖς δὲ πρώτοις συμ-
 φώνοις οὐ συμβαίνει τοῦτο, οὔτε γὰρ τὸ ἴσον ἐκατέρω
 30 αὐτῶν συντεθὲν τὸ ὅλον σύμφωνον ποιεῖ οὔτε τὸ ἐξ ἑκα- 10
 τέρου αὐτῶν καὶ τοῦ διὰ πασῶν συγκεείμενον, ἀλλ' αἰεὶ
 διαφωνήσει τὸ ἐκ τῶν εἰρημένων συμφώνων συγκεείμενον.
- 46 Τόνος δ' ἐστὶν ὃ τὸ διὰ πέντε || τοῦ διὰ τεσσάρων μείζον·
 τὸ δὲ διὰ τεσσάρων δύο τόνων καὶ ἡμίσεος. Τῶν δὲ τοῦ
 τόνου μερῶν μελωδεῖται τὸ ἥμισυ, ὃ καλεῖται ἡμιτόνιον, καὶ 15
 5 τὸ τρίτον μέρος, | ὃ καλεῖται διέσις χρωματικὴ ἐλαχίστη,
 καὶ τὸ τέταρτον, ὃ καλεῖται διέσις ἑναρμόνιος ἐλαχίστη·
 τούτου δ' ἐλαττον οὐδὲν μελωδεῖται διάστημα. Δεῖ δὲ
 10 πρῶτον μὲν τοῦτο αὐτὸ μὴ ἀγνοεῖν, ὅτι | πολλοὶ ἤδη διή-
 μαρτον ὑπολαβόντες ἡμᾶς λέγειν ὅτι ὁ τόνος εἰς (τρία ἢ) 20
 τέσσαρα ἴσα διαιρούμενος μελωδεῖται. συνέβη δ' αὐτοῖς
 τοῦτο παρὰ τὸ μὴ κατανοεῖν ὅτι ἕτερόν ἐστι τό τε λαβεῖν
 15 τρίτον μέρος τόνου καὶ τὸ διελόντα εἰς τρία τόνου μελωδεῖν.
 ἔπειτα ἀπλῶς μὲν οὐθὲν ὑπολαμβάνομεν εἶναι διάστημα
 ἐλάχιστον.

25

1 ἀνὰ μέσων H διάφωνα εἶναι λεγόμεν. Ταῦτα μὲν οὖν παρὰ
 Marquard (δ. ε. λεγόμενα τ. μ. ο. π. Porphyrius) ἔσται H : εἶναι
 rell. 3 μὲν supra lin. add. Mb 4 τῷ] τὸ SH B in marg.
 5 ποιεῖται H 7 μέγεθος post μείζονος add. H γιγνόμενον
 Marquard : λεγόμενον codd. : γεγόμενον Porphyrius 9 οὐ supra
 lin. add. Mb πάθος post τοῦτο add. H 11 δις τεθέντος post
 αὐτῶν add. Meibom αἰεὶ διαφωνήσει] ἡ διαφώνησις MVBS : ἡ
 διαφώνησις R 13 τοῦ] καὶ R 14 ἡμίσεος BH 17 καὶ
 . . . ἐλαχίστη om. H δ R : om. rell. 20 ὑπολαβόντες ex
 ὑπολαβόντας Mb τρία ἢ restituit Marquard 21 αὐτοῖς post
 τοῦτο ponit H 24 ἔπειθ' ἀπλῶς S

Αἱ δὲ τῶν γενῶν διαφοραὶ λαμβάνονται ἐν τετραχόρδῳ 20
 τοιούτῳ οἷόν ἐστι τὸ ἀπὸ μέσης ἐφ' ὑπάτην, τῶν μὲν ἄκρων
 μενόντων, τῶν δὲ μέσων κινουμένων ὅτε μὲν ἀμφοτέρων
 ὅτε δὲ θατέρου. Ἐπεὶ δ' ἀναγκαῖον τὸν κινού|μενον φθόγ- 25
 γον ἐν τόπῳ τινὶ κινεῖσθαι, ληπτέος ἂν εἴη τόπος ὠρισμένος
 ἐκατέρου τῶν εἰρημένων φθόγγων. φαίνεται δὴ συντονω-
 τάτῃ μὲν εἶναι λιχανὸς ἢ τόνον ἀπὸ μέσης ἀπέχουσα, |
 ποιεῖ δ' αὕτη διάτονον γένος, βαρυτάτῃ δ' ἢ δίτονον, γίγνεται 30
 δ' αὕτη ἐναρμόνιος· ὥστ' εἶναι φανερόν ἐκ τούτων, ὅτι
 10 τονιαῖός ἐστιν ὁ τῆς λιχανοῦ τόπος. τὸ δὲ παρυπάτης (καὶ
 ὑπάτης) διάστημα ἔλαττον μὲν ὅτι οὐκ ἂν γένοιτο διέσεως ||
 ἐναρμονίου φανερόν, ἐπειδὴ πάντων τῶν μελωδουμένων 47
 ἐλάχιστόν ἐστι διέσις ἐναρμόνιος· ὅτι δὲ καὶ τοῦτο εἰς τὸ
 διπλάσιον αὖξεται, κατανοητέον. ὅταν | γὰρ ἐπὶ τὴν αὐτὴν 5
 15 τάσιν ἀφίκωνται ἢ τε λιχανὸς ἀνιεμένη καὶ ἡ παρυπάτη
 ἐπιτεινομένη, ὀρίζεσθαι δοκεῖ ἐκατέρας ὁ τόπος. ὥστ' εἶναι
 φανερόν, (ὅτι οὐ μείζων διέσεως ἐλάχιστης ἐστὶν ὁ τῆς
 παρυπάτης τόπος. Ἦδη δέ τινες θαυμάζουσι) πῶς ἐστι
 λιχανὸς κωηθέντος ἐνὸς ὅτου | δῆποτε τῶν μέσης καὶ λιχανοῦ 10
 20 διαστημάτων· διὰ τί γὰρ μέσης μὲν καὶ παραμέσης ἐν ἐστὶ
 διάστημα καὶ πάλιν αὖ μέσης τε καὶ ὑπάτης καὶ τῶν ἄλλων
 ὅσοι (μὴ) κινούνται τῶν φθόγγων, τὰ δὲ μέσης καὶ λιχανοῦ 15
 διαστήματα πολλὰ θετέον εἶναι· κρεῖττον γὰρ τῶν φθόγγων

2 τῶν supra lin. add. Mb 3 δὲ supra lin. add. Mb: om. B
 δὲ μέσων H: μέσων δὲ rell. ἀμφοτέρων ex ἀμφοτέρου (ut vid.) Mb
 4 ἐπεὶ δ' ἂν M: ἐπειδὴν VBS 5 ληπτέος] τέος corr. Mb
 6 ἐκατέρου Marquard: ἐκατέρων codd. δὴ] μὴ B 8 αὕτη H:
 αὐτῇ M VBS: αὐτῇ R βαρυτάτῃ δὲ ἢ δι in ras. Mb ἢ om. S
 10 καὶ ὑπάτης restituit Marquard 11 ἔλαττον Mc in marg. B:
 ἔλαττον Ma VSB ὅτι om. R 12 τούτων post πάντων add. H
 15 τάσιν] τάξιν H ἢ παρυπάτῃ] ὑπαρυπάτῃ B 16 ὀρίζεσθαι
 Marquard: ὠρίσθαι R: ὀρίσθαι in marg. B: ὀριεῖσθαι rell. δ om. H
 17 ὅτι . . . θαυμάζουσι restituit Studemund 19 κινιθέντος B:
 τεθέντος Marquard 20 παραμέσης ex παραμέσου Mc: παραμέσου
 V S: παρὰ μέσου B 21 αὖ ex αὐλοὶ (λοι eras.) Mb καὶ ὑπάτης
 om. in marg. B 22 μὴ restituit Meibom κινούνται R: κινούσι
 ex κεινούσι (ut vid.) Mb: κινούσι rell.

- τὰ ὀνόματα κινεῖν μηκέτι καλοῦντας λιχανοὺς τὰς λοιπὰς,
 ἐπειδὴν ἡ δίτονος (λιχανὸς) κληθῇ ἢ τῶν ἄλλων μία ἦτις
 20 ποτ' οὖν. δεῖν γὰρ | ἐτέρους εἶναι φθόγγους τοὺς τὸ ἕτερον
 μέγεθος ὀρίζοντας· ὡσαύτως δὲ δεῖν ἔχειν καὶ τὰ ἀντι-
 στρέφοντα. τὰ γὰρ ἴσα τῶν μεγεθῶν τοῖς αὐτοῖς ὀνόμασι 5
 25 περιλη|πτέον εἶναι. Πρὸς δὴ ταῦτα τοιοῦτοί τινες ἐλέχθησαν
 λόγοι· πρῶτον μὲν ὅτι τὸ ἀξιοῦν τοὺς διαφέροντας ἀλλήλων
 φθόγγους ἴδιον μέγεθος ἔχειν διαστήματος μέγα τι κινεῖν
 30 ἔστιν· ὀρώμεν γὰρ | ὅτι νῆτη μὲν καὶ μέση παρανήτης καὶ
 λιχανοῦ διαφέρει κατὰ τὴν δύναμιν καὶ πάλιν αὖ παρανήτη 10
 τε καὶ λιχανὸς τρίτης τε καὶ παρυπάτης, ὡσαύτως δὲ καὶ
 48 οὔτοι παραμέσης τε καὶ ὑπάτης—καὶ διὰ ταύτην || τὴν αἰτίαν
 ἴδια κείται ὀνόματα ἐκάστοις αὐτῶν—, διάστημα δ' αὐτοῖς
 πᾶσιν ὑπόκειται ἓν, τὸ διὰ πέντε, ὥσθ' ὅτι μὲν οὐχ οἶόν τ'
 5 αἰεὶ τῇ τῶν φθόγγων δια|φορᾷ τὴν τῶν διαστηματικῶν μεγε- 15
 θῶν διαφορὰν ἀκολουθεῖν φανερόν. "Ὅτι δ' οὐδὲ τοῦναντίον
 ἀκολουθεῖν θετέον, κατανοήσειεν ἂν τις ἐκ τῶν ῥηθησομένων.
 10 Πρῶτον μὲν οὖν εἰ καὶ καθ' ἐκά|στην αὖξισίν τε καὶ ἐλάτ-
 τωσιν τῶν περὶ τὸ πυκνὸν γιγνομένων ἴδια ζητήσομεν ὀνό-
 ματα, δῆλον ὅτι ἀπείρων ὀνομάτων δεησόμεθα, ἐπειδήπερ ὁ 20
 49. 7 τῆς λιχανοῦ τόπος εἰς ἀπείρους τέμνεται τομάς. || 'Ὡς ἀληθῶς
 γὰρ τίνι ἂν τις προσθεῖτο τῶν ἀμφισβητούντων περὶ τὰς τῶν
 10 γενῶν | χροάς; οὐ γὰρ δὴ πρὸς τὴν αὐτὴν διαίρεσιν βλέ-

1 τὰ add. Mb 2 ἢ] ἢ codd.: ἢ ἢ Marquard δίτονος R
 λιχανὸς addidi: οὕτω Marquard ἦτις renovat Mb accent. add. Mc:
 ἦτις cum ras. supra lin. V 3 δεῖν Marquard: δεῖ codd. τὸ om. S
 4 δεῖ H 5 γὰρ ἴσα Studemund: πάρισα codd.: δ' ἴσα Marquard
 6 τοιοῦτοί] οἱτοί H ἐλέχθησαν] ἐ in ras. Mc (?) 9 παρανήτης
 ex παρανήτην Mb 10 δ' post πάλιν add. H 11 παρυπάτης]
 ὑπάτης R 12 ὑπάτης] νήτης H 13 αὐτῶν supra lin. add.
 corr. B 14 ἓν, τὸ conieci: ἐν τῷ codd. 15 διαστηματικῶν H
 17 ἀκολουθεῖν θετέον conieci: ἀκολουθητέον codd. 18 εἰ καὶ] καὶ
 om. H ἐλάττωσιν S 19 ζητήσωμεν M V S B 20 δεησόμεθα
 ἡσὶ in ras. Vb 21 τέμνεται post τομάς ponit H ὥς
 ἀληθῶς . . . διαίρεσεων legg. in codd. post διαμένειν in p. 140, l. 1:
 ordinem mutavi 22 προσθεῖτο ex προσθοῖτο Mc: προσθοῖτο V B S
 ἀμφισβητούντων (ν suprascr.) B

ποντες πάντες οὔτε τὸ χρῶμα οὔτε τὴν ἁρμονίαν ἁρμοττόνται,
 ὥστε τί μᾶλλον τὴν δίτονον λιχανὸν λεκτέον ἢ τὴν μικρῶ
 συντονωτέραν; ἁρμονία μὲν γὰρ εἶναι τῇ αἰσθήσει κατ' 15
 ἀμφοτέρας τὰς διαίρέσεις φαίνεται, τὰ δὲ μεγέθη τῶν διαστη-
 5 μάτων δῆλον ὅτι οὐ ταῦτα ἐν ἑκατέρᾳ τῶν διαίρέσεων. |
 ἔπειτα πειρώμενοι παρατηρεῖν τό τ' ἴσον καὶ τὸ ἄνισον ἀπο- 48. 15
 βαλοῦμεν τὴν τοῦ ὁμοίου τε καὶ ἀνομοίου διάγνωσιν, ὥστε
 μηδὲ πυκνὸν καλεῖν ἕξω ἐνὸς μεγέθους, δῆλον δ' ὅτι μηδ'
 ἁρμονίαν μηδὲ χρῶμα, τόπῳ | γάρ τινι καὶ ταῦτα διώρισται. 20
 10 Δῆλον δ' ὅτι οὐδὲν τούτων ἐστὶ πρὸς τὴν τῆς αἰσθήσεως
 φαντασίαν· ἐκείνη μὲν γὰρ εἰς ὁμοιότητα ἐνὸς τινος εἶδους
 βλέπουσα τό τε χρῶμα | λέγει καὶ τὴν ἁρμονίαν ἄλλ' 25
 οὐκ εἰς ἐνὸς τινος διαστήματος μέγεθος, λέγω δὲ πυκνοῦ
 μὲν εἶδος τιθείσα ἕως ἂν τὰ δύο διαστήματα τοῦ ἐνὸς
 15 ἐλάττω τόπον κατέχη—ἐμφαίνεται γὰρ ἐν πᾶσι τοῖς | πυκ- 30
 νοῖς πυκνοῦ τινὸς φωνὴ καίπερ ἀνίσων αὐτῶν ὄντων—
 χρώματος δὲ εἶδος ἕως ἂν τὸ χρωματικὸν ἦθος ἐμφαίνεται.
 ἰδίαν γὰρ δὴ κίνησιν ἕκαστον τῶν γενῶν κινεῖται πρὸς τὴν
 αἴσθησιν οὐ || μιᾷ χρώμενον τετραχόρδου διαιρέσει ἀλλὰ 49
 20 πολλαῖς. ὥστ' εἶναι φανερόν, ὅτι κινουμένων τῶν μεγεθῶν
 συμβαίνει ⟨μένειν⟩ τὸ γένος, οὐ γὰρ ὁμοίως κινεῖται τῶν
 μεγεθῶν κινουμένων μέχρι τινός, ἀλλὰ διαμένει· τούτου δὲ 5

2 post ὥστε add. οὐ πάνυ ῥᾶδιον συνιδεῖν Marquard δίτονον conieci :
 διάτονον codd. 3] ἢ H 3 ἁρμονίας sed as postea corr. B
 4 μεγέθη post διαστημάτων ponit H 5 ταῦτα M V B S 8 δῆλον
 δ' ὅτι om. et μήθ' pro μηδ' scrib. Marquard δ' S: om. rell. 11 γὰρ
 om. V S 12 βλέπουσα in ras. Ma 13 οὐκ εἰς ἐνὸς renov.
 Mb εἰς om. B εἰσιν ὡς R πυκνοῦμεν B 14 εἶδος in
 marg. Mb: εἶδους M V S post εἶδος add. ὅταν ἡ φωνὴ φανῇ τὰ δια-
 στήματα οὕτω Marquard τεθείσα M V S B ἕως conieci: ὡς codd.
 (δια)στήματα τοῦ erat in ras. deinde renov. Mb 15 κατέχειν
 H ἐν πᾶσι τοῖς renov. Mb 16 (καί)περ ἀνίσων renov. Mb
 17 δὲ εἶδος ἕως conieci: δὲ ἡ διέσεως R: δεῖ διέσεως rell. (διέσεως in
 ras. Mb) ἂν τὸ χρω in ras. Mb ἐμφαίνεται Marquard: ἐμφαίνεται
 codd. 18 ἰδία S δὴ κίνησιν] δείκνυσιν R (κιν)εῖται πρὸς τὴν
 in ras. Mb 19 μιᾷ] ᾧ in ras. Mb διαιρέσει ex διαίρεσιν Mb
 21 μένειν addidi: ταῦτόν εἶναι Marquard οὐ in ras. Mb 22 δια-
 μένει renov. Mb

μένοντος εἰκὸς καὶ τὰς τῶν φθόγγων δυνάμεις διαμένειν. τὸ
 20 γὰρ εἶδος τοῦ τετραχόρδου ταυ|τό, δι' ὅπερ καὶ τοὺς τῶν
 διαστημάτων ὄρους ἀναγκαῖον εἰπεῖν τοὺς αὐτοὺς. Καθόλου
 δ' εἰπεῖν, ἕως ἂν μένῃ τὰ τῶν περιεχόντων ὀνόματα καὶ
 25 λέγεται αὐτῶν ἢ μὲν ὀξυτέρα μέση ὑπάτη δ' ἢ | βαρυτέρα, 5
 διαμενεῖ καὶ τὰ τῶν περιεχομένων ὀνόματα καὶ ρηθήσεται
 αὐτῶν ἢ μὲν ὀξυτέρα λιχανὸς ἢ δὲ βαρυτέρα παρυπάτη, αἰ
 γὰρ τοὺς μεταξὺ μέσης τε καὶ ὑπάτης λιχανόν τε καὶ παρ-
 30 υπάτην (ἢ) αἰσθη|σις τίθησιν. Τὸ δ' ἀξιοῦν ἢ τὰ ἴσα δια-
 στήματα τοῖς αὐτοῖς ὀνόμασιν ὀρίζεσθαι ἢ τὰ ἄνισα ἑτέροις 10
 μάχεσθαι τοῖς φαινομένοις ἐστί· τὸ [τε] γὰρ ὑπάτης καὶ
 παρυπάτης τῷ παρυπάτης [πλεονάκεις ἴσον μελωδεῖται ἢ]
 50 (καὶ) λιχανοῦ || μελωδεῖται ποτὲ ἴσον ποτὲ ἄνισον· ὅτι δ'
 οὐκ ἐνδέχεται δύο διαστημάτων ἐξῆς κειμένων τοῖς αὐτοῖς
 5 ὀνόμασιν ἑκάτερον αὐτῶν περιέχεσθαι φανερόν, | εἴπερ μὴ 15
 μέλλοι ὁ μέσος δύο ἕξειν ὀνόματα. Δῆλον δὲ καὶ ἐπὶ τῶν
 ἀνίσων τὸ ἄτοπον· οὐ γὰρ δυνατὸν διαμένοντος τοῦ ἑτέρου
 τῶν ὀνομάτων τὸ ἕτερον κινεῖσθαι, πρὸς ἄλληλα γὰρ λέλε-
 10 κται· | [ὥσπερ γὰρ ὁ τέταρτος ἀπὸ τῆς μέσης ὑπάτη πρὸς
 μέσην λέγεται, οὕτως ὁ ἐχόμενος τῆς μέσης λιχανὸς πρὸς 20
 μέσην λέγεται.] Πρὸς μὲν (οὖν ταύτην) τὴν διαπορίαν
 τοσαῦτα εἰρήσθω. |

2 γὰρ conieci : δ' codd. εἶδος ex αἶδος Ma 4 μένει S H
 5 λέγεται] γένεται H ὑπάτη δ' ἢ βαρυτέρα] ὑπάτη in ras. Mb δὲ
 supra lin. add. Mc ἢ om. M δ' ἢ om. V S B ἢ δὲ βαρυτέρα
 (omissis ὑπάτη δὲ) R, in marg. B 6 διαμενεῖ Marquard : διαμένει
 codd. 7 λιχανὸς Marquard : μέση codd. παρυπάτη] ὑπάτη
 sed παρ ante ν eras. M : ὑπάτη rell. 9 ἢ restituit Marquard αἰσθη-
 σιν S 10 τοῖς ante ἑτέροις add. H 11 μάχεσθαι] συνέχεσθαι R
 ἐστί ante τοῖς φαινομένοις ponit H τε seclusi 12 πλεονάκεις
 . . . ἢ del. Meibom 13 καὶ restituit Meibom ποτε μελωδεῖται
 (β supra ποτε, et a supra μελωδεῖται scr.) Ma ποτὲ μὲν ἴσον ποτὲ δὲ
 ἄνισον H 14 αὐτοῖς supra lin. add. corr. B 17 τὸ postea
 add Ma (ut vid.) 18 λέγεται H 19 ὥσπερ . . . λιχανὸς πρὸς
 μέσην λέγεται seclisat Marquard ὑπάτης H : ὑπάτη sed ν post η eras.
 M : ὑπάτην V B sed ὑπάτη in marg. B 20 λέγεται in ras. Mb : deinde
 4 litt. eras. quarum extremae tai fuisse videntur ante πρὸς μέσην add.
 καὶ Mc 21 οὖν ταύτην restituit Marquard 22 τοσαῦτα] ταῦτα H

Πυκνὸν δὲ λεγέσθω μέχρι τούτου ἕως ἂν ἐν τετραχόρδῳ 15
 διὰ τεσσάρων συμφωνούντων τῶν ἄκρων τὰ δύο διαστήματα
 συντεθέντα τοῦ ἐνὸς ἐλάττω τόπον κατέχη. Τετραχόρδου
 δέ εἰσι διαιρέσεις ἐξαίρετοί τε καὶ γνώριμοι αὗται αἷ εἰσω 20
 5 εἰς γνώριμα διαιρούμεναι μεγέθη διαστημάτων. Μία μὲν οὖν
 (τούτων) τῶν διαιρέσεων ἐστὶν ἐναρμόνιος ἐν ᾗ τὸ μὲν πυκνὸν
 ἡμιτόνιον ἐστὶ τὸ | δὲ λοιπὸν δίτονον. τρεῖς δὲ χρωματικά, 25
 ἥ τε τοῦ μαλακοῦ χρώματος καὶ ἡ τοῦ ἡμιολίου καὶ ἡ τοῦ
 τονιαίου· μαλακοῦ μὲν οὖν χρώματός ἐστι διαίρεσις ἐν ᾗ τὸ
 10 μὲν πυκνὸν ἐκ δύο χρωματικῶν διέσεων ἐλαχίστων σύγ- 30
 κείται, τὸ δὲ λοιπὸν δύο μέτροις μετρεῖται, ἡμιτονίῳ μὲν
 τρίς, χρωματικῇ δὲ διέσει ἅπαξ, ὥστε μετρεῖσθαι τρισὶν
 ἡμιτονίοις καὶ τόνου τρίτῳ μέρει ἅπαξ· ἐστὶ δὲ τῶν χρωμα-
 τικῶν πυκνῶν ἐλάχιστον καὶ λιχανὸς αὕτη βαρυτάτη τοῦ ||
 15 γένους τούτου. ἡμιολίου δὲ χρώματος διαίρεσις ἐστὶν ἐν 51
 ᾗ τό τε πυκνὸν ἡμιολίον ἐστὶ τοῦ [τ'] ἐναρμονίου καὶ τῶν
 διέσεων (ἐκατέρα) ἐκατέρας τῶν ἐναρμονίων· ὅτι δ' ἐστὶ |
 μείζον τὸ ἡμιόλιον πυκνὸν τοῦ μαλακοῦ, ῥάδιον συνιδεῖν, 5
 τὸ μὲν γὰρ ἐναρμονίου διέσεως λείπει τόνος εἶναι τὸ δὲ
 20 χρωματικῆς. τονιαίου δὲ χρώματος διαίρεσις ἐστὶν ἐν ᾗ
 τὸ μὲν πυκνὸν ἐξ ἡμιτονίων δύο σύγκεται τὸ δὲ λοιπὸν 10
 τριημιτόνιον ἐστὶν. Μέχρι μὲν οὖν ταύτης τῆς διαιρέσεως

1 ἂν om. R 3 κατέχη ex κατέχει Mb: κατέχει S Τετραχόρδου
 κ.τ.λ.] in marg. Ὅρα Πτολεμαῖον ἐν Ἀρμονικοῖς H 4 ante ἐξαίρετοι
 una litt. eras. M αἷ] καὶ R 5 εἰ γνώριμά ἐστι τὰ διαιρούμενα
 μεγέθη τῶν διαστημάτων H διαιρούμενα MVS 6 τούτων addidi
 τῶν om. H διαιρέσεων post ἐστὶ ponit H πυκνὸν in ras. Mb: μικρὸν R
 7 δίτονον] post i litt. a eras. M 8 ἡ τοῦ τονιαίου] ἡ τοῦ supra lin.
 add. Mb: ἡμιτονίου R 9 οὖν om. R 10 καὶ ante διέσεων
 add. R 12 τρεῖς H δὲ add. Mc: om. VBS διέσει] ei in
 ras. Mb: διέσις Va ἅπαξ ὥστε μετρεῖσθαι om. M VBS H ὥστε
 ... ἅπαξ om. R τρισὶν ἡμιτονίοις καὶ τόνου τρίτῳ μέρει in marg. Mb
 14 πυκνῶν R: πυκνὸν rell. λιχανὸς] os in ras. Mb 16 τ'
 del. Marquard ἐναρμονίου] ἐν add. Mb 17 ἐκατέρα restituit
 Marquard (lac. 2 syllab. R) 19 τόνος post εἶναι ponit H 20 διαί-
 ρεσις] αἷρ add. Mx in marg. Mb (?) Vc } ἐναρμον. πυκνά ἡμιολ.
 5 η θ'

ἀμφότεροι κινουῦνται οἱ φθόγγοι, μετὰ ταῦτα δ' ἡ μὲν παρ-
 15 υπάτη μένει, διελήλυθε γὰρ τὸν αὐτῆς τόπον, ἡ δὲ | λιχανὸς
 κινεῖται δίεσιν ἐναρμόνιον καὶ γίγνεται τὸ λιχανοῦ καὶ
 υπάτης διάστημα ἶσον τῷ λιχανοῦ καὶ μέσης, ὥστε μηκέτι
 γίγνεσθαι πυκνὸν ἐν ταύτῃ τῇ διαιρέσει. συμβαίνει δ' ἅμα 5
 20 παύεσθαι τὸ πυ|κνὸν συνιστάμενον ἐν τῇ τῶν τετραχόρδων
 διαιρέσει καὶ ἄρχεσθαι γιγνόμενον τὸ διάτονον γένος. Εἰσὶ
 δὲ δύο διατόνου διαιρέσεις, ἥ τε τοῦ μαλακοῦ καὶ, ἡ τοῦ
 25 συντόνου. μαλακοῦ μὲν οὖν ἐστὶ διατόνου διαί|ρεσις ἐν ἣ
 τὸ μὲν υπάτης καὶ παρυπάτης ἡμιτονιαῖόν ἐστι, τὸ δὲ παρ- 10
 υπάτης καὶ λιχανοῦ τριῶν διέσεων ἐναρμονίων, τὸ δὲ λιχανοῦ
 καὶ μέσης πέντε διέσεων· συντόνου δὲ ἐν ἣ τὸ μὲν υπάτης
 30 καὶ πα|ρυπάτης ἡμιτονιαῖον, τῶν δὲ λοιπῶν τονιαῖον ἐκάτερόν
 ἐστιν. Λιχανοὶ μὲν οὖν εἰσὶν ἕξ, μία ἐναρμόνιος, τρεῖς
 52 χρωματικαὶ καὶ δύο διάτοναι, ὅσαι περ αἱ || τῶν τετραχόρδων 15
 διαιρέσεις, παρυπάται δὲ δύο ἐλάττους, τῇ γὰρ ἡμιτονιαῖα
 χρώμεθα πρὸς τε τὰς διατόνους καὶ πρὸς τὴν τοῦ τονιαίου
 5 χρώματος διαίρε|σιν· τεττάρων δ' οὐσῶν παρυπατῶν ἡ μὲν
 ἐναρμόνιος ἰδία ἐστὶ τῆς ἁρμονίας, αἱ δὲ τρεῖς κοιναὶ τοῦ
 τε διατόνου καὶ τοῦ χρώματος. Τῶν δ' ἐν τῷ τετραχόρδῳ 20
 10 διαστημάτων τὸ μὲν υπάτης | καὶ παρυπάτης τῷ παρυπάτης
 καὶ λιχανοῦ ἡ ἶσον μελωδεῖται ἢ ἑλαττον, μείζον δ' οὐδέ-
 ποτε. ὅτι μὲν οὖν ἶσον (φανερὸν ἐκ τῆς ἐναρμονίου διαι-
 ρέσεως καὶ τῶν χρωματικῶν, ὅτι δ' ἑλαττον ἐκ μὲν τῶν
 διατόνων) φανερόν, ἐκ δὲ τῶν χρωματικῶν οὕτως ἄν τις 25
 15 κατανοήσειεν, εἰ παρυπάτην | μὲν λάβοι τὴν τοῦ μαλακοῦ

2 αὐτῆς Marquard: αὐτῆς codd. 8 διαίρεσις διατόνου
 H 9 οὖν om. R 10 ante ἡμιτονιαῖον 5 fere litt. eras.
 (vid. χρῶμα fuisse) M ἐστι om. R 12 καὶ in marg. Mc: om.
 rell. 13 τονιαῖον ex ἡμιτονιαίων Ma τονιαῖον post ἐκάτερον
 ponit H 14 ἕξ . . . τέτταρες in marg. Mb: om. R 15 ὅσαι
 ex ὅσα Ma 16 παρυπάται δὲ τέτταρες seclussit Marquard παρυ-
 πάτης B: παρυπα (τ' suprascr.) S δυεῖν M: δυοῖν V S 19 ἰδία
 H: ἴδιος rell. 21 τῷ παρυπάτης om. R 23 φανερόν . . .
 διατόνων restituit Westphal

χρώματος, λιχανὸν δὲ τὴν <τοῦ> τουιαίου· καὶ γὰρ αἱ τοιαῦται
 διαιρέσεις τῶν πυκνῶν ἐμμελεῖς φαίνονται. τὸ δ' ἐκμελὲς
 γένοιτ' ἂν ἐκ τῆς ἐναντίας λήψεως, εἴ | τις παρυπάτην μὲν 20
 λάβοι τὴν ἡμιτονιαίαν, λιχανὸν δὲ τὴν τοῦ ἡμιολίου χρώ-
 5 ματος, ἣ παρυπάτην μὲν τὴν τοῦ ἡμιολίου, λιχανὸν δὲ τὴν
 τοῦ μαλακοῦ χρώματος· ἀνάρμοστοι γὰρ | φαίνονται αἱ 25
 τοιαῦται διαιρέσεις. Τὸ δὲ παρυπάτης καὶ λιχανοῦ <τῷ
 λιχανοῦ> καὶ μέσης καὶ ἴσον μελωδεῖται καὶ ἄνισον ἀμφο-
 τέρως· ἴσον μὲν ἐν τῷ συντονωτέρῳ διατόνῳ, ἔλατ|τον δ' 30
 10 ἐν πᾶσι τοῖς λοιποῖς, μείζον δ' ὅταν <τις> λιχανῶ μὲν τῇ
 συντονωτάτῃ τῶν διατόνων, παρυπάτῃ δὲ τῶν βαρυτέρων
 τινὶ τῆς ἡμιτονιαίας χρήσῃται.

Μετὰ δὲ ταῦτα δεικτέον περὶ τοῦ ἐξῆς ὑποτυπώσαντες
 πρῶτον αὐτὸν τὸν || τρόπον καθ' ὃν ἀξιωτέον τὸ ἐξῆς ἀφ- 53
 15 ορίζειν. Ἀπλῶς μὲν οὖν εἰπεῖν κατὰ τὴν τοῦ μέλους φύσιν
 ζητητέον τὸ ἐξῆς καὶ οὐχ ὥς οἱ εἰς τὴν καταπύκνω|σιν βλέ- 5
 ποντες εἰώθασιν ἀποδιδόναι τὸ συνεχές. ἐκεῖνοι μὲν γὰρ
 ὀλιγωρεῖν φαίνονται τῆς τοῦ μέλους ἀγωγῆς· φανερόν δ' ἐκ
 τοῦ πλήθους τῶν ἐξῆς τιθεμένων διέσεων, [οὐ γὰρ διὰ
 20 τοσοῦτων | δυνηθείη τις ἂν] μέχρι γὰρ τριῶν ἢ φωνῇ δύναται 10
 συνείρειν· ὥστ' εἶναι φανερόν ὅτι τὸ ἐξῆς οὐτ' ἐν τοῖς
 ἐλαχίστοις οὐτ' ἐν τοῖς ἀνίστοις οὐτ' ἐν <τοῖς> ἴσοις ἀεὶ
 ζητητέον διαστήμασιν, ἀλλ' ἀκολου|θητέον τῇ φύσει. Τὸν 15

1 τοῦ restituit Marquard 2 ἐμμελεῖς] ἐκμελεῖς H ἐκμελὲς]
 ἐκμελεῖς B: ἐμμελὲς (κ supra prius μ scr.) H *4 ἡμιολίου]
 ἡμιολίου M sed post ἡμι una litt. eras., λι in ras. in qua τονιαί fuisse
 vid: Mc: ἡμιτονιαίου V S B H 5 ἡ... χρώματος om. H δὲ
 add. Mc Vb 7 τῷ λιχανοῦ restituit Meibom 8 μελωδεῖται
 post ἀμφοτέρως ponit H 10 τις addidi 11 βαρυτέρων τινὶ]
 βαρυτόνων παρυπάτῃ δὲ τῶν βαρυτόνων τινὶ B: βαρυτέρων in marg. B
 12 χρήσῃται ex χρήσεται Ma 14 ἀφορίζεσθαι H 16 καὶ οὐχ
 ὥς οἱ εἰς τὸ in ras. Mb 17 διδόναι H 19 οὐ... ἂν seclusi
 ut glossema: οὐ γὰρ supra lin. add. Mb 20 ἂν om. codd. praeter
 R τριῶν] τινῶν B 21 συνείρειν ex συνήρειν Ma (?) οὐτ' ἐν
 ex οὐτε Mb 22 τοῖς restituit Marquard 23 ἀκολουθεόν H

μὲν οὖν ἀκριβῇ λόγον τοῦ ἐξῆς οὕτω ῥάδιον ἀποδοῦναι, ἕως
 ἂν αἱ συνθέσεις τῶν διαστημάτων ἀποδοθῶσιν· ὅτι δ' ἔστι
 20 τι ἐξῆς καὶ τῷ παντελῶς ἀπείρῳ φανερόν γένοιτ' ἂν | διὰ
 τοιαύσδε τινας ἐπαγωγῆς. Πιθανὸν γὰρ τὸ μηδὲν εἶναι
 διάστημα ὃ μελωδοῦντες εἰς ἄπειρα τέμνομεν, ἀλλ' εἶναι 5
 τινα μέγιστον ἀριθμὸν εἰς ὃν διαιρεῖται τῶν διαστημάτων
 25 ἕκαστον ὑπὸ | τῆς μελωδίας. Εἰ δὲ τοῦτό φαμεν ἦτοι
 πιθανὸν ἢ καὶ ἀναγκαῖον εἶναι, δῆλον ὅτι οἱ (τοῦ) προειρη-
 μένου ἀριθμοῦ μέρη περιέχοντες φθόγγοι ἐξῆς ἀλλήλων
 ἔχονται. δοκοῦσι δ' εἶναι (τοιούτων) τῶν φθόγων καὶ | 10
 30 οὗτοι οἷς τυγχάνομεν ἐκ παλαιοῦ χρώμενοι οἶον ἢ νῆτη
 (καὶ) ἢ παρανήτη καὶ οἱ τούτοις συνεχεῖς.

Ἐχόμενον δ' ἂν εἴη τὸ ἀφορίσαι τὸ πρῶτον καὶ ἀναγκαι-
 54 ὅτατον τῶν συντειών||των πρὸς τὰς ἐμμελεῖς συνθέσεις τῶν
 διαστημάτων. Ἐν παντὶ δὲ γένει ἀπὸ παντὸς φθόγγου διὰ 15
 5 τῶν ἐξῆς τὸ μέλος ἀγόμενον καὶ ἐπὶ τὸ βαρὺ καὶ ἐπὶ τὸ | ὀξύ
 ἢ τὸν τέταρτον τῶν ἐξῆς διὰ τεσσάρων ἢ τὸν πέμπτον διὰ
 πέντε σύμφωνον λαμβανέτω, ᾧ δ' ἂν μηδέτερα τούτων συμ-
 βαίνει, ἐκμελῆς ἔστω οὗτος πρὸς ἅπαντας οἷς συμβέβηκεν |
 10 ἀσυμφώνῳ εἶναι κατὰ τοὺς εἰρημένους ἀριθμούς. Οὐ δεῖ 20
 δ' ἀγνοεῖν, ὅτι οὐκ ἔστιν αὐταρκες τὸ εἰρημένον πρὸς τὸ
 ἐμμελῶς συγκεῖσθαι τὰ συστήματα ἐκ τῶν διαστημάτων·
 15 οὐδὲν γὰρ κωλύει συμφωνούντων τῶν φθόγων κατὰ τοὺς
 εἰρημένους ἀριθμούς ἐκμελῶς τὰ συστήματα συνεστάναι,

3 τῷ add. Mb: om. R φανερόν] ανερόν S 5 τέμνομεν H
 6 ὅν] δ S 8 πιθανόν H τοῦ restituat Marquard προειρημένου
 ἀριθμοῦ Marquard: προειρημένοι (προειρη in ras. Mb) ἀριθμοὶ M V S B:
 (οἱ)γε εἰρημένοι ἀριθμοὶ R 10 τοιούτων restituat Marquard 11 ἢ
 νῆτη Westphal: ἦν τε H: ἦν rell. 12 καὶ add. Marquard ἢ
 παρανήτη H (coni. Marquard): τῇ παρανήτῃ rell. οἱ τούτοις συνεχεῖς
 R: ἢ τούτοις συνεχῆς rell. 16 τῶν] τὸν H 17 τὸν ... τὸν]
 τὸ . . . τὸ H τῶν Marquard: τῷ codd. 18 σύμφωνον S
 λαμβανέτω coniecti: λαμβάνεται codd. μηδέτερον Meibom συμ-
 βαίνει H 19 ἐκμελῆς (ἐκ in ras.) Mb: ἐμμελῆς in marg. B οὕτως
 H οἷς H: ἐν οἷς rell. 20 ἀσυμφώνοις H δεῖ H: om. rell.
 22 συγκεῖσθαι] κινεῖσθαι R 23 κωλύει S συμφώνων δυντων H
 24 ἐκμελῶς (ἐκ in ras.) Mb: ἐμμελῶς R συνεστάναι H: συνιστάναι rell.

ἀλλὰ τούτου μὴ ὑπάρχοντος οὐδὲν ἔτι γίγνεται τῶν λοιπῶν
 ὄφελος. θετέον οὖν τοῦτο πρῶτον εἰς | ἀρχῆς τάξιν οὗ 20
 μὴ ὑπάρχοντος ἀναιρεῖται τὸ ἡρμοσμένον. Ὅμοιον δ' ἐστὶ
 τούτῳ τρόπον τινα καὶ <τὸ> περὶ τὰς τῶν τετραχόρδων πρὸς
 5 ἄλλαλα θέσεις· δεῖ γὰρ τοῖς τοῦ αὐτοῦ συστήματος | τετρα- 25
 χόρδοις ἔσομένοις δυοῖν θάτερον ὑπάρχειν, ἥ γὰρ συμφωνεῖν
 πρὸς ἄλλαλα, ὥσθ' ἕκαστον ἑκάστῳ σύμφωνον εἶναι καθ'
 ἣν δήποτε τῶν συμφωνιῶν, <ἥ> πρὸς τὸ αὐτὸ συμφωνεῖν μὴ
 ἐπὶ τὸν | αὐτὸν τόπον συνεχῇ ὄντα ᾧ συμφωνεῖ ἑκάτερον 30
 10 αὐτῶν. Ἔστι δ' οὐδὲ τοῦτο αὐταρκες πρὸς τὸ εἶναι τοῦ
 αὐτοῦ συστήματος τὰ τετράχορδα, προσδέεται γάρ τινων καὶ
 ἑτέρων περὶ ὧν ἐν τοῖς ἔπειτα ῥῆ||θήσεται, ἀλλ' ἀνευ γε 55
 τούτου πάντα γίγνεται τὰ λοιπὰ ἄχρηστα.

Ἐπεὶ δὲ τῶν διαστηματικῶν μεγεθῶν τὰ μὲν τῶν συμφώ-
 15 νων ἦτοι ὅλως οὐκ | ἔχειν δοκεῖ τόπον ἄλλ' ἐνὶ μεγέθει 5
 ὄρίσθαι, ἥ παντελῶς ἀκαριαῖόν τινα, τὰ δὲ τῶν διαφώνων
 πολλῶ ἦττον τοῦτο πέπονθε καὶ διὰ ταύτας τὰς αἰτίας πολλὴν
 μᾶλλον τοῖς τῶν συμφώνων μεγέθεσι πι|στεύει ἢ αἴσθησις 10
 ἢ τοῖς τῶν διαφώνων· ἀκριβεστάτῃ δ' ἂν εἴη διαφώνου
 20 διαστήματος λήψις ἢ διὰ συμφωνίας. Ἐὰν μὲν οὖν προσ-
 ταχθῇ πρὸς τῷ δοθέντι φθόγγῳ λαβεῖν ἐπὶ τὸ βαρὺν τὸ |
 διάφωνον οἶον δίτονον ἢ ἄλλο τι τῶν δυνατῶν ληφθῆναι 15
 διὰ συμφωνίας, ἐπὶ τὸ ὀξὺ ἀπὸ τοῦ δοθέντος φθόγγου λη-

1 οὐδὲν om. R 2 ὄφελος S 4 τὸ restituit Meibom
 περὶ τὰς] τὰς περὶ M V B S 6 δυοῖ M V B S ἥ] ἦτοι H
 7 ὥσθ' ex ὅθ' Mx: ὅθ' V B 8 ἥ restituit Meibom μὴ om. et
 τῷ αὐτῷ τόπῳ scrib. Marquard 9 ᾧ] τῷ H 13 ἀχρηστα H
 14 διαστημάτων B συμφώνων Meibom: συμφωνιῶν codd. 15 ὅλως]
 ὅλ in ras. Vb: ἄλλως M: ἀπλῶς Marquard δοκεῖν in marg. B
 ἐνὶ conieci: ἐν codd.: ἥ εἰ Marquard 16 ὄρίσθαι conieci: ὄριστα
 codd. διαφώνων S 17-19 πόλλω . . . διαφώνων om. R 19 τοῖς
 ex τας vel ταις in ras. Mb δ' del. Marquard 20 ἥ in ras. Mb
 22 δίτονον] δί in ras. Mb. fuisse vid. τι vel τε: οἶον τε τονον in marg.
 B 23 ἐπὶ δὲ τὸ punctis post ἐπὶ V: δὲ scripsisse vid. Mb, eras.
 Mc (?): ἐπὶ δὲ τὸ S, B (sed punctis in marg. additis)

πτέον τὸ διὰ τεσσάρων, εἴτ' ἐπὶ τὸ βαρὺ τὸ διὰ πέντε, εἴτα
 20 πάλιν ἐπὶ τὸ | ὀξύ τὸ διὰ τεσσάρων, εἴτ' ἐπὶ τὸ βαρὺ τὸ
 διὰ πέντε. καὶ οὕτως ἔσται τὸ δίτονον ἀπὸ τοῦ ληφθέντος
 φθόγγου εἰλημμένον τὸ ἐπὶ τὸ βαρὺ. ἔαν δ' ἐπὶ τοῦναντίον
 25 προσταχθῇ λαβεῖν τὸ διάφω|νον, ἐναντίως ποιητέον τὴν τῶν 5
 συμφώνων λήψιν. Γίνεται δὲ καὶ ἔαν ἀπὸ συμφώνου
 διαστήματος τὸ διάφωνον ἀφαιρεθῇ διὰ συμφωνίας καὶ τὸ
 30 λοιπὸν διὰ συμφωνίας εἰλημμένον· ἀφαιρείσθω | γὰρ τὸ
 δίτονον ἀπὸ τοῦ διὰ τεσσάρων (διὰ) συμφωνίας· δῆλον δὴ
 ὅτι οἱ τὴν ὑπεροχὴν περιέχοντες ἢ τὸ διὰ τεσσάρων ὑπερέχει 10
 τοῦ διτόνου διὰ συμφωνίας ἔσονται πρὸς ἀλλήλους εἰλημ-
 56 μένοι· ὑπάρ||χονσι μὲν γὰρ οἱ τοῦ διὰ τεσσάρων ὄροι σύμ-
 φωνοι· ἀπὸ δὲ τοῦ ὀξυτέρου αὐτῶν λαμβάνεται φθόγγος
 σύμφωνος ἐπὶ τὸ ὀξύ διὰ τεσσάρων, ἀπὸ δὲ τοῦ λη|φθέντος
 5 ἕτερος ἐπὶ τὸ βαρὺ διὰ πέντε, (εἴτα πάλιν ἐπὶ τὸ ὀξύ διὰ 15
 τεσσάρων,) εἴτ' ἀπὸ τούτου ἕτερος ἐπὶ τὸ βαρὺ διὰ πέντε.
 καὶ πέπτωκε τὸ τελευταῖον σύμφωνον ἐπὶ τὸν ὀξύτερον τῶν
 10 (τὴν) ὑπεροχὴν ὀρίζοντων, ὥστ' εἶναι φα|νερόν, ὅτι, ἔαν ἀπὸ
 συμφώνου διάφωνον ἀφαιρεθῇ διὰ συμφωνίας, ἔσται καὶ
 τὸ λοιπὸν διὰ συμφωνίας εἰλημμένον. 20

Πότερον δ' ὀρθῶς ὑπόκειται τὸ διὰ τεσσάρων ἐν ἀρχῇ
 15 δύο τόνων καὶ ἡμί|σεος, κατὰ τόνδε τὸν τρόπον ἐξετάσειεν
 ἂν τις ἀκριβέστατα· εἰλήφθω γὰρ τὸ διὰ τεσσάρων καὶ πρὸς
 ἑκατέρω τῶν ὄρων ἀφορίσθω δίτονον διὰ συμφωνίας. δῆλον
 20 δὴ ὅτι ἀναγκαῖον τὰς | ὑπεροχὰς ἴσας εἶναι, ἐπειδήπερ καὶ 25

1 εἴτα] εἴτε H 2 ἔτ' ἐπὶ B: εἴτ' ἐπὶ in marg. B: εἴ τ' ἐπὶ S τὸ
 διὰ πέντε] τὸ supra lin. add. Mb 4 φθόγγος M V S τὸ del. Meibom
 7 ante ἀφαιρεθῇ una litt. eras. M: αἰ in ras. Mc: ε in ras. Mb
 8 ἀφαιρείσθω M V S: ἀφηρήσθω B R 9 τοῦ] τῆς H διὰ restituit
 Marquard 11 διτόνου] post i litt. α eras. M: διατόνου B 12 γὰρ
 om. B ὄροι] οἱ in ras. Mb: ὀρθοι R, B in marg. 15 εἴτα . . .
 τεσσάρων restituit Meibom 17 τὸν Meibom: τὸ codd. 18 τὴν
 restituit Meibom 19 συμφώνους H διάφωνον] δια in ras. Mb
 24 δίτονον Meibom: σύμφωνον codd.

ἴσα ἀπ' ἴσων ἀφήρηται. μετὰ δὲ τοῦτο τῷ τὸ ὀξύτερον δί-
τονον ἐπὶ τὸ βαρὺ ὀρίζονται διὰ τεσσάρων εἰλήθω ἐπὶ τὸ
ὀξύ, τῷ δὲ τὸ βαρύτερον δίτονον ἐπὶ τὸ | ὀξύ ὀρίζονται 25
εἰλήθω ἕτερον διὰ τεσσάρων ἐπὶ τὸ βαρὺ. φανερόν δὴ
5 ὅτι πρὸς ἑκατέρω τῶν ὀριζόντων τὸ γεγονὸς σύστημα δύο
συνεχεῖς ἔσονται κείμεναι ὑπεροχαὶ ἄς ἀναγκαῖον | ἴσας 30
εἶναι διὰ τὰ ἔμπροσθεν εἰρημένα. Τούτων δ' οὕτω προκατε-
σκευασμένων τοὺς ἄκρους τῶν ὠρισμένων φθόγγων ἐπὶ τὴν
αἴσθησιν ἐπανακτέον· εἰ μὲν οὖν φανήσονται διάφωνοι,
10 δῆλον ὅτι οὐκ ἔσται τὸ διὰ τεσσάρων δύο τό||νων καὶ ἡμίσεος, 57
εἰ δὲ συμφωνήσουσι διὰ πέντε [τέσσαρα,] δῆλον ὅτι δύο
τόνων καὶ ἡμίσεος ἔσται τὸ διὰ τεσσάρων. ὁ μὲν γὰρ
βαρύτατος τῶν εἰλημμένων | φθόγγων διὰ τεσσάρων ἡρμόσθη 5
σύμφωνον τῷ τὸ βαρύτερον δίτονον ἐπὶ τὸ ὀξύ ὀρίζονται,
15 τὸν δ' ὀξύτατον τῶν εἰλημμένων φθόγγων διὰ πέντε συμ-
βέβηκε συμφωνεῖν τῷ βαρυτάτῳ, ὥστε | τῆς ὑπεροχῆς 10
οὔσης τονιαίας τε καὶ εἰς ἴσα διηρημένης ὦν ἑκάτερον ἡμιτό-
νιόν τε καὶ ὑπεροχὴ [μὲν] τοῦ διὰ τεσσάρων ἔστιν ὑπὲρ τὸ
δίτονον, δῆλον ὅτι πέντε ἡμιτονίων συμβαίνει τὸ διὰ τεσ-
20 σάρων | εἶναι. Ὅτι δ' οἱ τοῦ ληφθέντος συστήματος ἄκροι 15
οὐ συμφωνήσουσι ἄλλην συμφωνίαν ἢ τὴν διὰ πέντε, ῥάδιον
συνιδεῖν· πρῶτον μὲν οὖν ὅτι τὴν διὰ τεσσάρων οὐ συμ-
φωνοῦσι κατανοητέον, | ἐπειδήπερ πρὸς τῷ ληφθέντι ἐξ 20
ἀρχῆς διὰ τεσσάρων ὑπεροχὴ πρόσκειται ἐφ' ἑκάτερα· ἔπειθ'
25 ὅτι τὴν διὰ πασῶν οὐκ ἐνδέχεται συμφωνίαν δεικτέον. τὸ

3 τὸ βαρύτερον] τὸ om. R βαρύτερον Va R : βαρύτονον M Vb S B
διάτονον R 4 ἕτερον H : ἕτερος rell. 6 κείμεναι coniecti : καὶ μὴ
ἐν αἱ codd. : καὶ μὴ μία αἱ Marquard 7 προκατασκευασμένων B :
προσκατεσκευασμένων H 8 ὀριζόντων M (sed ζόντ in ras. Mc) R H :
ὀρισμῶν Va : ὠρισμένων Vb rell. 10 δηλονότι B 11 συμφω-
νήσωσι M τέσσαρα del. Marquard 15 δ'] τέσσαρα M V S B :
τέταρτον R 16 συμφωνεῖν S 17 διηρημένης ex διηρημένην
Mc : διηρημένην V B S 18 μὲν seclisit Marquard 19 ἡμι-
τονιαίων H τεσσάρων Meibom : πέντε codd. 20 οἱ] ἢ S
25 δεικτέον Marquard : λεκτέον codd.

II. 57 ΑΡΙΣΤΟΞΕΝΟΥ ΑΡΜΟΝΙΚΩΝ ΣΤΟΙΧΕΙΩΝ β'

- γὰρ ἐκ τῶν ὑπεροχῶν γιγνόμενον μέγεθος ἔλαττον ἐστι
 25 διτόνου, ἐλάττονι | γὰρ ὑπερέχει τὸ διὰ τεσσάρων ἢ τόνῳ
 τοῦ διτόνου· συγχωρεῖται (γὰρ) παρὰ πάντων τὸ διὰ τεσ-
 σάρων μείζον μὲν εἶναι δύο τόνων ἔλαττον δὲ τριῶν, ὥστε |
 30 πᾶν τὸ προσκείμενον τῷ διὰ τεσσάρων ἔλαττον ἐστι τοῦ διὰ 5
 πέντε· φανερόν (δὴ) ὅτι τὸ συγκείμενον ἐξ αὐτῶν οὐκ ἂν
 εἴη διὰ πασῶν. εἰ δὲ συμφωνοῦσιν οἱ ἄκροι τῶν ληφθέντων
 58 φθόγγων μείζω μὲν || συμφωνίαν τῆς διὰ τεσσάρων ἐλάττω
 δὲ τῆς διὰ πασῶν, ἀναγκαῖον αὐτοὺς διὰ πέντε σύμφωνεῖν·
 τοῦτο γάρ ἐστι μόνον μέγεθος σύμφωνον μεταξὺ τοῦ διὰ | 10
 5 τεσσάρων καὶ τοῦ διὰ πασῶν.

2 διτόνου] post ι una litt. eras. M ἐλάττονι] ἔλαττον R ὑπάρχει H
 3 δίτονου ex διττόνου Mc: διττόνου S ἀλλὰ ante συγχωρεῖται ins.
 Marquard γὰρ addidi 5 τῷ] τὸ M V B S 6 δὴ restituit
 Marquard: δὲ H: om. rell. 10 τούτου H σύμφωνον] inter ν
 et ο una litt. et in ω acc. eras. M τε post μεταξύ τοῦ add. H

ΑΡΙΣΤΟΞΕΝΟΥ ΑΡΜΟΝΙΚΩΝ ΣΤΟΙΧΕΙΩΝ Γ'

Τὰ ἐξῆς τετράχορδα ἢ συν|ῆπται ἢ διέζευκται· καλείσθω 15
 δὲ συναφὴ μὲν ὅταν δύο τετραχόρδων ἐξῆς μελωδουμένων
 ὁμοίων κατὰ σχῆμα φθόγγος ἢ ἀνὰ μέσον κοινός, διάζευξις |
 δ' ὅταν δύο τετραχόρδων ἐξῆς μελωδουμένων ὁμοίων κατὰ 20
 5 σχῆμα τόνος ἢ ἀνὰ μέσον. Ὅτι δ' ἀναγκαῖον ἕτερον πότερον
 συμβαίνειν τοῖς ἐξῆς τετραχόρδοις, φανερόν ἐκ τῶν ὑποκει-
 μένων· | οἱ μὲν γὰρ τέταρτοι τῶν ἐξῆς διὰ τεσσάρων συμφω- 25
 νοῦντες συναφὴν ποιήσουσιν, οἱ δὲ || πέμπτοι διὰ πέντε 59
 διάζευξιν. δεῖ δ' ἕτερον πότερον τούτων ὑπάρχειν τοῖς
 1 φθόγγοις, ὥστε καὶ τοῖς ἐξῆς τετραχόρδοις ἀναγκαῖον ἕτερον
 τῶν εἰρημένων ὑπάρ|χειν. 5

Ἦδη δέ τις ἠπόρησε τῶν ἀκούοντων περὶ τοῦ ἐξῆς· πρῶτον
 μὲν καθόλου τί ποτ' ἐστὶ τὸ ἐξῆς, ἔπειτα πότερον κατὰ ἓνα
 μόνον γίννεται τρόπον ἢ κατὰ πλείους, τρί|τον δ' εἰ ἴσως 10
 15 ἀμφοτέρα ταῦτ' ἐστὶν ἐξῆς τὰ τε συνημμένα καὶ τὰ διε-
 ζευγμένα. Πρὸς δὴ ταῦτα τοιοῦτοί τινες ἐλέγοντο λόγοι·
 καθόλου ταῦτα εἶναι συστήματα συνεχῇ ὧν οἱ ὅροι ἦτοι ἐξῆς

2-4 ὅταν . . . ὅταν δύο] erat δ τε, τ' ἂν supra lin. add., τε corr. in δύο,
 et τε inscr., reliqua in marg. Mc : om. V B, R (sed 'postea alieno loco
 interponuntur' v. Herwerden) 2-5 ὅτε pro ὅταν δύο leg., ἐξῆς
 . . . σχῆμα om. S 5 πότερον om. H 7 τέταρτοι B: δ rell.
 συμφώνων ὄντες H 9 δεῖ Meibom: τί codd. 12 τὰδε post
 ἐξῆς add. H 14 μόνον Mc (supra lin.), R H: ὅρον M B S τῶν]
 τρόπ e corr. V κατὰ om. H δ' εἰ Marquard: δὲ codd.
 16 δὴ H: δὲ rell. τοιοῦτόν B 17 συστήματα ex συστήμα
 Mb

- 15 εἰσὶν ἢ | ἐπαλλάττουσιν. τοῦ δ' ἐξῆς δύο τρόποι εἰσὶ, καὶ
 ὁ μὲν (καθ' ὃν τῷ τοῦ ὀξυτέρου συστήματος βαρυτέρῳ ὄρω
 κοινός ἐστίν ὁ τοῦ βαρυτέρου συστήματος ὄρος) ὀξύτερος, ὁ
 δ' ἕτερος καθ' ὃν ὁ τοῦ ὀξυτέρου συστήματος βαρύτερος ὄρος
 ἐξῆς ἐστὶ τῷ τοῦ βαρυτέρου συστήματος ὀξυτέρῳ ὄρω. κατὰ 5
 20 μὲν οὖν τὸν | πρότερον τῶν τρόπων τόπου τέ τιςιν κοινωνεῖ
 τὰ τῶν ἐξῆς τετραχόρδων συστήματα καὶ ὁμοιά ἐστίν ἐξ
 ἀνάγκης, κατὰ δὲ τὸν ἕτερον κεχώριστα ἀπ' ἀλλήλων καὶ
 25 ὁμοια δύνανται γίγνεσθαι τὰ εἶδη τῶν τετραχόρδων· τοῦτο δὲ
 γίγνεται τόνου ἀνὰ μέσον τεθέντος, ἄλλως δ' οὐ. ὥστε δύο 10
 τετράχορδα ὁμοια τοιαῦτα συμβαίνειν ἐξῆς ἀλλήλων εἶναι
 30 ὧν ἥτοι τόνος ἀνὰ | μέσον ἐστὶν ἢ οἱ ὄροι ἐπαλλάττουσιν.
 ὥστε τὰ ἐξῆς τετράχορδα ὁμοια ὄντα ἢ συνημμένα ἀναγκαῖον
 εἶναι ἢ διεξευγμένα. Φαμὲν δὲ δεῖν τῶν ἐξῆς τετραχόρδων
 60 ἥτοι ἀπλῶς μηδὲν εἶ|ναι ἀνὰ μέσον τετράχορδον ἢ μὴ 15
 ἀνόμοιον. τῶν μὲν οὖν ὁμοίων κατ' εἶδος τετραχόρδων οὐ
 τίθεται ἀνόμοιον ἀνὰ μέσον τετράχορδον, τῶν δ' ἀνομοίων
 5 μὲν | ἐξῆς δ' οὐδὲν τίθεσθαι δυνατὸν ἀνὰ μέσον τετράχορδον.
 Ἐκ δὲ τῶν εἰρημένων φανερόν ἐστι τὰ ὁμοια κατ' εἶδος
 τετράχορδα κατὰ δύο τρόπους τοὺς εἰρημένους ἐξῆς ἀλλήλων 20
 τεθήσεται. |
- 10 Ἄσυνθετον δ' ἐστὶ διάστημα τὸ ὑπὸ τῶν ἐξῆς φθόγγων
 περιεχόμενον. εἰ γὰρ ἐξῆς οἱ περιέχοντες, οὐδεὶς ἐκλιμπάνει,
 μὴ ἐκλιμπάνων δ' οὐκ ἐμπεσεῖται, μὴ ἐμπίπτων δ' οὐ διαι-
 15 ρήσει, ὁ δὲ μὴ διαίρεσιν ἔχει οὐδὲ σύνθεσιν | ἔξει· πᾶν γὰρ 25

1 εἰσὶν in ras. Ma : om. VBS ἐπαλλάττουσιν ex ἐπελαττοῦσιν Mb
 (ut vid.) 2 καθ' ... ὄρος restituit Meibom 3 ὀξύτερον B
 4 ὀξυτέρου om. B 6 τρόπων Marquard : ὄρων B : ὄρων rell.
 κοινωνοῦσιν H 7 ὁμοιά Meibom : ἀνόμοια codd. ἐστίν om. H
 11 ante ὁμοια 2 litt. eras. M τοιαῦτα Marquard : ταῦτα codd.
 συμβαίνει B 13 ἥ] ἥτοι H 15 ἢ μὴ Meibom : εἰ μὴ εἰ μὴ B :
 εἰ μὴ rell. 16 ἀνόμοιον Meibom : ὁμοιον codd. 17 τίθεσθαι H
 ἀνόμοιον Meibom : ὁμοιον codd. 17 τῶν δ' . . . τετράχορδον
 om. R 18 τίθεσθαι ex τίθεται Mc : τίθεται rell. 19 δὲ] δὴ H
 22 διαστήματα R 25 διαίρεσιν ex διαίρησιν vel vice versa M
 ἔξει] ἔξ B

τὸ σύνθετον ἔκ τινων μερῶν ἐστὶ σύνθετον εἰς ἅπερ καὶ
 διαιρετόν. Γίνεται δὲ καὶ περὶ τοῦτο τὸ πρόβλημα πλάνη
 διὰ τὴν τῶν μεγεθῶν κοινότητα τοιάδε τις· θαυμάζουσι γὰρ |
 πῶς ποτε τὸ δίτονον ἀσύνθετον ὃ γ' ἐστὶ δυνατόν διελεῖν εἰς 20
 5 τόνους ἢ πῶς πάλιν ποτ' ἐστὶν ὁ τόνος ἀσύνθετος ὃν γ' ἐστὶ
 δυνατόν εἰς δύο ἡμιτόνια-διελεῖν· τὸν αὐτὸν δὲ λόγον λέγουσι
 καὶ | περὶ τοῦ ἡμιτονίου. Γίνεται δ' αὐτοῖς ἡ ἄγνοια παρὰ 25
 τὸ μὴ συννοεῖν ὅτι τῶν διαστηματικῶν μεγεθῶν ἕνια κοινὰ
 τυγχάνει ὄντα συνθέτου τε καὶ ἀσυνθέτου διαστήματος· διὰ
 10 γὰρ ταύτην τὴν | αἰτίαν οὐ μεγέθει διαστήματος τὸ ἀσύνθετον 30
 ἀλλὰ τοῖς περιέχουσι φθόγγοις ἀφώρισται. τὸ γὰρ δίτονον
 ὅταν μὲν ὀρίζωσι μέση καὶ λιχανός, ἀσύνθετόν ἐστιν, ὅταν
 δὲ μέση καὶ παρυπάτη, σύν||θετον· δι' ὅπερ φαμέν οὐκ ἐν 61
 τοῖς μεγέθεσι τῶν διαστημάτων εἶναι τὸ ἀσύνθετον ἀλλ' ἐν
 15 τοῖς περιέχουσι φθόγγοις. |

Ἐν δὲ ταῖς τῶν γενῶν διαφοραῖς τὰ τοῦ διὰ τεσσάρων μέρη 5
 μόνῃ κινεῖται, [τὸ δ' ἴδιον τῆς διαζεύξεως ἀκίνητόν ἐστιν.]
 πᾶν μὲν γὰρ διήρητο τὸ ἡρμοσμένον εἰς συναφήν τε καὶ
 διάζευξιν, ὃ γε συνέστηκεν | ἐκ πλειόνων ἢ ἐνὸς τετραχόρδου. 10
 20 Ἀλλ' ἡ μὲν συναφή ἐκ (τῶν τοῦ διὰ) τεσσάρων μερῶν
 μόνων [ἀσυνθέτων] σύγκειται, ὥστ' ἐξ ἀνάγκης ἐν γε ταύτῃ
 τὰ τοῦ διὰ τεσσάρων μόνῃ μέρη κινήθησεται· ἡ δὲ διάζευξις |
 ἴδιον ἔχει παρὰ ταῦτα τὸν τόνον. ἔαν οὖν δειχθῇ τὸ ἴδιον 15

1 post καὶ ras. M 2 ἀδιαίρετον VS δὲ Marquard : δὴ codd.
 4 πῶποτε H ἀσύνθετον Ma, sed ὃν supra θετ et acc. et spir. add.
 Mc ὃ γ' conieci : om. VS B : ὃν rell. 5 πῶς post πάλιν
 ponit H πάλιν] in ras. in Mc : πάλαι VS 6 ἐστὶν post δυνατόν
 ponit H δὲ Marquard : δὴ S : δὲ δὴ rell. 12 ὀρίζουσι B
 13 post σύνθετον in unc. quad. ἀλλ' ἐν τοῖς περιέχουσι φθόγγοις S
 17 τὸ δ' . . . ἐστὶν seclusi 19 dicit Marquard 'post ὃ una lit.
 eras. quae ν fuisse vid. M' : sed ego quidem γε fuisse suspicor.
 Quod si legitur, tum certe verborum translatione nulla opus est :
 neque, si omittitur, ordinem librorum mutare velim verba δ . . .
 τετραχόρδον post ἡρμοσμένον ponit Meibom 20 τῶν τοῦ διὰ addidit
 Westphal 21 μόνον H ἀσυνθέτων seclusi 23 ἔχει
 Meibom : ἔχοι codd. παρὰ ταῦτα] παρὰ post ταῦτα eras. et supra
 lin. add. Mc ταῦτα παρὰ VS B τὸ supra lin. add. Mb (?)

- τῆς διαζεύξεως μὴ κινούμενον ἐν ταῖς τῶν γενῶν διαφοραῖς,
 δῆλον ὅτι λείπεται ἐν αὐτοῖς τοῖς τοῦ διὰ τεσσάρων μέρεσι
 20 τὴν κίνησιν εἶναι. Ἔστι δ' ὁ | μὲν βαρύτερος τῶν (τὸν)
 τόνον περιεχόντων ὀξύτερος τῶν τὸ τετράχορδον περιεχόντων
 τὸ βαρύτερον τῶν ἐν τῇ διαζεύξει κειμένων· [ὁμοίως δ'] ἦν 5
 (δ') [καὶ] οὗτος ἀκίνητος ἐν ταῖς τῶν γενῶν διαφοραῖς· ὁ δ' |
 25 ὀξύτερος τῶν (τὸν) τόνον περιεχόντων βαρύτερος τῶν τὸ
 τετράχορδον περιεχόντων τὸ ὀξύτερον τῶν ἐν τῇ διαζεύξει
 κειμένων· ὁμοίως δ' ἦν καὶ οὗτος ἀκίνητος ἐν ταῖς τῶν γενῶν
 30 διαφοραῖς. Ὡστ' ἐπειδὴ | φανερόν ὅτι οἱ τὸν τόνον περιέ- 10
 χοντες ἀκίνητοί εἰσιν ἐν ταῖς τῶν γενῶν διαφοραῖς, δῆλον ὅτι
 λείποιν' ἂν αὐτὰ τὰ τοῦ διὰ τεσσάρων μέρη μόνον κινεῖσθαι
 ἐν ταῖς εἰρημέναις διαφοραῖς. ||
- 62 Ἐν ἐκάστῳ δὲ γένει τοσαῦτά ἐστιν ἀσύνθετα (τὰ) πλείστα
 ὅσα ἐν τῷ διὰ πέντε. Πᾶν μὲν γὰρ γένος ἦτοι ἐν συναφῇ 15
 5 μελωδεῖται ἢ ἐν διαζεύξει, καθάπερ | ἔμπροσθεν εἴρηται.
 δέδεικται δ' ἡ μὲν συναφὴ ἐκ τῶν τοῦ διὰ τεσσάρων μερῶν
 μόνων συγκεκλιμένη, ἡ δὲ διάζευξις ἐν προστιθείσα τὸ ἴδιον
 10 διάστημα, τοῦτο δ' ἐστὶν ὁ τόνος· προστεθέντος δὲ | τοῦ
 τόνου πρὸς τὰ τοῦ διὰ τεσσάρων μέρη τὸ διὰ πέντε συμ- 20
 πληροῦται. Ὡστ' εἶναι φανερόν ὅτι, ἐπειδήπερ οὐδὲν τῶν
 γενῶν ἐνδέχεται κατὰ μίαν χρόαν λαμβανόμενον ἐκ πλειόνων
 15 ἀσυνθέτων συντελεθῆναι τῶν ἐν τῷ διὰ πέντε ὄντων, [δῆλον

2 τοῖς om. V B S 3 τὸν restituit Marquard 4 τόνων
 B R 5 περιεχόντων post βαρύτερον ponit H ὁμοίως δ' et καὶ
 seclisit, et δ' addidit Westphal 7 τὸν restituit Marquard
 βαρύτερος . . . περιεχόντων in marg. Mc: om. V B: τόνον περιεχόντων
 τὸ τὸ βαρύτερον ὀξύτερον τῶν ἐν τῇ δ. S 8 περιέχοντων
 post τὸ ὀξύτερον ponit H ὀξύτερον ex βαρύτερον Mb: βαρύτερον B
 10-13 ὥστ' . . . εἰρημέναις διαφοραῖς om. R 10 ὅτι supra lin. add.
 Mc: om. V B S 12 λείποιν' εἴποι' R κινεῖται B 14 τὰ
 addidi 16 ἔμπροσθεν om., et πρότερον post εἴρηται add. H
 18 μόνων Meibom: μόνῃ codd. ἐν προστιθείσα conieci: ἔμπροσθεν
 τεθείσα codd.: προστιθείσα Marquard 22 λαμβάνομεν B in
 marg. 23 ἐν τῷ ex ἐκ τῶν M: ἐκ τῶν V S B δῆλον ὅτι seclisit
 Marquard

ὅτι] ἐν ἐκάστῳ γένει τοσαῦτα ἔσται τὰ πλείστα ἀσύνθετα ὅσα ἐν τῷ διὰ πέντε.

Ταράττειν δ' εἴωθεν ἐνίοις καὶ ἐν τούτῳ τῷ προβλήματι πῶς τὰ πλείστα | προστίθεται καὶ διὰ τί οὐχ ἀπλῶς δείκνυται, 20
5 ὅτι ἐκ τοσοῦτων ἀσυνθέτων ἕκαστον τῶν γενῶν συνεστήκειν ὅσα ἔστιν ἐν τῷ διὰ πέντε. Πρὸς οὓς ταῦτα λέγεται, ὅτι ἐξ ἐλαττόνων ἀσυνθέτων ἔσται ποθ' ἕκα|στον τῶν γενῶν 25
συγκείμενον ἐκ πλειόνων δ' οὐδέποτε. Διὰ ταύτην δὲ τὴν αἰτίαν τοῦτο αὐτὸ πρῶτον ἀποδείκνυται, ὅτι οὐκ ἐνδέχεται ἐκ
10 πλειόνων ἀσυνθέτων συντεθῆναι τῶν γε|νῶν ἕκαστον ἢ ὅσα ἐν 30
τῷ διὰ πέντε τυγχάνει ὄντα. ὅτι δὲ καὶ ἐξ ἐλαττόνων ποτὲ συντεθήσεται ἕκαστον αὐτῶν, ἐν τοῖς ἔπειτα δείκνυται.

Πυκνὸν δὲ πρὸς πυκνῷ οὐ μελῳδεῖ|ται οὐθ' ὅλον οὔτε 63
μέρος αὐτοῦ. Συμβήσεται γὰρ μήτε τοὺς τετάρτους τῷ διὰ
15 τεσσάρων συμφωνεῖν μήτε τοὺς πέμπτους τῷ διὰ πέντε· οἱ δὲ οὕτω κείμενοι | τῶν φθόγγων ἐκμελεῖς ἦσαν. τῶν δὲ τὸ 5
δίτονον περιεχόντων ὁ μὲν βαρύτερος ὀξύτατός ἐστι πυκνοῦ ὁ δ' ὀξύτερος βαρύτατος· ἀναγκαῖον γὰρ ἐν τῇ συναφῇ τῶν
πυκνῶν διὰ τεσσάρων συμφωνούντων ἀνὰ μέσον αὐτῶν 10
20 κείσθαι τὸ δίτονον, ὡσαύτως δὲ καὶ τῶν διτόνων διὰ τεσσάρων συμφωνούντων ἀναγκαῖον ἐν μέσῳ κείσθαι τὸ

1 συνθετά R ὅσα ἐν τῷ om. R 3 εἴωθεν] ν postea add. M
4 πῶς in marg. Mb 5 συγκείμενόν ἐστιν ante ἕκαστον add., et
συνεστήκειν om. H 7 ἔσται ποθ' om. R: ἔσται ποθ' ἕκαστον om. V
ἐστὶ post γενῶν add. R, Mc (supra lin.) post γενῶν add. συνεστηκός
ὅσα ἔστιν ἐν τῷ διὰ πέντε. πρὸς οὓς λέγεται ὅτι ἐξ ἐλαττόνων ἀσυνθέτων
τῶν γενῶν S B Vb in marg., nisi quod συνεστηκός om. Vb. τῶν γενῶν
om. Vb, τῶν om. S 10 ἢ eras. M: om. V S B H 14 τετάρτους
Marquard: δ' in marg. Mc, S: om. Va: τέσσαρας rell. τῷ] τὸ H:
post τῷ litt. ν eras. M: τῶν V B 15 πέμπτους Marquard: πέντε
codd. τῷ add. Mc: om. V S οἱ δὲ] οὐδ' H 16 post
οὕτω litt. σ eras. M ἐκμελεῖς ex ἐμμελεῖς Mc: ἐμμελεῖς V B S
17 βαρύτερος Marquard: βαρύτατος codd. ὀξύτατος... βαρύτατος
om. R 18 βαρύτερος B, sed in marg. βαρύτατος 20 κείσθαι
om., et εἶναι post δίτονον add. H τὸ] τὸν V S δὲ om. S post
καὶ add. ἐν τῇ συναφῇ in marg. Mc, τῇ συναφῇ R τὸ ante διὰ τεσσάρων
add. H 21 post τὸ litt. ν eras. M: τὸν V S B

- 15 πυκνόν· τούτων δ' οὕτως ἐχόντων ἀναγκαῖον | ἐναλλάξ τό τε
 πυκνὸν καὶ τὸ δίτονον κείσθαι, ὥστε δῆλον ὅτι ὁ μὲν βαρύ-
 τερος τῶν περιεχόντων τὸ δίτονον ὀξύτατος ἔσται τοῦ ἐπὶ τὸ
 20 βαρὺν κειμένου πυκνοῦ, ὁ δ' ὀξύτερος τοῦ ἐπὶ τὸ ὀξύ | κειμένου
 πυκνοῦ βαρύτατος· οἱ δὲ τὸν τόνον περιέχοντες ἀμφοτέροί 5
 εἰσι πυκνοῦ βαρύτατοι, τίθεται γὰρ ὁ τόνος ἐν τῇ διαζεύξει
 μεταξὺ τοιούτων τετραχόρδων ἃ οἱ περιέχοντες βαρύτατοί
 25 εἰσι | πυκνοῦ· ὑπὸ τούτων δὲ καὶ ὁ τόνος περιέχεται. ὁ μὲν
 γὰρ βαρύτερος τῶν (τὸν) τόνον περιεχόντων ὀξύτερός ἐστι τῶν
 τὸ βαρύτερον τῶν τετραχόρδων περιεχόντων, ὁ δὲ ὀξύτερος 10
 30 τῶν (τὸν) τόνον περιεχόντων βαρύτερός ἐστι τῶν τὸ ὀξύτερον
 τῶν τετραχόρδων περιεχόντων, ὥστ' εἶναι δῆλον ὅτι οἱ τὸν
 τόνον περιέχοντες βαρύτατοι ἔσονται πυκνοῦ.
- 64 Δύο δὲ δίτονα ἐξῆς οὐ τεθήσεται. Τιθέ||σθω γάρ· ἀκο-
 λουθήσει δὴ τῷ μὲν ὀξυτέρῳ διτόνῳ πυκνὸν ἐπὶ τὸ βαρὺ, 15
 ὀξύτατος γὰρ ἦν πυκνοῦ ὁ ἐπὶ τὸ βαρὺ ὀρίζων τὸ δίτονον·
 5 τῷ δὲ βαρυτέρῳ διτόνῳ ἐπὶ τὸ ὀξύ ἀκολουθήσει πυκνόν,
 βαρύτατος γὰρ ἦν πυκνοῦ ὁ ἐπὶ τὸ ὀξύ ὀρίζων τὸ δίτονον.
 Τούτου δὲ συμβαίνοντος δύο πυκνὰ ἐξῆς τεθήσεται· τούτου
 10 δὲ ἐκμελοῦς ὄντος ἐκμελὲς ἔσται | καὶ τὰ δύο δίτονα ἐξῆς 20
 τίθεσθαι.

Ἐν ἀρμονίᾳ δὲ καὶ χρώματι δύο τουιαῖα ἐξῆς οὐ τεθήσεται.
 Τιθέσθω γὰρ ἐπὶ τὸ ὀξύ πρῶτον· ἀναγκαῖον δὴ εἶπερ ἐστὶν

1 ἐναλλάξ] acc. add. et postea 2 litt. eras. Mc: ἐναλλάξει V B S (sed
 ἐναλλάξ in marg. B) 2 βαρύτερος Marquard: βαρύτατος codd.
 4 τοῦ ἐπὶ τὸ ὀξύ κειμένου πυκνοῦ in marg. Mc: om. V S B 5 πυκνοῦ
 oim. R βαρύτατος Marquard: βαρύτερος codd. οἱ] ὁ B
 7 τοιούτων B ἃ Ma, sed ὧν suprascr. Mc: ὧν R περιέχοντες
 ex περιχόντες Mc 9 βαρύτερος Marquard: βαρύτατος codd.
 τὸν restituit Marquard τόνων R περιεχόντων om. R 10 τὸ
 supra lin. add. B: om. S βαρύτερον Marquard: βαρύτατον codd.
 τῶν τετραχόρδων] τῶν supra lin. add. Mx: om. V S 11 τὸν
 restituit Marquard (legit H) 12 τῶν τετ.] τῶν supra lin. add.
 Mx: om. Va S 14 δίτονα] post i litt. a eras. M: διάτονα V B S
 18 διορίζων R 20 ἐκμελῆσθαι supra e acc. eras., τ suprascr. et
 in marg. ἐκμελὲς ἔσται add. Mc: ἐκμελὲς ἔσται (ἐς ἔστ e corr.) Vb
 καὶ om. H διάτονα M V S 22 ἐναρμονία S 23 δὴ] δὲ V S B

ἐμμελῆς ὁ τὸν προστεθέντα τόνον | ὀρίζων φθόγγος ἐπὶ τὸ 15
ὁξὺ συμφωνεῖν ἦτοι τῷ τετάρτῳ τῶν ἐξῆς διὰ τεσσάρων ἢ
τῷ πέμπτῳ διὰ πέντε· μηδετέρου (δὲ) τούτων αὐτῷ συμ-
βαίνοντος ἀναγκαῖον ἐκμελῇ εἶναι. ὅτι δ' οὐ συμ|βήσεται 20
5 φανερόν· ἐναρμόνιος μὲν γὰρ οὔσα ἡ λιχανὸς τέσσαρας
τόνους ἀπὸ τοῦ προσληφθέντος ἀφέξει φθόγγος τέταρτος ὢν,
χρωματικὴ δ' εἶτε μαλακοῦ χρώματος εἴθ' ἡμιολίου μεί|ζον 25
ἀφέξει διάστημα τοῦ διὰ πέντε, τονιαίου δὲ γενομένη διὰ
πέντε συμφωνήσει τῷ προσληφθέντι φθόγγῳ. οὐκ ἔδει δέ
10 γε, ἀλλὰ ἦτοι τὸν τέταρτον διὰ τεσσάρων συμφωνεῖν ἢ τὸν
πέμπτον διὰ πέν|τε. Τούτων δ' οὐδέτερον γίγνεται, ὥστε 30
φανερόν, ὅτι ἐκμελῆς ἔσται ὁ τὸν προσληφθέντα τόνον ὀρίζων
φθόγγος ἐπὶ τὸ ὁξύ. Ἐπὶ δὲ τὸ βαρὺ τιθέμενον τὸ δεύτερον
τονιαῖον διάτονον ποιήσει τὸ || γένος, ὥστε δῆλον ὅτι ἐν 65
15 ἁρμονίᾳ καὶ χρώματι οὐ τεθήσεται δύο τονιαῖα ἐξῆς. Ἐν
διατόνῳ δὲ τρία τονιαῖα ἐξῆς τεθήσεται, πλείω δ' οὐ· ὁ γὰρ
τὸ τέταρτον | τονιαῖον ὀρίζων φθόγγος οὔτε τῷ τετάρτῳ διὰ 5
τεσσάρων οὔτε τῷ πέμπτῳ διὰ πέντε συμφωνήσει.
Ἐν τῷ αὐτῷ δὲ γένει τούτῳ δύο ἡμιτονιαῖα ἐξῆς οὐ τε-
20 θήσεται. Τιθέσθω γὰρ | πρῶτον ἐπὶ τὸ βαρὺ τοῦ ὑπάρχον- 10
τος ἡμιτονίου τὸ προστεθὲν ἡμιτόνιον· συμβαίνει δὴ τὸν
ὀρίζοντα φθόγγον τὸ προστεθὲν ἡμιτόνιον μήτε τῷ τετάρτῳ
διὰ τεσσάρων συμφωνεῖν μήτε τῷ πέμ|πτῳ διὰ πέντε. οὕτω 15

1 ἐμμελῆς ex ἐκμελῆς Mc: ἐκμελῆς V S, B (sed in marg. ἐμμελῆς)
3 τῶν ante διὰ πέντε add. R μηδ' ἐτέρω τοῦτο ex μηδ' ἐτέρω τούτω
M: μηδ' ἐτέρῳ τούτῳ V S B δὲ restituit Marquard αὐτῶν ex
αὐτῷ Mc αὐτῷ post συμβαίνοντος ponit H 6 ἐφέξει B (sed
ἀφέξει in marg.) 10 ἀλλ' ἦτοι ex ἀλλα τοι deinde 2 litt. eras. Mc:
ἀλλὰ τοιοῦτο V B S: ἀλλὰ τὸν in marg. B τέταρτον] δ' S 11 δὲ
in marg. Mc: om. V B S 13 ἐπὶ τὸ ὁξὺ ἐπὶ τὸ ὁξὺ (cum punctis
sub ἐπὶ τὸ ὁξὺ altero) B δεύτερον τονιαῖον Ma, sed β supra δεύτερον
et α supra τονιαῖον add. Mc 17 τὸ om. H 19 ἡμιτονιαῖα]
τονιαῖα V S B et Ma, sed ἡμι supra lin. add. Mc τίθεται in marg.
B, R 21 ἡμιτονιαῖου B δὴ H: δὲ rell. 22 τὸ
supra lin. add. Mc: om. V B S 23 συμφωνεῖν post διὰ πέντε
ponit H

μὲν οὖν ἐκμελῆς ἔσται τοῦ ἡμιτονιαίου ἢ θέσις. ἂν δ' ἐπὶ
τὸ ὀξὺ τεθῇ τοῦ ὑπάρχοντος, χρῶμα ἔσται, ὥστε δῆλον ὅτι
ἐν διατόνῳ δύο ἡμιτονιαῖα οὐ τεθήσεται ἐξῆς.—Ποῖα μὲν |
20 οὖν τῶν ἀσυνθέτων δύναται ἴσα ἐξῆς τίθεσθαι καὶ πόσα τὸν
ἀριθμὸν καὶ ποῖα τοῦναντίον πέπουθεν ἀπλῶς οὐ δυνάμενα 5
τίθεσθαι ἴσα ὄντα ἐξῆς, δέδεικται· περὶ δὲ τῶν ἀνίσων νῦν
λεκτέον. |

25 Πυκνὸν μὲν οὖν πρὸς διτόνῳ καὶ ἐπὶ τὸ βαρὺ καὶ ἐπὶ τὸ
ὀξὺ τίθεται. Δέδεικται γὰρ ἐν τῇ συναφῇ ἐναλλαξί τιθέμενα
ταῦτα τὰ διαστήματα, ὥστε δῆλον ὅτι ἐκάτερον ἐκατέρου 10
30 καὶ ἐπὶ τὸ βαρὺ καὶ | ἐπὶ τὸ ὀξὺ τεθήσεται.

Τόνος δὲ πρὸς διτόνῳ ἐπὶ τὸ ὀξὺ μόνον τίθεται. Τι-
θέσθω γὰρ ἐπὶ τὸ βαρὺ· συμβήσεται δὴ πίπτειν ἐπὶ τὴν
66 αὐτὴν τάσιν ὀξύτα||τόν τε πυκνοῦ καὶ βαρύτατον, ὃ μὲν γὰρ
τὸ δίτονον ἐπὶ τὸ βαρὺ ὀρίζων ὀξύτατος ἦν πυκνοῦ, ὃ δὲ τὸν 15
5 τόνον ἐπὶ τὸ ὀξὺ βαρύτατος. τούτων δὲ πιπτόντων | ἐπὶ
τὴν αὐτὴν τάσιν ἀναγκαῖον δύο πυκνὰ τίθεσθαι. τούτου δ'
ἐκμελοῦς ὄντος ἀναγκαῖον καὶ τόνον ἐπὶ τὸ βαρὺ διτονιαίου
ἐκμελῇ εἶναι.

10 Τόνος δὲ πρὸς πυκνῷ ἐπὶ τὸ βαρὺ | μόνον τίθεται. Τι- 20
θέσθω γὰρ ἐπὶ τοῦναντίον· συμβήσεται δὴ τὸ αὐτὸ πάλιν
ἀδύνατον, ἐπὶ γὰρ τὴν αὐτὴν τάσιν ὀξύτατός τε πυκνοῦ
πεσεῖται καὶ βαρύτατος, ὥστε δύο πυκνὰ τίθεσθαι ἐξῆς.
15 τού|του δ' ὄντος ἐκμελοῦς ἀναγκαῖον καὶ τὴν τόνου θέσιν
τὴν ἐπὶ τὸ ὀξὺ τοῦ πυκνοῦ ἐκμελῇ εἶναι. 25

1 ἐκμελῆς M V B
M H: δυνάμεθα rell.

add Mc (?): om. S

10 ὅτι H: om. rell.

συμβήσεται] βήσεται in ras. Ma
lin. add. B

21 ἐπὶ supra lin. add. B

in marg. add. B

Meibom: τούτου codd.

τοῦ ἡμιτονιαίου post ἢ ponit H

6 δὲ om. R

καὶ ἐπὶ τὸ βαρὺ post καὶ ἐπὶ τὸ ὀξὺ ponit H

12 τῷ ante διτόνῳ add. R

15 ὀρίξω S

18 τόνον Meibom:

22 αὐτὴν supra

24 τόνου

post βαρύτατος ponit H

25

5 δυνάμενα

8 τὸ βαρὺ] τὸ supra lin.

13 τὸ om. B

17 αὐτὴν supra

22 αὐτὴν

24 τόνου

post βαρύτατος ponit H

25

Ἐν διατόνῳ δὲ τόνου ἐφ' ἑκάτερα ἡμιτόνιον οὐ μελωδεῖται.
 Συμβήσεται γὰρ | μήτε τοὺς τετάρτους τῶν ἐξῆς διὰ τεσσάρων 20
 συμφωνεῖν μήτε τοὺς πέμπτους διὰ πέντε. Δύο δὲ τόνων
 ἢ τριῶν ἡμιτόνιον ἐφ' ἑκάτερα μελωδεῖται· συμφωνήσουσι
 5 γὰρ ἢ οἱ τέταρτοι διὰ τεσσάρων ἢ οἱ πέμπτοι διὰ πέντε. 25
 [Ἀπὸ ἡμιτονίου μὲν ἐπὶ τὸ ὀξὺ δύο ὁδοὶ καὶ ἐπὶ τὸ βαρὺ
 δύο,] ἀπὸ δὲ τοῦ διτόνου δύο μὲν ἐπὶ τὸ ὀξὺ, μία δ' ἐπὶ τὸ
 βαρὺ. Δέδεικται γὰρ ἐπὶ μὲν τὸ | ὀξὺ πυκνὸν τεθειμένον 30
 καὶ τόνος, πλείους δὲ τούτων οὐκ ἔσονται ὁδοὶ ἀπὸ τοῦ
 10 εἰρημένου διαστήματος ἐπὶ τὸ ὀξὺ. [ἐπὶ δὲ τὸ βαρὺ πυκνὸν
 μόνον,] λείπεται μὲν γὰρ τῶν ἀσυνθέτων τὸ δίτονον μόνον· ||
 δύο δὲ δίτονα ἐξῆς οὐκέτι τίθεται. ὥστε δῆλον ὅτι δύο μόναι 67
 ὁδοὶ ἔσονται ἀπὸ τοῦ διτόνου ἐπὶ τὸ ὀξὺ· ἐπὶ δὲ τὸ βαρὺ μία·
 δέδεικται γάρ, ὅτι οὔτε δίτονον | πρὸς διτόνῳ τεθήσεται οὔτε 5
 15 τόνος ἐπὶ τὸ βαρὺ διτόνου, ὥστε λείπεται τὸ πυκνόν. φανερόν
 δὲ ὅτι ἀπὸ διτόνου ἐπὶ μὲν τὸ ὀξὺ δύο ὁδοὶ, ἡ μὲν ἐπὶ τὸν τόνον
 ἡ δ' ἐπὶ τὸ πυκνόν, ἐπὶ δὲ τὸ βαρὺ μία, ἡ ἐπὶ | τὸ πυκνόν. 10
 Ἀπὸ πυκνοῦ δ' ἐναντίως ἐπὶ μὲν τὸ βαρὺ δύο ὁδοί, ἐπὶ
 δὲ τὸ ὀξὺ μία. Δέδεικται γὰρ ἀπὸ πυκνοῦ ἐπὶ τὸ βαρὺ δί-
 20 τονον τεθειμένον καὶ τόνος· τρίτη δ' οὐκ | ἔσται ὁδός, 15
 λείπεται μὲν γὰρ τῶν ἀσυνθέτων τὸ πυκνόν, δύο δὲ πυκνὰ
 ἐξῆς οὐ τίθεται, ὥστε δῆλον ὅτι μόναι δύο ὁδοὶ ἔσονται ἀπὸ

1 διατόνου M V B S τόνου Meibom: τόνῳ codd. 2 συμβήσεται
 Marquard: συμπεσείται codd. 3 συμφωνεῖν in marg. add. B τῶν
 ἐξῆς post πέμπτους add. H 5 prius ἢ] ἥτοι H διὰ τεσσάρων ex
 διὰ τετάρτου Mc: διὰ τετάρτου V S B 6 Ἀπὸ . . . δύο seclusi
 μὲν] οὐ μὲν S δύο ὁδοὶ ex δύο δ' οἱ Mc: δύο δ' οἱ V S B καὶ in
 marg. Mc καὶ ἐπὶ τὸ βαρὺ . . . μία δ' om. V S B 7 ἀπὸ δὲ τοῦ
 διτόνου . . . ἐπὶ τὸ βαρὺ in marg. Mc 8 διὰ ante δέδεικται add.
 Vb S B γὰρ add. Mc: om. V S B τεθειμένον] τέθηται R:
 τιθέμενον H 10 ἐπὶ . . . μόνον supra lin. in marg. superiori
 add. Mc: om. V S B 11 δίτονον (post i litt. a eras.) M: διά-
 τονον V S B 13 αἱ ante ὁδοὶ add. H 14 ὅτι οὔτε] ὅτι
 οὐδὲν H: ὅτι οὐδὲ M V B S 15 φανερόν δὲ Marquard: εἶρον
 δὲ codd. 17 μίαν M V B S 19 πυκνοῦ ex ὀξὺ Mc: δὲ V B S
 20 τιθέμενον H 22 οὐ τίθεται . . . βαρὺ. ἐπὶ om. R δύο post
 ὁδοὶ ponit S ὁδοὶ post ἔσονται ponit H

πυκνοῦ ἐπὶ τὸ βαρὺ. ἐπὶ δὲ τὸ ὀξὺ μία (ῆ) ἐπὶ τὸ δίτονον·
 20 οὔτε γὰρ | πυκνὸν πρὸς πυκνῷ τίθεται οὔτε τόνος ἐπὶ τὸ
 ὀξὺ πυκνοῦ, ὥστε λείπεται τὸ δίτονον. Φανερόν δὴ ὅτι ἀπὸ
 πυκνοῦ ἐπὶ μὲν τὸ βαρὺ δύο ὁδοί, ἥ τε ἐπὶ (τὸν) τόνον καὶ
 25 ἡ ἐπὶ τὸ δίτονον, ἐπὶ δὲ τὸ ὀξὺ μία, | ἡ ἐπὶ τὸ δίτονον.

Ἀπὸ δὲ τόνου μία ἐφ' ἑκάτερα ὁδός, ἐπὶ μὲν τὸ βαρὺ
 ἐπὶ τὸ δίτονον ἐπὶ δὲ τὸ ὀξὺ ἐπὶ τὸ πυκνόν. Ἐπὶ μὲν
 30 τὸ βαρὺ δέδεικται ὅτι οὔτε τόνος τίθεται | οὔτε πυκνόν,
 ὥστε λείπεται τὸ δίτονον· ἐπὶ δὲ τὸ ὀξὺ δέδεικται ὅτι οὔτε
 τόνος τίθεται οὔτε δίτονον, ὥστε λείπεται τὸ πυκνόν. Φανε- 10
 ρόν δὴ ὅτι ἀπὸ τόνου μία ἐφ' ἑκάτερα ὁδός, ἐπὶ μὲν τὸ βαρὺ
 68 ἐπὶ τὸ δίτονον, || ἐπὶ δὲ τὸ ὀξὺ ἐπὶ τὸ πυκνόν.

Ὅμοίως δ' ἔξει καὶ ἐπὶ τῶν χρωμάτων πλὴν τό γε μέσης
 5 καὶ λιχανοῦ διάστημα μεταλαμβάνεται ἀντὶ διτόνου τὸ | γι-
 γνόμενον καθ' ἑκάστην χροῖαν κατὰ τὸ τοῦ πυκνοῦ μέγεθος. 15
 Ὅμοίως δ' ἔξει καὶ ἐπὶ τῶν διατόνων· ἀπὸ γὰρ τοῦ κοινοῦ
 τόνου τῶν γενῶν μία ἔσται ἐφ' ἑκάτερα ὁδός, ἐπὶ μὲν τὸ
 10 βαρὺ ἐπὶ τὸ μέσης καὶ λιχανοῦ | διάστημα ὃ τι ἂν ποτε
 τυγχάνῃ ὃν καθ' ἑκάστην χροῖαν τῶν διατόνων, ἐπὶ δὲ τὸ ὀξὺ
 ἐπὶ τὸ παραμέσης καὶ τρίτης. 20

Ἡδὴ δέ τισι καὶ τοῦτο τὸ πρόβλημα παρέσχε πλάνην·
 15 θαυμάζουσι γὰρ | πῶς οὐχὶ τούναντίον συμβαίνει· ἄπειροι
 γάρ τινες αὐτοῖς φαίνονται εἶναι ὁδοὶ ἐφ' ἑκάτερα τοῦ τόνου,
 ἐπειδήπερ τοῦ τε μέσης καὶ λιχανοῦ διαστήματος ἄπειρα

1 τὸ ὀξὺ] τοῦ ὀξὺ S ἡ restituit Westphal δὲ ante τὸ δίτονον
 add. R 2 ὅτε τόνος in marg. B 3 δὴ Marquard: δὲ codd.
 4-6 πυκνοῦ . . . ἀπὸ δὲ om. H 4 τὸν restituit Marquard 5 ἡ
 om. B ἐπὶ δὲ δίτονον R ἐπὶ δὲ . . . δίτονον in marg. add. Mc Vb
 (nisi quod ἡ om. Mc) ἡ om. R 6 ἀπὸ δὲ τόνου μία add.
 in marg. Mc Vb: om. VS 7-12 ἐπὶ μὲν . . . πυκνόν om. H
 8 πυκνόν] δίτονον R 10 τίθεται om. R post τίθεται 10 litt. eras.
 M λείπεται R 11 δὴ] δὲ M V S B 14 διτόνου] δὲ
 τόνου R 15 κατὰ R: καὶ rell. 18 τὸ supra lin. add. Mc:
 om. V S B μέσης καὶ om. R καὶ supra lin. add. Mc: om.
 V B S 19 τυγχάνει B S διτόνων B 20 διάστημα post
 τρίτης add. H 24 τε om. S

μεγέθη φαίνονται εἶναι τοῦ τε πυκνοῦ | ὥσαύτως. Πρὸς δὴ 20
ταῦτα πρῶτον μὲν τοῦτ' ἐλέχθη, ὅτι οὐδὲν μᾶλλον ἐπὶ τού-
του τοῦ προβλήματος ἐπιβλέψειεν ἂν τις τοῦτο ἢ ἐπὶ τῶν
προτέρων. δῆλον γὰρ ὅτι καὶ τῶν ἀπὸ τοῦ πυκνοῦ τὴν
5 ἐτέ|ραν τῶν ὁδῶν ἄπειρα μεγέθη συμβήσεται λαμβάνειν καὶ 25
τῶν ἀπὸ τοῦ διτόνου [δ'] ὥσαύτως [ὡς]. τό τε γὰρ τοιοῦτον
διάστημα οἶον τὸ μέσης καὶ λιχανοῦ ἄπειρα λαμβάνει μεγέθη
τό τε τοιοῦτον οἶον | τὸ πυκνὸν ταῦτὸ πάσχει πάθος τῷ 30
ἐμπροσθεν εἰρημένῳ διαστήματι, ἀλλ' ὅμως οὐδὲν ἦττον ἀπό
10 τε τοῦ πυκνοῦ δύο γίνονται ὁδοὶ ἐπὶ τὸ βαρὺ καὶ ἀπὸ τοῦ
διτόνου ἐπὶ τὸ ὀξύ, ὥσαύτως δὲ καὶ ἀπὸ τοῦ τόνου μία
γίνεται ἐφ' ἑκάτερα ὁδοί. || Καθ' ἑκάστην γὰρ χρῶαν ἐφ' 69
ἐκάστου γένους ληπτέον ἐστὶ τὰς ὁδοὺς. δεῖ γὰρ ἕκαστον
τῶν ἐν τῇ μουσικῇ καθ' ὃ πεπέρασται κατὰ τοῦτο τιθέναι
15 τε καὶ τάττειν εἰς | τὰς ἐπιστήμας, ἣ δ' ἄπειρόν ἐστιν ἔαν. 5
κατὰ μὲν οὖν τὰ μεγέθη τῶν διαστημάτων καὶ τὰς τῶν
φθόγγων τάσεις ἄπειρά πως φαίνεται εἶναι τὰ περὶ μέλος,
κατὰ δὲ τὰς δυνάμεις καὶ κατὰ τὰ εἶδη | καὶ κατὰ τὰς θέσεις 10
πεπερασμένα τε καὶ τεταγμένα. Εὐθέως οὖν ἀπὸ τοῦ
20 πυκνοῦ αἱ ὁδοὶ ἐπὶ τὸ βαρὺ τῇ τε δυνάμει καὶ τοῖς εἶδεσιν
ὠρισμέναι τ' εἰσὶ καὶ δύο μόνον τὸν ἀριθμόν, ἣ μὲν | γὰρ 15
κατὰ τόνον εἰς διάζευξιν ἄγει τὸ τοῦ συστήματος εἶδος, ἣ
δὲ κατὰ θάτερον διάστημα, ὃ τι δήποτ' ἔχει μέγεθος, εἰς
συναφήν. δῆλον δ' ἐκ τούτων ὅτι καὶ ἀπὸ τοῦ τόνου μία
25 τ' | ἔσται ἐφ' ἑκάτερα ὁδοὶ καὶ ἐνὸς εἶδους συστήματος 20
αἰτίαι αἱ συναμφότεραι ὁδοί, τῆς διαζεύξεως. Ὅτι δ' ἂν

2 ἐλέχθη] ante χ litt. γ eras. M: ἐλέγχθη VB 6 δ' del.
Marquard ὡς del. Meibom 7 λαμβάνειν μεγέθει H 8 ταῦτὸ
in marg. B, R: αὐτὸ rell. 10 τε Marquard: δὲ codd. 11 τοῦ
om. H 12 γίνεταί (ινε in ras.) M 13 δεῖ γὰρ ἕκαστον
Meibom: διὰ γὰρ ἐκάστου codd. 14 ante καθ' ras. M πεπέρασται
(πε in ras., fuisse vid. καθάπερ πέραςται) M: πεπέραται R: πεπερᾶσθαι H
15 τε Marquard: γε codd. ἣ conieci: εἰ codd. 20 αἱ ὁδοὶ Mar-
quard: ὁδοὶ αἱ codd. 21 μόνον Meibom: τόνου codd. γὰρ om. S
25 τ'] τις R 26 συναμφότεραι (οι suprascr.) H: συναμφότεροι M VB S

τις μὴ κατὰ μίαν χροάν ἐνὸς γένους ἐπιχειρῇ τὰς ἀπὸ τῶν
 25 διαστημάτων ὁδοὺς ἐπισκο|πεῖν ἀλλ' ἅμα κατὰ πάσας ἀπάν-
 των τῶν γενῶν εἰς ἀπειρίαν ἐμπεσεῖται, φανερόν ἐκ τε τῶν
 εἰρημένων καὶ ἐξ αὐτοῦ τοῦ πράγματος.

30 Ἐν χρώματι δὲ καὶ ἁρμονίᾳ πᾶς | φθόγγος πυκνοῦ μετ- 5
 ἔχει. Πᾶς μὲν γὰρ φθόγγος ἐν τοῖς εἰρημένοις γένεσιν
 ἦτοι πυκνοῦ μέρος ὀρίζει ἢ τόνον ἢ τι τοιοῦτον οἶον τὸ

70 μέσης καὶ λιχανοῦ διάστημα. οἱ μὲν οὖν || τὰ τοῦ πυκνοῦ
 μέρη ὀρίζοντες οὐδὲν δέονται λόγου, φανεροὶ γάρ εἰσι
 πυκνοῦ μετέχοντες· οἱ δὲ τὸν τόνον περιέχοντες ἐδειχθήσαν 10
 5 ἔμπροσθεν πυκνοῦ | βαρύτατοι ὄντες ἀμφοτέροι· τῶν δὲ
 τὸ λοιπὸν διάστημα περιεχόντων ὁ μὲν βαρύτερος ὀξύτατος
 ἐδειχθή πυκνοῦ ὁ δ' ὀξύτερος βαρύτατος. "Ωστ' ἐπειδὴ
 10 τοσαῦτα μὲν ἐστὶ μόνα τὰ ἀσύν|θετα, ἕκαστον δ' αὐτῶν
 ὑπὸ τοιούτων φθόγγων περιέχεται ὧν ἕκαστος πυκνοῦ μετ- 15
 ἔχει, δῆλον ὅτι πᾶς φθόγγος ἐν ἁρμονίᾳ καὶ χρώματι πυκνοῦ
 μετέχει. |

15 "Οτι δὲ τῶν ἐν πυκνῷ κειμένων φθόγγων τρεῖς εἰσι
 χῶραι, ῥάδιον συνιδεῖν, ἐπειδήπερ πρὸς πυκνῷ οὔτε πυκνὸν
 τίθεται οὔτε πυκνοῦ μέρος. δῆλον γὰρ ὅτι διὰ ταύτην τὴν 20
 20 αἰτίαν οὐκ ἔσονται | πλείους τῶν εἰρημένων χῶραι φθόγγων.

"Οτι δὲ ἀπὸ μόνου τοῦ βαρυτάτου δύο ὁδοὶ εἰσιν ἐφ'
 ἑκάτερα, ἀπὸ δὲ τῶν λοιπῶν μία ὁδὸς ἐφ' ἑκάτερα, δεικτέον.
 25 ἦν δὲ δεδειγμένον ἐν τοῖς ἔμπροσθεν, ὅτι | (ἀπὸ πυκνοῦ ἐπὶ
 τὸ βαρὺν δύο ὁδοὶ εἰσιν, ἢ μὲν ἐπὶ τὸν τόνον ἢ δ' ἐπὶ τὸ 25

1 ἐπιχειρῇ ex ἐπιχειρεῖ Mc (?): ἐπιχειρεῖ rell. 7 πυκνοῦ μέρος]
 πυκνούμενος V S in marg. B ἢ τι] ἦτοι R 9 ὀρίζοντες Mar-
 quard: διορίζοντες codd. δέονται post λόγον ponit H 10 τόνον]
 τόπον R 11 τοῦ ante πυκνοῦ add. R 12 τὸ supra lin. add.
 Mc: om. V B S λοιπῶν S βαρύτερος Marquard: βαρύτατος codd.
 ὀξύτατος in marg. add. B 13 ὁ δ' add. Mc: om. V B S ὀξύτερος
 Marquard: ὀξύτατος codd. 14 ἀσύνθετα R: σύνθετα rell. 15 ὧν]
 τῶν B μετέχεις S, B (sed μετέχει in marg.) 16 δῆλον . . .
 μετέχει in marg. Mc Vb 20 γὰρ om. H 21 χῶραι post
 φθόγγων ponit H 24 δὲ supra lin. add. Mc: om. V B S ἀπὸ
 . . . δὲ τὸ restituit Marquard

δίτονον. ἔστι δὲ τὸ ἀπὸ πυκνοῦ δύο ὁδοὺς εἶναι τὸ αὐτὸ
τῷ ἀπὸ τοῦ βαρυτάτου τῶν ἐν τῷ πυκνῷ κειμένων δύο ὁδοὺς
ἐπὶ τὸ βαρὺ εἶναι, οὗτος γάρ ἐστιν ὁ περαίνων τὸ πυκνόν·
ἐδέδεικτο οὖν ὅτι ἀπὸ διτόνου ἐπὶ τὸ ὀξὺ | δύο ὁδοὶ εἰσιν, 30
5 ἢ μὲν ἐπὶ τὸν τόνον ἢ δ' ἐπὶ τὸ πυκνόν· ἔστι δὲ τὸ ἀπὸ
διτόνου δύο ὁδοὺς εἶναι τὸ αὐτὸ τῷ ἀπὸ τοῦ ὀξυτέρου τῶν
τὸ δίτονον ὀρίζοντων δύο ὁδοὺς ἐπὶ τὸ ὀξὺ εἶναι, οὗτος γάρ
ἐστιν ὁ ὀρίζων τὸ || δίτονον (ἐπὶ τὸ ὀξὺ. δῆλον δ' ὅτι 71
ὁ αὐτὸς τὸ δίτονον ἐπὶ τὸ ὀξὺ ὀρίζων καὶ ὁ τὸ πυκνὸν ἐπὶ
10 τὸ βαρὺ) βαρύτατος ὢν πυκνοῦ, ἐδέδεικτο γὰρ καὶ τοῦτο.
ὥστ' εἶναι δῆλον, ὅτι ἀπὸ τοῦ εἰρημένου φθόγγου δύο ὁδοὶ
ἐφ' ἑκάτερα ἔσονται. |

“Ὅτι δ' ἀπὸ τοῦ ὀξυτάτου μία ὁδὸς ἐφ' ἑκάτερα, δεικτέον. 5
'Εδέδεικτο δ' ὅτι ἀπὸ πυκνοῦ ἐπὶ τὸ ὀξὺ μία ὁδὸς ἐστιν,
15 οὐδὲν δὲ διαφέρει λέγειν ἀπὸ πυκνοῦ μίαν ὁδὸν εἶναι ἐπὶ
τὸ ὀξὺ ἢ ἀπὸ | τοῦ περαίνοντος αὐτὸ φθόγγου διὰ τὴν εἰρη-
μένην αἰτίαν ἐπὶ τῶν ἔμπροσθεν. δέδεικται δ' ὅτι καὶ ἀπὸ
διτόνου μία ὁδὸς ἐστιν ἐπὶ τὸ βαρὺ, οὐδὲν δὲ διαφέρει
λέγειν ἀπὸ διτόνου μίαν ὁδὸν εἶναι ἐπὶ | τὸ βαρὺ ἢ ἀπὸ τοῦ 15
20 ὀρίζοντος αὐτὸ φθόγγου διὰ τὴν προειρημένην αἰτίαν· δῆλον
δὲ ὅτι καὶ ὁ αὐτὸς ἐστὶ φθόγγος ὃ τε τὸ δίτονον ἐπὶ τὸ
βαρὺ ὀρίζων καὶ ὁ τὸ πυκνὸν ἐπὶ τὸ ὀξὺ ὀξύτατος ὢν
πυκνοῦ. “Ὡστ' εἶναι φανερόν ἐκ τούτων, ὅτι μία ὁδὸς ἐφ' 20
ἐκάτερα ἔσται [ἐπὶ] τοῦ εἰρημένου φθόγγου.
25 “Ὅτι δὲ καὶ ἀπὸ τοῦ μέσου μία ὁδὸς ἐφ' ἑκάτερα ἔσται,

1 ἐπὶ τὸ βαρὺ post ὁδοὺς add. H

τούτων Mc: βαρὺ τούτων V S B

2 βαρυτάτου τῶν ex βαρὺ

vid. ε et supra lin. ras.) M: ὅπερ ἐνῶν V S, B (sed αἰνων in marg.)

3 ὁ περαίνων (αἰ in ras., fuisse

4 ἐδέδεικναιτο B, sed in marg. ἐδέδεικτο

δύο post ὁδοὶ ponit B

5 τὸ ἀπὸ R: τὰ ἀπὸ rell.

6 διτόνου Meibom: τόνου codd.

om. R 7 οὗτος] ut in ras. Ma

8 ἐπὶ . . . βαρὺ restituit

Marquard 10 καὶ supra lin. add. corr. B

15 τοῦ ante πυκνοῦ

add. H 19 τοῦ ante διτόνου add. R

21 ὁ αὐτός] ὁ om. M V

S B τε] τι R 22 ὁ om. M V B R

24 ἐπὶ seclusi: δεικτέον

ἐπὶ eras. S: ἀπὸ Marquard ἐπὶ . . . ἔσται om. R

25 δεικτέον. Ἐπεὶ τοίνυν | ἀναγκαῖον μὲν τῶν τριῶν ἀσυν-
 θέτων ἓν τι (πρὸς) τῷ εἰρημένῳ φθόγγῳ τίθεσθαι, ὑπάρχει
 δὲ αὐτοῦ κειμένη διέσις ἐφ' ἑκάτερα, δῆλον ὅτι οὔτε δίτονον
 30 τεθῆσεται πρὸς αὐτῷ κατ' οὐδέτερον τῶν τόπων | οὔτε
 τόνος. διτόνου γὰρ οὕτω τιθεμένου ἦτοι βαρύτατος πυκνοῦ 5
 ἢ ὀξύτατος πεσεῖται ἐπὶ τὴν αὐτὴν τάσιν τῷ εἰρημένῳ
 φθόγγῳ μέσῳ ὄντι πυκνοῦ, ὥστε γίνεσθαι τρεῖς διέσεις ἐξῆς
 72 ὁποτέρως ἂν τεθῇ τὸ δίτονον τῶν τόπων· τόνου (δὲ)
 τεθειμένου τὸ αὐτὸ συμβήσεται, βαρύτατος γὰρ πυκνοῦ
 πεσεῖται ἐπὶ τὴν αὐτὴν τάσιν μέσῳ πυκνοῦ, ὥστε τρεῖς 10
 5 διέσεις ἐξῆς τίθεσθαι. τούτων δ' ἐκμελῶν ὄντων δῆλον
 ὅτι μία ὁδὸς ἐφ' ἑκάτερα ἔσται ἀπὸ τοῦ εἰρημένου φθόγγου.
 Ὅτι μὲν οὖν ἀπὸ (τοῦ βαρυτάτου) τῶν φθόγγων τῶν ἐν
 10 πυκνῷ κειμένων δύο ἐφ' ἑκά|τερα ἔσσονται ὁδοὶ ἀπὸ δὲ τῶν
 λοιπῶν ἑκατέρου μία ἐφ' ἑκάτερα ἔσται ὁδός, φανερόν. 15
 Ὅτι δ' οὐ τεθήσονται δύο φθόγγοι ἀνόμοιοι κατὰ τὴν
 15 τοῦ πυκνοῦ μετοχὴν | ἐπὶ τὴν αὐτὴν τάσιν ἐμμελῶς, δει-
 κτέον. Τιθέσθω γὰρ πρῶτον ὃ τ' ὀξύτατος καὶ ὁ βαρύτατος
 ἐπὶ τὴν αὐτὴν τάσιν· συμβήσεται δὴ τούτου γιγνομένου
 20 δύο πυκνὰ ἐξῆς τίθεσθαι. τούτου δ' ἐκμελοῦς | ὄντος ἐκμελὲς 20
 τὸ πίπτειν (ἐπὶ τὴν αὐτὴν τάσιν τοὺς κατὰ ταύτην
 τὴν διαφορὰν ἀνομοίους) ἐν πυκνῷ φθόγγους. Δῆλον
 δ' ὅτι οὐδ' οἱ κατὰ τὴν λειπομένην διαφορὰν ἀνόμοιοι φθόγγοι

2 ἔν] ἐν S πρὸς restituit Meibom 4 αὐτῷ Meibom H : αὐτὸ
 rell. τόπων conieci : τρόπων codd. εἰρημένων ante τρόπων add.
 H 5 τόνος διτόνου. οὕτω γὰρ M V S B, nisi quod διατόνου (cum
 duobus punctis sub α) B 6 τῷ εἰρημένῳ φθόγγῳ Meibom, et μέσῳ
 Marquard : τῶν εἰρημένων φθόγγων μέσον codd. 8 τῶν τόπων
 conieci : τῷ τόπῳ codd. δὲ coniecit Meibom ἐπὶ δὲ ante τῷ, et
 αὐτῷ ante τόπῳ add. Marquard 10 αὐτὴν . . . ὥστε om. R
 μέσῳ Meibom : μέσον codd. ὥστε Marquard : ὡς codd. 11 ἐξῆς
 τίθεσθαι] γίνεσθαι ἐξῆς H δ' Marquard : δὴ codd. 12 μία supra
 lin. add. corr. B 13 τοῦ βαρυτάτου restituit Meibom 15 ἔσται
 ante ἐφ' ἑκάτερα ponit H 18 τιθέσθω . . . τὴν αὐτὴν τάσιν in
 marg. S δ (ante βαρύτατος) H : om. rell. 20 ἐκμελὲς] ἐμμελὲς
 M V B 21 ἐπὶ τὴν . . . ἀνομοίους addidi 23 δ' om. B ἀνό-
 μοιοι Marquard : ὅμοιοι codd.

τῆς αὐτῆς τάσεως ἐμμελῶς κοινωνήσουσι· τρεῖς γὰρ ἀναγκαῖον
τίθεσθαι διέσεις ἐξῆς, ἐὰν τε βαρύτατος ἐὰν τ' ὀξύτατος 25
τῷ μέσῳ τῆς αὐτῆς μετάσχη τάσεως.

“Ὅτι δὲ τὸ διάτονον σύγκειται ἥτοι ἐκ δυοῖν ἢ τριῶν ἢ
5 τεσσάρων ἀσυν|θέτων, δεικτέον. “Ὅτι μὲν οὖν ἐκ τοσούτων 30
πλείστων ἀσυνθέτων ἕκαστον τῶν γενῶν συνεστηκός ἐστιν
(ὅσα) ἐν τῷ διὰ πέντε, δέδεικται πρότερον· ἔστι δὲ ταῦ||τα 73
τέσσαρα τὸν ἀριθμὸν. ἐὰν οὖν τῶν τεσσάρων τὰ μὲν τρία
ἴσα γένηται τὸ δὲ (τέταρτον) ἄνισον—(τοῦτο δὲ) γίγνεται
10 ἐν τῷ συντονωτάτῳ διατόνῳ—, δύο ἔσται μεγέθη μόνᾳ ἐξ
ᾧ τὸ | διάτονον συνεστηκός ἔσται· ἐὰν δὲ τὰ μὲν δύο ἴσα 5
τὰ δὲ δύο ἄνισα τῆς παρυνπάτης ἐπὶ τὸ βαρὺ κινήσεισης,
τρία ἔσται μεγέθη ἐξ ᾧ τὸ διάτονον γένος συνεστηκός
ἔσται, τό τ' ἔλαττον ἡμιτο|νίου καὶ τόνος καὶ τὸ μείζον 10
15 τόνου· ἐὰν δὲ πάντα τὰ τοῦ διὰ πέντε μεγέθη ἄνισα γένηται,
τέσσαρα ἔσται μεγέθη (ἐξ ᾧ) τὸ εἰρημένον γένος ἔσται
συνεστηκός. “Ὡστ' εἶναι φανερόν ὅτι τὸ διάτονον | ἥτοι 15
ἐκ δυοῖν ἢ τριῶν ἢ τεσσάρων ἀσυνθέτων σύγκειται.

“Ὅτι δὲ (τὸ) χρῶμα καὶ ἡ ἀρμονία ἥτοι ἐκ τριῶν ἢ ἐκ
20 τεσσάρων σύγκειται, δεικτέον. “Ὀντων δὲ τῶν μὲν (τοῦ)
διὰ πέντε ἀσυν|θέτων τεσσάρων τὸν ἀριθμὸν ἐὰν μὲν τὰ 20
τοῦ πυκνοῦ μέρη ἴσα ᾗ, τρία ἔσται μεγέθη ἐξ ᾧ τὰ εἰρη-
μένα γένη συνεστηκότα ἔσται, τό τε τοῦ πυκνοῦ μέρος ὅ
τι ἂν ᾗ καὶ τόνος καὶ τὸ τοιοῦτον οἶον μέσης καὶ | λιχανοῦ 25
25 διάστημα. ἐὰν δὲ τὰ τοῦ πυκνοῦ μέρη ἄνισα ᾗ, τέσσαρα

1 κοινωνήσουσι B 3 τάσεως in marg. B: στάσεως rell. 4 ἥτοι]
ἢ τὸ H δυοῖν ἢ τριῶν Meibom: τριῶν ἢ δυοῖν codd. 5 ἀσύνθετον
M V B S 6 ἀσύνθετον H 7 ὅσα restituit Meibom 9 τὸ
δὲ τέταρτον ἄνισον—τοῦτο δὲ γίγνεται Marquard: τὸ δὲ ἴσον γένηται
codd. (nisi quod γένηται om. H) 10 διατόνῳ om. R 14 ἡμιτόνιον
M V B S 16 μεγέθει H ἐξ ᾧ restituit Meursius 18 δυοῖν
Marquard: δύο codd. 19 τὸ restituit Marquard ἐκ ante τεσσάρων
om. V B S 20 δὲ] μὲν οὖν H τοῦ restituit Marquard 21 τὸν
corr. ex τῷ S 22, 23 μέρη . . . πυκνοῦ om. R 22 ᾗ] ἢ B
23 συνεστηκότα Meibom: συνεστηκός codd. μέρους M V B S
24 τὸ ante τόνος add. V S

III. 73 ΑΡΙΣΤΟΞΕΝΟΥ ΑΡΜΟΝΙΚΩΝ ΣΤΟΙΧΕΙΩΝ γ'

ἔσται μεγέθῃ ἐξ ὧν τὰ εἰρημένα γένη συνεστηκότα ἔσται.
 ἐλάχιστον μὲν τὸ τοιοῦτον οἶον τὸ ὑπάτης καὶ παρυνπάτης,
 30 δεύτερον δ' οἶον τὸ παρυνπάτης καὶ λιχανοῦ, τρίτον δὲ τό|νος,
 τέταρτον δὲ τὸ τοιοῦτον οἶον τὸ μέσης καὶ λιχανοῦ.

*Ἦδη δέ τις ἠπόρησε διὰ τί οὐκ ἂν καὶ ταῦτα τὰ γένη 5
 74 ἐκ δύο ἀσυνθέτων || εἴη συνεστηκότα ὥσπερ καὶ τὸ διάτονον.
 Φανερόν δὴ τίς ἐστι παντελῶς καὶ ἐπιπολῆς ἡ αἰτία τοῦ
 5 μὴ γίνεσθαι τοῦτο· τρία γὰρ ἀσύνθετα ἴσα ἐξῆς ἐν ἁρμο|νίᾳ
 μὲν καὶ χρώματι οὐ τίθεται, ἐν διατόνῳ δὲ τίθεται. διὰ
 ταύτην δὴ τὴν αἰτίαν τὸ διάτονον μόνον ἐκ δύο ἀσυνθέτων 10
 συντίθεται ποτε.

10 Μετὰ δὲ ταῦτα λεκτέον τί ἐστι καὶ | ποία τις ἡ κατ'
 εἶδος διαφορά—διαφέρει δ' ἡμῖν οὐδὲν εἶδος λέγειν ἢ σχῆμα,
 φέρομεν γὰρ ἀμφοτέρα τὰ ὀνόματα ταῦτα ἐπὶ τὸ αὐτό.
 15 Γίγνεται δ' ὅταν τοῦ αὐτοῦ μεγέθους ἐκ τῶν αὐτῶν ἀ|συν- 15
 θέτων συγκειμένου μεγέθει καὶ ἀριθμῷ ἡ τάξις αὐτῶν
 ἀλλοίωσιν λάβῃ. Τούτου δ' οὕτως ἀφωρισμένου τοῦ διὰ
 τεσσάρων ὅτι τρία εἶδη, δεικτέον. πρῶτον μὲν οὖν οὐ τὸ
 20 πυκνὸν ἐπὶ τὸ | βαρὺ, δεύτερον δ' οὐ διέσις ἐφ' ἐκάτερα
 τοῦ διτόνου κεῖται, τρίτον δ' οὐ τὸ πυκνὸν ἐπὶ τὸ ὀξὺ τοῦ 20
 διτόνου. ὅτι δ' οὐκ ἐνδέχεται πλεοναχῶς τεθῆναι τὰ τοῦ
 25 διὰ τεσσάρων μέρη πρὸς ἄλληλα ἢ | τοσανταχῶς, ῥάδιον
 συνιδεῖν.

1 ἔσται om. H συνεστηκός MR 7 δὴ] δ' εἰ S ἐπὶ πολλῆς
 VBSR 8 verba ἐν ἁρμονίᾳ et quae sequuntur omnia in marg.
 add. Mc: in V scripta sunt a Vb vel manu diversa a Va, paullo
 iunior ἐναρμονία S 9 οὐ ante τίθεται prius om., et οὐ ante
 τίθεται alterum add. H 9-11 διὰ . . . ποτε om. H 10 τὸ
 διάτονον om. R μόνον ἐκ δύο Marquard: ἐκ δύο μόνων codd.
 12 τί MBR: τίς VS ἐστι om. V 13 ἡμῖν post οὐδὲν ponit H
 15 ἀσυνθέτων ex ἀσυνθέτου corr. V: ἀσυνθέτου S 16 συγκειμένου
 HS: συγκειμένων MR, V (ex συγκειμένου corr.) καὶ ante μεγέθει
 add. M VBSH 17 ἀλύωσιν B ἀλλοίωσιν post λάβῃ ponit H
 τοῦ δ' οὕτως, sed του et οὐ in ras. corr. V ἀφωρισμένον H: ἀφωρισμένον
 B 18 εἶδη] ἥδη B οὐ] οὐ S 19 οὐ] οὐ S 20 οὐ] οὐ S
 22 τεσσάρων] τετάρτου VB

THE ELEMENTS OF HARMONY

BY ARISTOXENUS

BOOK I¹

THE branch of study which bears the name of Harmonic I. 11 is to be regarded as one of the several divisions or special sciences embraced by the general science that concerns itself with Melody. Among these special sciences Harmonic occupies a primary and fundamental position; its subject matter consists of the fundamental principles — all that relates to the theory of scales and keys; and this once mastered, our knowledge of the science fulfils every just requirement, because it is in such a mastery that its aim consists. In advancing to the profounder speculations 2 which confront us when scales and keys are enlisted in the service of poetry, we pass from the study under consideration to the all-embracing science of music, of which Harmonic is but one part among many. The possession of this greater science constitutes the musician.

The early students of Harmonic contented themselves, as a matter of fact, with being students of *Harmonic* in the literal sense of the term; for they investigated the *enharmonic* scale alone, without devoting any consideration to the other genera. This may be inferred from the fact that the tables of scales presented by them are always of enharmonic scales, never in one solitary instance of diatonic or chromatic; and that too, although these very tables in which they con-

¹ The references throughout the translation are to Meibom's edition.

fined themselves to the enumeration of enharmonic octave scales nevertheless exhibited the complete system of musical intervals. Nor is this the sole mark of their imperfect treatment. In addition to ignoring diatonic and chromatic scales they did not even attempt to observe the various magnitudes and figures in the enharmonic as well as in the other genera. Confining themselves to what is but the third part of that complete system, they selected for exclusive treatment a single magnitude in that third part, namely, the Octave. Again, their mode of treating even branches of the study to which they did apply themselves was imperfect. This has been clearly illustrated in a former work in which we examined the views put forward by the students of Harmonic ; but it will be brought into a still clearer light by an enumeration of the various subdivisions of this science, and a description of the sphere of each. We 3 shall find that they have been in part ignored, in part inadequately treated ; and while substantiating our accusations we shall at the same time acquire a general conception of the nature of our subject.

The preliminary step towards a scientific investigation of music is to adjust our different notions of change of voice, meaning thereby change in the position of the voice. Of this change there are more forms than one, as it is found both in speaking and in singing ; for in each of these there is a *high* and *low*, and a change that results in the contrast of high and low is a change of position. Yet although this movement between high and low of the voice in speaking differs specifically from the same movement in singing, no authority has hitherto supplied a careful determination of the difference, and that despite the fact that without such a determination the definition of a note becomes a task very difficult of accomplishment. Yet we are bound to accomplish it with some degree of accuracy, if we wish to avoid the

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blunder of Lasus and some of the school of Epigonus, who attribute *breadth* to notes. A careful definition will ensure us increased correctness in discussing many of the problems which will afterwards encounter us. Furthermore, it is essential to a clear comprehension of these points that we differentiate distinctly between tension and relaxation, height and depth, and pitch—conceptions not as yet adequately discussed, but either ignored or confused. This done, we shall then be confronted by the question whether distance on 4 the line of pitch can be indefinitely extended or diminished, and if so, from what point of view. Our next task will be a discussion of intervals in general, followed by a classification of them according to every principle of division of which they admit; after which our attention will be engaged by a consideration of the scale in general, and a presentation of the various natural classes of scales. We must then indicate in outline the nature of *musical* melody—*musical*, because of melody there are several kinds, and tuneful melody—that which is employed in musical expression—is only one class among many. And as the method by which one is led to a true conception of this latter involves the differentiation of it from the other kinds of melody, it will scarcely be possible to avoid touching on these other kinds, to some extent at least. When we have thus defined musical melody as far as it can be done by a general outline before the consideration of details, we must divide the general class, breaking it up into as many species as it may appear to contain. After this division we must consider the nature and origin of continuity or consecution in scales. Our next point will be to set forth the differences of the musical genera which manifest themselves in the variable notes, as well as to give an account of the loci of variation of these variable notes. Hitherto these questions have been absolutely ignored, and in dealing with them we shall be

compelled to break new ground, as there is in existence no previous treatment of them worth mentioning.

- 5 Intervals, first simple and then compound, will next occupy our attention. In dealing with compound intervals, which as a matter of fact are in a sense scales as well, we shall find it necessary to make some remarks on the synthesis of simple intervals. Most students of Harmonic, as we perceived in a previous work, have failed even to notice that a treatment of this subject was required. Eratocles and his school have contented themselves with remarking that there are two possible melodic progressions starting from the interval of the Fourth, both upwards and downwards. They do not definitely state whether the law holds good from whatever interval of the Fourth the melody starts; they assign no reason for their law; they do not inquire how other intervals are synthesized—whether there is a fixed principle that determines the synthesis of any given interval with any other, and under what circumstances scales do and do not arise from the syntheses, or whether this matter is incapable of determination. On these points we find no statements made by any writer, with or without demonstration; the result being that although as a matter of fact there is a marvellous orderliness in the constitution of melody, music has yet been condemned, through the fault of those who have meddled with the subject, as falling into the opposite defect. The truth is that of all the objects to which the five senses apply not one other is characterized by an orderliness so extensive and so perfect. Abundant evidence for this statement will be forthcoming throughout our investigation of our subject, to the enumeration of the parts of which we must now return.

- 6 Our presentation of the various methods in which simple intervals may be collocated will be followed by a discussion of the resulting scales (including the Perfect Scale) in which

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we will deduce the number and character of the scales from the intervals, and will exhibit the several magnitudes of scales as well as the different figures, collocations, and positions possible in each magnitude ; our aim being that no principle of concrete melody, whether magnitude, or figure, or collocation, or position shall lack demonstration. This part of our study has been left untouched by all our predecessors with the exception of Eratocles, who attempted a partial enumeration without demonstration. How worthless his statements are, and how completely he failed even in perception of the facts, we have already dwelt upon, when this very subject was the matter of our inquiry. As we then observed all the scales with the exception of one have been completely passed over ; and of that one scale Eratocles merely endeavoured to enumerate the figures of one magnitude, namely the octave, empirically determining their number, without any attempt at demonstration, by the recurrence of the intervals. He failed to observe that unless there be previous demonstration of the figures of the Fifth and Fourth, as well as of the laws of their melodious collocation, such an empirical process will give us not seven figures, but many multiples of seven. Further discussion here is rendered unnecessary by our previous demonstration of these facts ; and we may now 7 resume our sketch of the divisions of our subject.

When the scales in each genus have been enumerated in accordance with the several variations just mentioned, we must blend the scales and repeat the process of enumeration. The necessity for this investigation has escaped most students ; nay, they have not so much as mastered the true conception of 'blending.'

Notes form the next subject for inquiry, inasmuch as intervals do not suffice for their determination.

Again, every scale when sung or played is located in a certain region of the voice ; and although this location

induces no difference in the scale regarded in itself, it imparts to the melody employing that scale no common—nay rather perhaps its most striking characteristic. Hence he who would deal with the science before us must treat of the ‘region of the voice’ in general and in detail so far as is reasonable ; in other words so far as the nature of the scales themselves prescribes. And in dealing with the affinity between scales and regions of the voice, and with keys, we must not follow the Harmonists in their endeavour at compression, but aim rather at the intermodulation of scales, by considering in what keys the various scales must be set so as to admit of intermodulation. We have shown in a previous work that, though as a matter of fact some of the Harmonists have touched on this branch of our subject in a purely accidental way, in connexion with their endeavour to exhibit a close-packed scheme of scales, yet there has been no general treatment of it by a single writer belonging to this
8 school. This position of our subject may broadly be described as the part of the science of modulation concerned with melody.

We have now set forth the nature and number of the parts of Harmonic. Any investigations that would carry us further must, as we remarked at the outset, be regarded as belonging to a more advanced science. Postponing accordingly to the proper occasion the consideration of these, their number, and their several natures, it now devolves upon us to give an account of the primary science itself.

Our first problem consists in ascertaining the various species of motion. Every voice is capable of change of position, and this change may be either continuous or by intervals. In continuous change of position the voice seems to the senses to traverse a certain space in such a manner that it does not become stationary at any point, not

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even at the extremities of its progress—such at least is the evidence of our sense-perception—but passes on into silence with unbroken continuity. In the other species which we designate motion by intervals, the process seems to be of exactly the opposite nature: the voice in its progress stations itself at a certain pitch, and then again at another, pursuing this process continuously—continuously, that is, in time. As it leaps the distances contained between the successive points of pitch, while it is stationary at, and produces sounds upon, the points themselves, it is said to sing only the latter, and to move by intervals. Both these descriptions must of course be regarded in the light of sensuous cognition. Whether voice can really move or not, and whether it can become stationary at a given point of pitch, are questions beyond the scope of the present inquiry, which does not demand the raising of this problem. For whatever the answer may be, it does not affect the distinction between the melodious motion of the voice and its other motions. Disregarding all such difficulties, we describe the motion of the voice as continuous when it moves in such a way as to seem to the ear not to become stationary at any point of pitch; but when the reverse is the case—when the voice seems to the ear first to come to a standstill on a point of pitch, then to leap over a certain space, and, having done so, to come to a standstill on a second point, and to repeat this alternating process continuously—the motion of the voice under these circumstances we describe as motion by intervals. Continuous motion we call the motion of speech, as in speaking the voice moves without ever seeming to come to a standstill. The reverse is the case with the other motion, which we designate motion by intervals: in that the voice does seem to become stationary, and when employing this motion one is always said not to speak but to sing. Hence

in ordinary conversation we avoid bringing the voice to a standstill, unless occasionally forced by strong feeling to resort to such a motion; whereas in singing we act in
 10 precisely the opposite way, avoiding continuous motion and making the voice become, as far as possible, absolutely stationary. The more we succeed in rendering each of our voice-utterances one, stationary, and identical, the more correct does the singing appear to the ear. To conclude, enough has been said to show that there are two species of the voice's motion, and that one is continuous and employed in speaking, while one proceeds by intervals and is employed in singing.

It is evident that the voice must in singing produce the tensions and relaxations inaudibly, and that the points of pitch alone must be audibly enunciated. This is clear from the fact that the voice must pass imperceptibly through the compass of the interval which it traverses in ascending or descending, while the notes that bound the intervals must be audible and stationary. Hence it is needful to discuss tension and relaxation, and in addition height and depth of pitch, and finally pitch in general.

Tension is the continuous transition of the voice from a lower position to a higher, **relaxation** that from a higher to a lower. **Height of pitch** is the result of tension, **depth** the result of relaxation. On a superficial consideration of these questions it might appear surprising that we distinguish four phenomena here instead of two, and in fact it is usual to identify height of pitch with tension, and depth of pitch
 11 with relaxation. Hence we may perhaps with advantage observe that the usual view implies a confusion of thought. In doing so we must endeavour to understand, by observing the phenomenon itself, what precisely takes place when in tuning we tighten a string or relax it. All who possess even a slight acquaintance with instruments are aware that in

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producing tension we raise the string to a higher pitch, and that in relaxing it we lower its pitch. Now, while we are thus raising the pitch of the string, it is obvious that the height of pitch which is to result from the process cannot yet be in existence. Height of pitch will only result when the string becomes stationary and ceases to change, after having been brought by the process of tension to the point of pitch required; in other words, when the tension has ceased and no longer exists. For it is impossible that a string should be at the same moment in motion and at rest; and as we have seen, tension takes place when the string is in motion, height of pitch when it is quiescent and stationary. The same remarks will apply to relaxation and depth of pitch, except that these are concerned with change in the opposite direction and its result. It is evident, then, that relaxation and depth of pitch, tension and height of pitch, must not be identified, but stand to one another in the relation of cause and effect. It remains to show that the term pitch also connotes a quite distinct conception.

By the term **pitch** we mean to indicate a certain persistence, as it were, or stationary position of the voice. And let us not be alarmed by the theory which reduces notes to motions and asserts sound in general to be a motion, as though our definition involved the proposition that under certain circumstances motion will, instead of moving, be stationary and at rest. The definition of pitch as a certain condition of motion—call it ‘equability’ or ‘identity,’ or by any more enlightening term you can find—will not affect our position. We shall none the less describe the voice as stationary when our senses assure us that it is neither ascending nor descending, simply fixing on this term as descriptive of such a state of the voice without any further implications. To proceed, then, the voice appears to act thus in singing; it moves in making an interval, it is

stationary on the note. Now if we use the term 'motion' and say 'the voice moves' in cases where, according to the physical theory, it undergoes a change in the rate of motion; and if, again, we use the term 'rest' and say 'the voice rests' in cases where this change in the rate of motion has ceased, and the motion has become uniform, our musical theory is not thereby affected. For it is plain enough that the term 'motion' in the physical sense covers both 'motion' and 'rest' in the sense in which we employ them. Sufficient has been said on this point here; elsewhere it has been treated more fully and clearly.

- 13 To resume; it now being clear that pitch is distinct from tension or relaxation, the former being, as we say, a rest of the voice, the latter, as we have seen, motions, our next task is to understand that it is distinct from the remaining phenomena of height and depth of pitch. Now, our previous observations have shown that the voice is, as a matter of fact, in a state of rest after a transition to height or depth; yet the following considerations will make it clear that pitch, though a rest of the voice, is a phenomenon distinct from both. We must understand that for the voice to be stationary means its remaining at one pitch; and this will happen equally whether it becomes stationary at a high pitch or a low. If pitch, then, be met in high notes as well as low notes—and the voice, as we have shown, must of necessity be capable of becoming stationary on both alike—it follows that, inasmuch as height and depth are absolutely incompatible, pitch, which is a phenomenon common to both, must be distinct from one and the other alike. Enough has now been said to show that pitch, height and depth of pitch, and tension and relaxation of pitch are five conceptions which do not admit of any identification *inter se*.

The next point for our consideration is whether distance on the line of pitch admits of infinite extension or diminu-

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tion. There is no difficulty in seeing that if we refer solely **14** to musical sounds, such infinite extension and diminution are impossible. For every musical instrument and for every human voice there is a maximum compass which they cannot exceed, and a minimum interval, less than which they cannot produce. No organ of sound can indefinitely enlarge its range or indefinitely reduce its intervals : in both cases it reaches a limit. Each of these limits must be determined by a reference to that which produces the sound and to that which discriminates it—the voice, namely, and the ear. What the voice cannot produce and the ear cannot discriminate must be excluded from the available and practically possible range of musical sound. In the progress *in parvitatem* the voice and the ear seem to fail at the same point. The voice cannot differentiate, nor can the ear discriminate, any interval smaller than the smallest *diesis*, so as to determine what fraction it is of a diesis or of any other of the known intervals. In the progress *in magnitudinem* the power of the ear may perhaps be considered to stretch beyond that of the voice, though to no very great distance. In any case, whether we are to assume the same limit for voice and ear in both directions, or whether we are to suppose it to be the same in the progress *in parvitatem* but different in the progress *in magnitudinem*, the fact remains that there is a maximum and minimum limit of distance on the line of pitch, either common to **15** voice and ear, or peculiar to each. It is clear, then, that distance of high and low on the line of pitch, regarded in relation to voice and ear, is incapable of infinite extension or infinitesimal diminution. Whether, regarding the constitution of melody in the abstract, we are bound to admit such an infinite progress, is a question demanding a different method of reasoning not required for our present purpose, and we shall accordingly reserve its discussion for a later occasion.

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The question of distance on the line of pitch being disposed of, we shall proceed to define a **note**. Briefly, it is the incidence of the voice upon one point of pitch. Whenever the voice is heard to remain stationary on one pitch, we have a note qualified to take a place in a melody.

An **interval**, on the other hand, is the distance bounded by two notes which have not the same pitch. For, roughly speaking, an interval is a difference between points of pitch, a space potentially admitting notes higher than the lower of the two points of pitch which bound the interval, and lower than the higher of them. A difference between points of pitch depends on degrees of tension.

- 16 A **scale**, again, is to be regarded as the compound of two or more intervals. Here we would ask our hearers to receive these definitions in the right spirit, not with jealous scrutiny of the degree of their exactness. We would ask him to aid us with his intelligent sympathy, and to consider our definition sufficiently instructive when it puts him in the way of understanding the thing defined. To supply a definition which affords an unexceptionable and exhaustive analysis is a difficult task in the case of all fundamental motions, and by no means least difficult in the case of the note, the interval, and the scale.

We must now endeavour to classify first intervals and then scales according to all those principles of division that are of practical use. The first **classification of intervals** distinguishes them by their compass, the second regards them as concordant or discordant, the third as simple or compound, the fourth divides them according to the musical genus, the fifth as rational or irrational. As all other classifications are of no practical use, let us disregard them for the present.

- 17 In **scales** will be found, with one exception, all the dis-

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tinctions which we have met in intervals. It is obvious that scales may differ both in compass and owing to the fact that the notes bounding that compass may be either concordant or discordant. The third, however, of the distinctions mentioned in the case of intervals cannot exist in the case of scales. Evidently we cannot have simple and compound scales, at least not in the same way as we had simple and compound intervals. The fourth distinction—that according to genera—must also exist in the case of scales, some of them being diatonic, some chromatic, and some enharmonic. It is obvious that they also admit the fifth principle of division: some are bounded by a rational, and some by an irrational, interval. To these four there must be added **three other classifications**. First, there is that into the conjunct scales, the disjunct scales, and the scales that are a combination of both; every scale, provided it is of a certain compass, becomes either conjunct or disjunct, or else combines both these qualities—for cases are to be seen where the latter process takes place. There is, secondly, the division into transilient and continuous, every scale belonging to one category or the other; and finally, that into single, double, and multiple, as all without **18** exception admit of classification under these heads. An explanation of each of these terms will be given in the sequel.

Starting from these definitions and classifications we must seek to indicate in outline the nature of **melody**. We have already observed that here the motion of the voice must be by intervals; herein, then, lies the distinction between the melody of music and of speech—for there is also a kind of melody in speech which depends upon the accents of words, as the voice in speaking rises and sinks by a natural law. Again, melody which accords with the laws of harmony is not constituted by intervals and

notes alone. Collocation upon a definite principle is also indispensable, it being obvious that intervals and notes are equally constituents of melody which violates the laws of harmony. It follows that the most important and significant factor in the right constitution of melody is the principle of collocation in general as well as its special laws. We see, then, that musical melody differs from the melody of speech, on the one hand, in employing motion by intervals, and from faulty melody, on the other hand, melody which violates the laws of harmony, by the different
 19 manner in which it collocates the simple intervals. What this manner is will be shown in the sequel ; for the present it will suffice to insist on the fact that, though melody which accords with the laws of harmony admits of many variations in collocating the intervals, there is yet one invariable attribute that can be predicated of every such melody, of so great importance that with its removal the harmony disappears. A full explanation will be given in the course of the treatise. For the present we content ourselves with this definition of musical melody in contradistinction to the other species, but it must be understood that we have supplied a mere outline without as yet reviewing the details.

Our next step will be to enumerate the **genera** into which melody in general may be divided. These are apparently three in number. Any melody we take that is harmonized on one principle is diatonic or chromatic or enharmonic. Of these genera the diatonic must be granted to be the first and oldest, inasmuch as mankind lights upon it before the others ; the chromatic comes next. The enharmonic is the third and most recondite ; and it is only at a late stage, and with great labour and difficulty, that the ear becomes accustomed to it.

We shall now return to the second of the distinctions in intervals previously enumerated, and shall proceed to

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examine one of the two classes there contrasted. These classes consist, as was remarked, of **concord**s and **discord**s, 20 and it is the former that we shall now take for consideration. We shall endeavour to establish the facts with regard to one of the many points in which **concord**s differ, namely respect of **compass**. The nature of melody in the abstract determines which **concord** has the least **compass**. Though many smaller intervals than the Fourth occur in melody, they are without exception **discord**s. But while the least **concordant** interval is thus determined, we find no similar determination for the greatest; for as far at any rate as the nature of melody in the abstract is concerned, **concord**s seem capable of infinite extension just as much as **discord**s. If we add to an octave any **concord**, whether greater than, equal to, or less than, an octave, the sum is a **concord**. From this point of view, then, there is no maximum **concord**. If, however, we regard our practical capacities—in other words, the capacities of the human voice and of instruments—there is apparently such a maximum, the interval, namely, composed of two octaves and a Fifth. The **compass** of three octaves is, as a matter of fact, beyond our reach. We must of course determine the **compass** of the maximum **concord** by the pitch and limits of some *one* instrument. For doubtless we should find an interval greater than the above-mentioned three octaves between the highest note of the soprano clarinet, and the lowest note of the bass clarinet; and again between the highest note of a clarinet player 21 performing with the speaker open, and the lowest note of a clarinet player performing with the speaker closed. A similar relation, too, would be found to exist between the voices of a child and a man. It is, indeed, from cases such as these that we come to know the large **concord**s. For it is from voices of different ages, and instruments of different measurements that we have learned that the interval

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of three octaves, of four octaves, and even greater intervals than these are concordant. Our conclusion then is that, while the smallest concord is given by the nature of abstract melody, the greatest is only determined by our capabilities.

That the concordant intervals are eight in number will be readily admitted. . . .

The determination of the interval of a **tone** is our next task. A tone is the difference in compass between the first two concords, and may be divided by three lowest denominators, as melody admits of half tones, thirds of tones, and quarter-tones, while undeniably rejecting any interval less than these. Let us designate the smallest of these intervals the smallest enharmonic diesis, the next the smallest chromatic diesis, and the greatest a semitone.

Let us now set ourselves to consider the origin and **22** nature of the **differences of the genera**. Our attention must be directed to the smallest of the concords, that of which the compass is usually occupied by four notes—whence its ancient name. [Now since in such an interval the notes may be arranged in many different orders, what order are we to choose for consideration? One in which the fixed notes and the notes that change with the variation in genus are equal in number. An example of the order required will be found in the interval between the Mese and the Hypate: here, while the two intermediate notes vary, the two extremes are left unchanged by genus-variation.] Let this then be granted. Further, while there are several groups of notes which fill this scheme of the Fourth, each distinguished by its own special nomenclature, there is one which, as being more familiar than any other to the student of music, may be selected as that wherein we shall consider how variation of genus makes its appearance. It consists of the Mese, Lichanus, Parhypate, and Hypate.

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That variation of genus arises through the raising and lowering of the movable notes is obvious; but the locus of the variation of these notes requires discussion. The locus of the variation of the Lichanus is a tone, for this note is never nearer the Mese than the interval of a tone, and never further from it than the interval of two tones. The lesser of these extreme intervals is recognized as legitimate by those who have grasped the principle of the Diatonic Genus, and those who have not yet mastered it **23** can be led by particular instances to the same admission. The greater of these extreme intervals, on the other hand, finds no such universal acceptance; but the reason for this must be postponed to the sequel. That there is a style of composition which demands a Lichanus at a distance of two tones from the Mese, and that far from being contemptible it is perhaps the noblest of all styles—this is a truth which is indeed far from patent to most musical students of to-day, though it would become so if they were led to the apprehension of it by the aid of concrete examples. But to any one who possesses an adequate acquaintance with the first and second styles of ancient music, it is an indisputable truth. Theorists who are only familiar with the style of composition now in vogue naturally exclude the two-tone Lichanus, the prevailing tendency being to the use of the higher Lichani. The ground of this fashion lies in the perpetual striving after sweetness, attested by the fact that time and attention are mostly devoted to chromatic music, and that when the enharmonic is introduced, it is approximated to the chromatic, while the ethical character of the music suffers a corresponding deflection. Without carrying this line of thought any further, we shall assume the locus of the Lichanus to be a tone, and that of the Parhypate to be the smallest diesis, as the latter note is never nearer to the

Hypate than a diesis, and never further from it than a semitone. For the loci do not overlap; their point of contact serves as a limit to both of them. The point of pitch upon which the Parhypate in its ascent meets the Lichanus in its descent supplies a boundary to the loci,
 24 the lower locus being that of the Parhypate, the higher that of the Lichanus.

Having thus determined the total loci of the Lichanus and Parhypate, we shall now proceed to ascertain their loci as qualified by genus and *shade*. The proper method of investigating whether the Fourth can be expressed in terms of any lower intervals, or whether it is incommensurable with them all, is given in my chapter on 'Intervals ascertained by the principle of Concord.' Here we shall assume that its apparent value is correct, and that it consists of two and a half tones. Again, we shall apply the term Pycnum¹ to the combination of two intervals, the sum of which is less than the complement that makes up the Fourth. Let us now, starting from the lower of the two fixed notes, take the least Pycnum: it will consist of the two least enharmonic dieses; while a second Pycnum, taken from the same note, will consist of two of the least chromatic dieses. This gives the two lowest Lichani of two genera—the enharmonic and the chromatic; the enharmonic Lichani being in general, as we saw, the lowest, the chromatic coming next, and the diatonic being the highest. Again, let a third Pycnum be taken, still from the same note; then a fourth, which is equal to a tone; then fifthly, from the same note, let there be taken a scale consisting of a tone and a quarter; then a sixth scale consisting of a tone and a half. We have already mentioned the Lichani bounding
 25 the first and the second Pycna; that bounding the third is chromatic, and the special chroma to which it belongs is

¹ i. e. 'close,' 'compressed.'

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called the *Hemiotic*. The Lichanus bounding the fourth Pycnum is also chromatic, and the special class to which it belongs is called the *Tonic Chromatic*. The fifth scale is too great for a Pycnum, for here the sum of the intervals between the Hypate and Parhypate and between the Parhypate and the Lichanus is equal to the interval between the Lichanus and the Mese. The Lichanus bounding this scale is the lowest diatonic. The sixth scale we assumed is bounded by the highest diatonic Lichanus. Thus the lowest chromatic Lichanus is one-sixth of a tone higher than the lowest enharmonic; since the chromatic diesis is greater than the enharmonic by one-twelfth of a tone—the third of a quantity being one-twelfth greater than the fourth—and similarly the two chromatic dieses exceed the two enharmonic by double that quantity, namely one-sixth—an interval smaller than the smallest admitted in melody. Such intervals are not melodic elements, or in other words cannot take an independent place in a scale. Again, the lowest diatonic Lichanus is seven-twelfths of a tone higher than the lowest chromatic; for from the former to the Lichanus of the hemiotic chroma is half a tone; from this Lichanus to the enharmonic is a diesis; from the enharmonic Lichanus to the lowest chromatic is one-sixth of a tone; while from the lowest chromatic to that of the hemiotic chroma is one-twelfth of a tone. But as a quarter 26 consists of three-twelfths, it is clear that there is the interval just mentioned between the lowest diatonic and the lowest chromatic Lichanus. The highest diatonic Lichanus is higher than the lowest diatonic by a diesis. These considerations show the locus of each of the Lichani. Every Lichanus below the chromatic is enharmonic, every Lichanus below the diatonic is chromatic down to the lowest chromatic, and every Lichanus lower than the highest diatonic is diatonic down to the lowest diatonic. For we must regard

the Lichani as infinite in number. Let the voice become stationary at any point in the locus of the Lichanus here demonstrated, and the result is a Lichanus. In the locus of the Lichanus there is no empty space—no space incapable of admitting a Lichanus. The point we are discussing is one of no little importance. Other musicians only dispute as to the position of the Lichanus—whether, for instance, the Lichanus in the enharmonic species is two tones removed from the Mese or holds a higher position, thus assuming but one enharmonic Lichanus; we, on the other hand, not only assert that there is a plurality of Lichani in each class, but even declare that their number is infinite.

Passing from the Lichani we find but two loci for the Parhypate, one common to the diatonic and chromatic genus and one peculiar to the enharmonic. For two of the genera have the Parhypate in common. Every Parhypate lower than the lowest chromatic is enharmonic; every other down to this point of limitation is chromatic *and* diatonic. As regards the intervals, while that between the Hypate and Parhypate is either equal to or less than that between the Parhypate and the Lichanus, the latter may be less than, equal to, or greater than that between the Lichanus and the Mese, the reason being that the two genera have their Parhypate in common. We can have a melodious tetrachord with the lowest chromatic Parhypate and the highest diatonic Lichanus. Enough has now been said to show how great is the locus of the Parhypate both in respect of its subdivisions and when regarded as a whole.

Of continuity and consecution it would be no easy task to give accurate definitions at the outset, but a few rough indications must be offered. Continuity in melody seems in its nature to correspond to that continuity in speech which

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is observable in the collocation of the letters. In speaking, the voice by a natural law places one letter first in each syllable, another second, another third, another fourth, and so on. This is done in no random order : rather, the growth of the whole from the parts follows a natural law. Similarly in singing, the voice seems to arrange its intervals and notes on a principle of continuity, observing a natural law of collocation, and not placing any interval at random after any other, whether equal or unequal. In inquiring into 28 continuity we must avoid the example set by the Harmonists in their condensed diagrams, where they mark as consecutive notes those that are separated from one another by the smallest interval. For so far is the voice from being able to produce twenty-eight consecutive dieses, that it can by no effort produce three dieses in succession. If ascending after two dieses, it can produce nothing less than the complement of the Fourth, and that is either eight times the smallest diesis, or falls short of it only by a minute and unmelodic interval. If descending, it cannot after the two dieses introduce any interval less than a tone. It is not, then, in the mere equality or inequality of successive intervals that we must seek the clue to the principle of continuity. We must direct our eyes to the natural laws of melody and endeavour to discover what intervals the voice is by nature capable of placing in succession in a melodic series. For if after the Parhypate and the Lichanus the voice can produce no note nearer than the Mese, then the Mese is the next note to the Lichanus, whether the interval between them be twice or several times that between the Lichanus and the Parhypate. The proper method of investigating continuity is now clear ; but how it arises, and what intervals do and do not form a succession, are questions 29 which will be treated in the *Elements*.

We shall here assume that, having posited a Pycnum or

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a scale that is not a Pycnum, the smallest interval that can succeed in the ascending scale is the complement of the interval of the Fourth, and that the smallest similarly in the descending scale is a tone. We shall assume that if a series of notes be arranged in proper melodic continuity in any genus, any note in that series will either form with the fourth from it in order the concord of the Fourth, or with the fifth from it in order the concord of the Fifth, while possibly forming both. A note that answers to none of these tests cannot belong to the same melodic series as those with which it makes no concord. Further, we shall assume that whereas there are four intervals contained in the interval of the Fifth, two of which are usually equal, viz. those constituting the Pycnum, and two unequal—one the complement of the first concord, the other the excess of the interval of the Fifth over that of the Fourth, the unequal intervals which succeed the equal intervals do so in different order according as we ascend or descend the scale. We shall assume too that notes which form respectively the same concord with consecutive notes are themselves consecutive; that in each genus a simple melodic interval is one which the voice cannot divide in a melodic progression; that not all the magnitudes into which a concord can be divided are simple; that a sequence is a progression by consecutive notes, each of which, between the first and last, is preceded and succeeded by a simple interval; and that a direct sequence is one that maintains the same direction throughout.

BOOK II

IT will be well perhaps to review in anticipation the course 30. 10
of our study; thus a foreknowledge of the road that we must
travel will enable us to recognize each stage as we reach it,
and so lighten the toil of the journey; nor shall we be
harbouring unknown to ourselves a false conception of our
subject. Such was the condition, as Aristotle used often to
relate, of most of the audience that attended Plato's lectures
on the Good. They came, he used to say, every one of
them, in the conviction that they would get from the
lectures some one or other of the things that the world calls
good; riches or health, or strength, in fine, some extra-
ordinary gift of fortune. But when they found that Plato's
reasonings were of sciences and numbers, and geometry,
and astronomy, and of good and unity as predicates of the
finite, methinks their disenchantment was complete. The 31
result was that some of them sneered at the thing, while
others vilified it. Now to what was all this trouble due?
To the fact that they had not waited to inform themselves
of the nature of the subject, but after the manner of the sect
of word-catchers had flocked round open-mouthed, attracted
by the mere title 'good' in itself.

But if a general exposition of the subject had been given
in advance, the intending pupil would either have abandoned
his intention or if he was pleased with the exposition, would
have remained in the said conviction to the end. It was
for these very reasons, as he told us, that Aristotle himself
used to give his intending pupils a preparatory statement of

the subject and method of his course of study. And we agree with him in thinking, as we said at the beginning, that such prior information is desirable. For mistakes are often made in both directions. Some consider Harmonic a sublime science, and expect a course of it to make them musicians; nay some even conceive it will exalt their moral nature. This mistake is due to their having run away with such phrases in our preamble as 'we aim at the construction of every style of melody,' and with our general statement 'one class of musical art is hurtful to the moral character, another improves it'; while they missed completely our qualification of this statement, 'in so far as musical art can improve the moral character.' Then on the other hand there are persons who regard Harmonic as quite a thing of no importance, and actually prefer to remain totally unacquainted even with its nature and aim. Neither of these views is correct. On the one hand the science is no proper object of contempt to the man of intelligence—this we shall
 32 see as the discussion progresses; nor on the other hand has it the quality of all-sufficiency, as some imagine. To be a musician, as we are always insisting, implies much more than a knowledge of Harmonic, which is only one part of the musician's equipment, on the same level as the sciences of Rhythm, of Metre, of Instruments.

We shall now proceed to the consideration of Harmonic and its parts. It is to be observed that in general the subject of our study is the question, In melody of every kind what are the natural laws according to which the voice in ascending or descending places the intervals? For we hold that the voice follows a natural law in its motion, and does not place the intervals at random. And of our answers we endeavour to supply proofs that will be in agreement with the phenomena—in this unlike our predecessors. For some of these introduced extraneous reasoning, and rejecting the

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senses as inaccurate fabricated rational principles, asserting that height and depth of pitch consist in certain numerical ratios and relative rates of vibration—a theory utterly extraneous to the subject and quite at variance with the phenomena; while others, dispensing with reason and demonstration, confined themselves to isolated dogmatic statements, not being successful either in their enumeration of the mere phenomena. It is our endeavour that the principles which we assume shall without exception be evident to those who understand music, and that we **33** shall advance to our conclusions by strict demonstration.

Our subject-matter then being all melody, whether vocal or instrumental, our method rests in the last resort on an appeal to the two faculties of hearing and intellect. By the former we judge the magnitudes of the intervals, by the latter we contemplate the functions of the notes. We must therefore accustom ourselves to an accurate discrimination of particulars. It is usual in geometrical constructions to use such a phrase as ‘Let this be a straight line’; but one must not be content with such language of assumption in the case of intervals. The geometrician makes no use of his faculty of sense-perception. He does not in any degree train his sight to discriminate the straight line, the circle, or any other figure, such training belonging rather to the practice of the carpenter, the turner, or some other such handicraftsman. But for the student of musical science accuracy of sense-perception is a fundamental requirement. For if his sense-perception is deficient, it is impossible for him to deal successfully with those questions that lie outside the sphere of sense-perception altogether. This will become clear in the course of our investigation. And we must bear in mind that musical cognition implies the simultaneous cognition of a permanent and of a changeable element, and that this applies without limitation or qualification to every

branch of music. To begin with, our perception of the differences of the genera is dependent on the permanence of the containing, and the variation of the intermediate, 34 notes. Again, while the magnitude remains constant, we distinguish the interval between Hypate and Mese from that between Paramese and Nete ; here, then, the magnitude is permanent, while the functions of the notes change ; similarly, when there are several figures of the same magnitude, as of the Fourth, or Fifth, or any other ; similarly, when the same interval leads or does not lead to modulation, according to its position. Again, in matters of rhythm we find many similar examples. Without any change in the characteristic proportion constituting any one genus of rhythm, the lengths of the feet vary in obedience to the general rate of movement ; and while the magnitudes are constant, the quality of the feet undergoes a change ; and the same magnitude serves as a foot, and as a combination of feet. Plainly, too, unless there was a permanent quantum to deal with there could be no distinctions as to the methods of dividing it and arranging its parts. And in general, while rhythmical composition employs a rich variety of movements, the movements of the feet by which we note the rhythms are always simple and the same. Such, then, being the nature of music, we must in matters of harmony also accustom both ear and intellect to a correct judgement of the permanent and changeable element alike.

These remarks have exhibited the general character of the science called Harmonic ; and of this science there are, 35 as a fact, seven parts. Of these one and the first is to define the **genera**, and to show what are the permanent and what are the changeable elements presupposed by this distinction. None of our predecessors have drawn this distinction at all ; nor is this to be wondered at. For they confined their attention to the Enharmonic genus, to the

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neglect of the other two. Students of instruments, it is true, could not fail to distinguish each genus by ear, but none of them reflected even on the question, At what point does the Enharmonic begin to pass into the Chromatic? For their ability to discriminate each genus extended not to all the *shades*, inasmuch as they were not acquainted with all styles of musical composition or trained to exercise a nice discrimination in such distinctions; nor did they even observe that there were certain loci of the notes that alter their position with the change of genus. These reasons sufficiently explain why the genera have not as yet been definitely distinguished; but it is evident that we must supply this deficiency if we are to follow the differences that present themselves in works of musical composition.

Such is the first branch of Harmonic. In the second we shall deal with **intervals**, omitting, to the best of our ability, none of the distinctions to be found in them. The majority of these, one might say, have as yet escaped observation. But we must bear in mind that wherever we come upon a distinction which has been overlooked, and not scientifically considered, we shall there fail to recognize the distinctions **36** in works of melodic composition.

Again, since intervals are not in themselves sufficient to distinguish notes—for every magnitude, without qualification, that an interval can possess is common to several musical functions—the third part of our science will deal with **notes**, their number, and the means of recognizing them; and will consider the question whether they are certain points of pitch, as is vulgarly supposed, or whether they are musical functions, and also what is the meaning of a musical ‘function.’ Not one of these questions is clearly conceived by students of the subject.

The fourth part will consider **scales**, firstly as to their number and nature, secondly as to the manner of their

construction from intervals and notes. Our predecessors have not regarded this part of the subject in either of these respects. On the one hand, no attention has been devoted to the questions whether intervals are collocated in any order to produce scales, or whether some collocations may not transgress a natural law. On the other hand, the distinctions in scales have not been completely enumerated by any of them. As to the first point, our forerunners simply ignored the distinction between 'melodious' and 'unmelodious'; as to the second, they either made no attempt at all at enumeration of scale-distinctions, confining their attention to the seven octave scales which they called Harmonies; or if they made the attempt, they fell very short of completeness, like the school of Pythagoras of 37 Zacynthus, and Agenor of Mitylene. The order that distinguishes the melodious from the unmelodious resembles that which we find in the collocation of letters in language. For it is not every collocation but only certain collocations of any given letters that will produce a syllable.

The fifth part of our science deals with the **keys** in which the scales are placed for the purposes of melody. No explanation has yet been offered of the manner in which those keys are to be found, or of the principle by which one must be guided in enunciating their number. The account of the keys given by the Harmonists closely resembles the observance of the days according to which, for example, the tenth day of the month at Corinth is the fifth at Athens, and the eighth somewhere else. Just in the same way, some of the Harmonists hold that the Hypodorian is the lowest of the keys; that half a tone above lies the Mixolydian; half a tone higher again the Dorian; a tone above the Dorian the Phrygian; likewise a tone above the Phrygian the Lydian. The number is sometimes increased by the addition of the Hypophrygian clarinet at the bottom of the list.

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Others, again, having regard to the boring of finger-holes on the flutes, assume intervals of three quarter-tones between the three lowest keys, the Hypophrygian, the Hypodorian, and the Dorian ; a tone between the Dorian and Phrygian ; three quarter-tones again between the Phrygian and Lydian, and the same distance between the Lydian and Mixolydian. But they have not informed us on what principle they have **38** persuaded themselves to this location of the keys. And that the close packing of small intervals is unmelodious and of no practical value whatsoever will be clear in the course of our discussion.

Again, since some melodies are simple, and others contain a modulation, we must treat of **modulation**, considering first the nature of modulation in the abstract, and how it arises, or in other words, to what modification in the melodic order it owes its existence ; secondly, how many modulations there are in all, and at what intervals they occur. On these questions we find no statements by our predecessors with or without proof.

The last section of our science is concerned with the actual **construction of melody**. For since in the same notes, indifferent in themselves, we have the choice of numerous melodic forms of every character, it is evident that here we have the practical question of the employment of the notes ; and this is what we mean by the construction of melody. The science of harmony having traversed the said sections will find its consummation here.

It is plain that the apprehension of a melody consists in noting with both ear and intellect every distinction as it arises in the successive sounds—successive, for melody, like all branches of music, consists in a successive production. For the apprehension of music depends on these two faculties, sense-perception and memory ; for we must **39** perceive the sound that is present, and remember that which

is past. In no other way can we follow the phenomena of music.

Now some find the goal of the science called Harmonic in the notation of melodies, declaring this to be the ultimate limit of the apprehension of any given melody. Others again find it in the knowledge of clarinets, and in the ability to tell the manner of production of, and the agencies employed in, any piece rendered on the clarinet.

Such views are conclusive evidence of an utter misconception. So far is notation from being the perfection of Harmonic science that it is not even a part of it, any more than the marking of any particular metre is a part of metrical science. As in the latter case one might very well mark the scheme of the iambic metre without understanding its essence, so it is with melody also ; if a man notes down the Phrygian scale it does not follow that he must know the essence of the Phrygian scale. Plainly then notation is not the ultimate limit of our science.

That the premises of our argument are true, and that the faculty of musical notation argues nothing beyond a discernment of the size of intervals, will be clear on consideration. In the use of signs for the intervals no peculiar mark is employed to denote all their individual distinctions, 40 such as the several methods of dividing the Fourth, which depend on the differences of genera, or the several figures of the same interval which result from a variation in the disposition of the simple intervals. It is the same with the musical functions proper to the natures of the different tetrachords ; the same notation is employed for the tetrachords *Hyperbolæôn*, *Netôn*, *Mesôn*, and *Hypatôn*. Thus the signs fail to distinguish the functional differences, and consequently indicate the magnitudes of the intervals, and nothing more. But that the mere sense-discrimination of magnitudes is no part of the general comprehension of

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music was stated in the introduction, and the following considerations will make it patent. Mere knowledge of magnitudes does not enlighten one as to the functions of the tetrachords, or of the notes, or the differences of the genera or, briefly, the difference of simple and compound intervals, or the distinction between modulating and non-modulating scales, or the modes of melodic construction, or indeed anything else of the kind.

Now if the Harmonists, as they are called, have in their ignorance seriously entertained this view, while there is nothing preposterous in their motives, their ignorance must be profound and invincible. But if, being aware that notation is not the final goal of Harmonic, they have propounded this view merely through the desire to please amateurs, and to represent as the perfection of the science a certain visible activity, their motives deserve condemnation **41** as very preposterous indeed. In the first place they would constitute the amateur judge of the sciences—and it is preposterous that the same person should be learner and judge of the same thing; in the second place, they reverse the proper order in their fancy of representing a visible activity as the consummation of intellectual apprehension; for, as a fact, the ultimate factor in every visible activity is the intellectual process. For this latter is the presiding and determining principle; and as for the hands, voice, mouth, or breath—it is an error to suppose that they are very much more than inanimate instruments. And if this intellectual activity is something hidden deep down in the soul, and is not palpable or apparent to the ordinary man, as the operations of the hand and the like are apparent, we must not on that account alter our views. We shall be sure to miss the truth unless we place the supreme and ultimate, not in the thing determined, but in the activity that determines.

No less preposterous is the above-mentioned theory

concerning clarinets. Nay, rather there is no error so fatal and so preposterous as to base the natural laws of harmony on any instrument. The essence and order of harmony depend not upon any of the properties of instruments. It is not because the clarinet has finger-holes and
 42 bores, and the like, nor is it because it submits to certain operations of the hands and of the other parts naturally adapted to raise and lower the pitch, that the Fourth, and the Fifth, and the Octave are concords, or that each of the other intervals possesses its proper magnitude. For even with all these conditions present, players on the clarinet fail for the most part to attain the exact order of melody; and whatever small success attends them is due to the employment of agencies external to the instrument, as in the well-known expedients of drawing the two clarinets apart, and bringing them alongside, and of raising and lowering the pitch by changing the pressure of the breath. Plainly, then, one is as much justified in attributing their failures as their success to the essential nature of the clarinet. But this would not have been so if there was anything gained by basing harmony on the nature of an instrument. In that case, as an immediate consequence of tracing melody up to its original in the nature of the clarinet, we should have found it there fixed, unerring, and correct. But as a fact neither clarinets nor any other instrument will supply a foundation for the principles of harmony. There is a certain marvellous order which belongs to the nature of harmony in general; in this order every instrument, to the best of its ability, participates under the direction of that faculty of sense-perception on which they, as well as everything else in music, finally depend. To suppose, because one sees day by day the finger-holes the same and the strings at the same tension, that one will find in these harmony with its permanence

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and eternally immutable order—this is sheer folly. For **43** as there is no harmony in the strings save that which the cunning of the hand confers upon them, so is there none in the finger-holes save what has been introduced by the same agency. That no instrument is self-tuned, and that the harmonizing of it is the prerogative of the sense-perception is obvious, and requires no proof. It is strange that the supporters of this absurd theory can cling to it in face of the fact that clarinets are perpetually in a state of change ; and of course what is played on the instrument varies with the variation in the agencies employed in its production. It is surely clear then that on no consideration can melody be based on clarinets ; for, firstly, an instrument will not supply a foundation for the order of harmony, and secondly, even if it were supposed that harmony should be based on some instrument, the choice should not have fallen on the clarinet, an instrument especially liable to aberrations, resulting from the manufacture and manipulation of it, and from its own peculiar nature.

This will suffice as an introductory account of Harmonic science ; but as we prepare ourselves to enter upon the study of the *Elements* we must at the outset attend to the following considerations. Our exposition cannot be a successful one unless three conditions be fulfilled. Firstly, the phenomena themselves must be correctly observed ; secondly, what is prior and what is derivative in them must **44** be properly discriminated ; thirdly, our conclusions and inferences must follow legitimately from the premises. And as in every science that consists of several propositions the proper course is to find certain principles from which to deduce the dependent truths, we must be guided in our selection of principles by two considerations. Firstly, every proposition that is to serve as a principle must be true and evident ; secondly, it must be such as to be accepted by the

sense-perception as one of the primary truths of Harmonic science. For what requires demonstration cannot stand as a fundamental principle ; and in general we must be watchful in determining our highest principles, lest on the one hand we let ourselves be dragged outside the proper track of our science by beginning with sound in general regarded as air-vibration, or on the other hand turn short of the flag and abandon much of what truly belongs to Harmonic.

There are three genera of melodies ; Diatonic, Chromatic, and Enharmonic. The differences between them will be stated hereafter ; this we may lay down, that every melody must be Diatonic, or Chromatic, or Enharmonic, or blended of these kinds, or composed of what they have in common.

The second classification of intervals is into concords and discords. The two most familiar distinctions in intervals are difference of magnitude, and difference between concords and discords ; and the latter of these is embraced by the former, since every concord differs from every discord in magnitude. Now there being many distinctions among
 45 concords, let us first treat of the most familiar of them, namely, difference of magnitude. We assume then eight magnitudes of concords ; the smallest, the Fourth—determined as smallest by the abstract nature of melody ; for while we can produce several smaller intervals, they are all discords ; the next smallest, the Fifth, all intervals between the Fourth and Fifth being discords ; the third smallest, the sum of the first two, that is the Octave, all intervals between the Fifth and the Octave being discords. So far we have been stating what we have learned from our predecessors ; henceforth we must arrive at our conclusions unaided.

In the first place then we shall assert that if any concord be added to the octave the sum is a concord. This property is peculiar to the octave. For if to an octave be added any concord, whether less than, equal to, or greater than itself,

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the sum is a concord. But this is not the case with the two smallest concords. For the doubling of a Fourth or Fifth does not produce a concord; nor does the addition to either one of them of the concord compounded of the octave and that one; but the sum of such concords will always be a discord.

A tone is the excess of the Fifth over the Fourth; the 46 Fourth consists of two tones and a half. The following fractions of a tone occur in melody: the half, called a semitone; the third, called the smallest Chromatic diesis; the quarter, called the smallest Enharmonic diesis. No smaller interval than the last exists in melody. Here we have two cautions for our hearers; firstly, many have misunderstood us to say that melody admits the division of the tone into three or four equal parts. This misunderstanding is due to their not observing that to employ the third part of a tone is a very different thing from dividing a tone into three parts and singing all three. Secondly, from an abstract point of view, no doubt, we regard no interval as the smallest possible.

The differences of the genera are found in such a tetrachord as that from Mese to Hypate, where the extremes are fixed, while one or both of the means vary. As the variable note must move in a certain locus, we must ascertain the limits of the locus of each of these intermediate notes. The highest Lichanus is that which is a tone removed from the Mese. It constitutes the genus Diatonic. The lowest is that which is two tones below the Mese; this is Enharmonic. The locus of the Lichanus is thus seen to be a tone. The interval between the Parhypate and Hypate cannot, plainly, be less than an enharmonic diesis, for this latter is 47 the minimum melodic distance. It is to be observed also that it can only be extended to twice that distance; for when the Lichanus in its descent, and the Parhypate in its

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ascent reach the same pitch, the locus of each note finds its limit. Thus it is seen that the locus of the Parhypate is not greater than the smallest diesis.

This proposition has afforded some students great perplexity. 'If,' they ask in surprise, 'the interval between the Mese and the Lichanus (assuming it to be any *one* of the above-mentioned intervals) be increased or diminished, how can the note bounding the new interval be a Lichanus? There is admittedly but one interval between the Mese and Paramese, and again between the Mese and Hypate, and in fact between any pair of the permanent notes. Why then should we admit a plurality of intervals between the Mese and the Lichanus? Surely it would be better to change the names of the notes; and restricting the term Lichanus to any one of them, the two-tone or any other, to employ other designations for the rest. For notes that bound unequal magnitudes must be different notes. And one might add that the converse is equally valid, namely, that the boundaries of equal magnitudes must have the same designations.' To these objections the following reply was given. In the first place, to postulate that a difference in notes necessarily implies a difference in the magnitudes bounded by them is a startling innovation. We see that the Nete and Mese differ in function from the Paranete and Lichanus, and the Paranete and Lichanus again from the Trite and Parhypate, and these latter again from the Paramese and Hypate; and
48 for this reason each pair has names of its own, though the contained interval is in every case a Fifth. Thus it is seen that a difference in the contained intervals is not necessarily implied by a difference of notes.

That the converse implication is equally inadmissible will appear from the following remarks. In the first place, if we seek particular designations to suit every increase and decrease in the intervals of the Pycnum, we shall evidently

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need an infinite vocabulary, since the locus of the Lichanus is infinitely divisible. For as a matter of fact, to which of 49. 7 the disputants as to the *shades* of the genera should we give our adherence? Every one is not guided by the same divisions in harmonizing the chromatic or enharmonic scale. Why then should the term Lichanus be applied to the two-tone Lichanus rather than to one slightly higher? Which-ever division be employed, the ear equally recognizes an enharmonic genus; yet it is plain that the magnitudes of the intervals are different in the two divisions. In the 48. 15 second place, if we have eyes exclusively for equality and inequality we shall miss the distinction between the like and unlike. Thus we shall have to restrict the term Pycnum to one particular magnitude; as likewise evidently the terms Enharmonic and Chromatic; for they too are determined not to a point but to a locus. But it is evident that such a restriction is not in accordance with the mode in which sense forms its representations. It is by considering the common qualities found in some one class, not the magnitude of some one interval, that sense employs such terms as Pycnum, Chromatic, Enharmonic. That is to say, it constitutes a class Pycnum to embrace every case in which the two intervals occupy a smaller space than the one; for in all Pycna, though they are unequal in size, there is evident to the ear the sound of a certain compression. Likewise it constitutes a class Chromatic to embrace all cases in which the Chromatic character is apparent. For the ear detects a motion peculiar to each of the genera, though each genus employs not one but many divisions of 49 the tetrachord. Thus it is clear that, while the magnitudes change, the genus may remain unaltered, for up to a certain point changes in the magnitudes do not involve a change of genus. And if the genus remains the same, it is reasonable to suppose that the functions of the notes may be permanent

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also. For the species of the tetrachord is the same, and for this reason we must hold that the boundaries of the intervals are the same notes. In general, as long as the names of the extreme notes remain the same, the higher being called Mese, and the lower Hypate, so long will the names of the intermediate notes also remain the same, the higher being called Lichanus, and the lower Parhypate. For the notes between the Mese and Hypate are always stamped by the ear as Lichanus and Parhypate. To demand that all notes bounding equal intervals should have the same names, or that all notes bounding unequal intervals should have different names, is to join battle with the evidence of the senses. For in melody we make the interval between the Hypate and Parhypate sometimes equal and sometimes
50 unequal to that between the Parhypate and Lichanus. Now in the case of two equal consecutive intervals it is impossible that the notes bounding each of them should be designated by the same terms, unless the middle note is to have two names. The absurdity is also evident when the above-mentioned intervals are unequal. For it is impossible that one of any pair of such names should change while the other remains the same; since the names have meaning only in their relation to one another. So much for this objection.

The term Pycnum we shall employ in all cases when, in a tetrachord whose extremes form a Fourth, the sum of two of the intervals occupies a lesser space than the third. There are certain divisions of the tetrachord which stand out from the rest as familiar, because the magnitudes of the intervals in them are familiar. Of these divisions, one is Enharmonic, in which the Pycnum is a semitone, and its complement two tones; three are Chromatic, namely, the *Soft*, the *Hemiolic*, and the *Tonic* Chromatic. The division of the Soft Chromatic is that in which the Pycnum consists

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of two of the smallest Chromatic dieses, while its complement is expressed in terms of two quanta, namely, a semitone taken thrice, and a Chromatic diesis taken once, so that the sum of it amounts to three semitones and the third of a tone. This is the smallest of the Chromatic Pycna and its Lichanus is the lowest in this genus. The division of the Hemiolic Chromatic is that in which the 51 Pycnum is one and a half times the Enharmonic Pycnum, and each Diesis one and a half times an Enharmonic diesis. It is manifest that the Hemiolic Pycnum is greater than the Soft, since the former is less than a tone by an Enharmonic diesis, the latter by a Chromatic diesis. The division of the Tonic Chromatic is that in which the Pycnum consists of two semitones, and its complement of a tone and a half. Up to this point both the inner notes vary; but now the Parhypate, having traversed the whole of its locus, remains at rest, while the Lichanus moves an enharmonic diesis. Thus the interval between the Lichanus and Hypate becomes equal to that between the Lichanus and Mese, so that the Pycnum does not occur in this division as in the preceding. The disappearance of the Pycnum in the division of the tetrachord is coincident with the first appearance of the Diatonic genus. There are two divisions of the Diatonic genus, the Soft and the Sharp Diatonic. The division of the Soft Diatonic is that in which the interval between the Hypate and Parhypate is a semitone, that between the Parhypate and Lichanus three Enharmonic dieses, that between the Lichanus and Mese five dieses. The division of the Sharp Diatonic is that in which the interval between the Hypate and Parhypate is a semitone, while each of the remaining intervals is a tone. Thus, while we have six Lichani, as there are six divisions 52 of the tetrachord, one enharmonic, three chromatic, and two diatonic, we have but four Parhypatae, that is, two

less than the divisions of the tetrachord. For the semitone Parhypate is employed for both diatonic divisions, and for the Tonic Chromatic. Thus, of the four Parhypatae, one is peculiar to the Enharmonic genus, while the Diatonic and Chromatic between them employ three. Of the intervals in the tetrachord, that between the Hypate and Parhypate may be equal to that between the Parhypate and Lichanus, or less than it, but never greater. That it may be equal is evident from the Enharmonic and Chromatic division of the tetrachord; that it may be less is evident from the Diatonic scales, and also may be ascertained in the Chromatic by taking a Parhypate of the Soft, and a Lichanus of the Tonic Chromatic; for such divisions of the Pycnum sound melodious. But to adopt the opposite order produces an unmelodious result; for instance, to take the semitone Parhypate, and the Lichanus of the Hemiolic Chromatic, or the Parhypate of the Hemiolic, and the Lichanus of the Soft Chromatic. Such divisions produce an inharmonious effect. On the other hand, the interval between the Parhypate and Lichanus may be equal to, greater than, or less than that between the Lichanus and Mese. It is equal in the Sharp Diatonic, less in all the other *shades*, and greater when we employ as Lichanus the highest of the Diatonic Lichani, and as Parhypate any one lower than that of the semitone.

53 We shall next proceed to explain, beginning with a general indication, the method by which we should expect to determine the nature of continuity. To put it generally, in investigating continuity the laws of melody must be our guide, nor must we imitate those who shape their account of continuity with a view to the massing of small intervals. Such theorists plainly disregard the natural sequence of melody, as appears from the number of dieses that they place in succession; for the voice's power of con-

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necting dieses stops short of three. Thus it appears that continuity must not be sought in the smallest intervals, nor in equal nor in unequal intervals; we must rather follow the guidance of natural laws. Now, though it were no easy matter at present to offer an accurate exposition of continuity before we have explained the collocation of intervals, yet the veriest novice can see from the following reasoning that there is such a thing as continuity. It will be admitted that there is no interval which can be divided *ad infinitum* in melody, and that the natural laws of melody assign a maximum number of fractions to every interval. Assuming that this will be, or rather must be, admitted, we necessarily infer that the notes containing fractions of the said number are consecutive. To this class belong the notes which, as a matter of fact, have been in use from the earliest times, as for instance the Nete, the Paranete, and those that follow them.

Our next duty will be to determine the first and most indispensable condition of the melodious collocation of intervals. Whatever be the genus, from whatever note one 54 starts, if the melody moves in continuous progression either upwards or downwards, the fourth note in order from any note must form with it the concord of the Fourth, or the fifth note in order from it the concord of the Fifth. Any note that answers neither of these tests must be regarded as out of tune in relation to those notes with which it fails to form the above-mentioned concords. It must be observed, however, that the above rule is not all-sufficient for the melodious construction of scales from intervals. It is quite possible that the notes of a scale might form the above-mentioned concords with one another, and yet that the scale might be unmelodiously constructed. But if this condition be not fulfilled, all else is useless. Let us assume this then as a fundamental principle, the vio-

lation of which is destructive of harmony. A law, in some respects similar, holds with regard to the relative position of tetrachords. If any two tetrachords are to belong to the same scale, one or other of the following conditions must be fulfilled; either they must be in concord with each other, the notes of one forming some concord or other with the corresponding notes of the other, or they must both be in concord with a third tetrachord, with which they are alike continuous but in opposite directions. This, in itself, is not sufficient to constitute tetrachords of the same scale: certain other conditions must be satisfied, 55 of which we shall speak hereafter. But the absence of the condition renders the rest useless.

When we consider the magnitudes of intervals, we find that while the concords either have no locus of variation, and are definitely determined to one magnitude, or have an inappreciable locus, this definiteness is to be found in a much lesser degree in discords. For this reason, the ear is much more assured of the magnitudes of the concords than of the discords. It follows that the most accurate method of ascertaining a discord is by the principle of concordance. If then a certain note be given, and it be required to find a certain discord below it, such as the ditone (or any other that can be ascertained by the method of concordance), one should take the Fourth above the given note, then descend a Fifth, then ascend a Fourth again, and finally descend another Fifth. Thus, the interval of two tones below the given note will have been ascertained. If it be required to ascertain the discord in the other direction, the concords must be taken in the other direction. Also, if a discord be subtracted from a concord by the method of concordance, the remaining discord is thereby ascertained on the same principle. For, subtract the ditone from the Fourth on the principle of concordance,

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and it is evident that the notes bounding the excess of the latter over the former will have been found on the same principle. For the bounding notes of the Fourth are con- 56
cords to begin with ; and from the higher of these a concord is taken, namely, the Fourth above ; from the note thus found another, namely, the Fifth below ; from this again a Fourth above, and finally from this a Fifth below ; and the last concord alights on the higher of the notes bounding the excess of the Fourth over the Ditone. Thus it appears that if a discord be subtracted from a concord by the method of concordance the complement also will have been thereby ascertained on the same principle.

The surest method of verifying our original assumption that the Fourth consists of two and a half tones is the following. Let us take such an interval, and let us find the discord of two tones above its lower note, and the same discord below its higher note. Evidently the complements will be equal, since they are remainders obtained by subtracting equals from equals. Next let us take the Fourth above the lower note of the higher ditone, and the Fourth below the higher note of the lower ditone. It will be seen that adjacent to each of the extreme notes of the scale thus obtained there will be two complements in juxtaposition, which must be equal for the reasons already given. This construction completed, we must refer the extreme notes thus determined to the judgement of the ear. If they prove discordant, plainly the Fourth will not be composed 57
of two and a half tones ; and just as plainly it will be so composed, if they form a Fifth. For the lowest of the assumed notes is, by construction, a Fourth of the higher boundary of the lower ditone ; and it has now turned out that the highest of the assumed notes forms with the lowest of them the concord of the Fifth. Now as the excess of the latter interval over the former is a tone, and as it is

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here divided into two equal parts; and as each of these equal parts which is thus proved to be a semitone is at the same time the excess of the Fourth over a ditone, it follows that the Fourth is composed of five semitones. It will be readily seen that the extremes of our scale cannot form any concord except a Fifth. They cannot form a Fourth; for there is here, besides the original Fourth, an additional complement at each extremity. They cannot form an octave; for the sum of the complements is less than two tones, since the excess of the Fourth over the ditone is less than a tone (for it is universally admitted that the Fourth is greater than two tones and less than three); consequently, the whole of what is here added to the Fourth is less than a Fifth; plainly then their sum cannot be an octave. But if the concord formed by the
58 extreme notes of our construction is greater than a Fourth, and less than an octave, it must be a Fifth; for this is the only concordant magnitude between the Fourth and Octave.

BOOK III

Successive Tetrachords are either Conjunct or Disjunct.

WE shall employ the term **conjunction** when two successive tetrachords, similar in figure, have a common note ; the term **disjunction**, when two successive tetrachords similar in figure are separated by the interval of a tone. That successive tetrachords must be related in either of these ways, is evident from our axioms. For a series, in which each note forms a Fourth with the fourth note in order from it, will constitute conjunct tetrachords ; while disjunct tetrachords result, when each note forms a Fifth with the fifth from it. Now as all successions of notes must fulfil one or other of these conditions, so all successive similar tetrachords must be either conjunct or disjunct. 58. 15 59

Difficulties have been raised by some of my hearers on the question of succession. It has been asked, Firstly, what is succession in general ? Secondly, does it appear in one form only, or in several ? Thirdly, are conjunct and disjunct tetrachords equally successive ? To these questions the following answers have been given. In general, scales are continuous, whose boundaries either are successive or coincide. There are two forms of succession in scales ; in the one, the upper boundary of the lower scale coincides with the lower boundary of the upper scale ; in the other, the lower boundary of the higher scale is in the line of succession with the higher boundary of the lower scale. In the first of these forms, the scales of the successive tetrachords have a certain space in common, and are necessarily

similar in figure. In the other form, they are separated from one another, and the species of the tetrachords may be similar, only on condition, however, that the separating interval is one tone. Thus we are led to conclude that two similar tetrachords are successive, if they are either separated by a tone, or if their boundaries coincide. Consequently similar successive tetrachords are either conjunct or disjunct.

We also assert that two successive tetrachords either
 60 must be separated by no tetrachord whatsoever, or must not be separated by a tetrachord dissimilar to themselves. Tetrachords similar in species cannot be separated by a dissimilar tetrachord, and dissimilar but successive tetrachords cannot be separated by any tetrachord whatsoever. Hence we see that tetrachords similar in species can be arranged in succession in the two forms above mentioned.

The interval contained by successive notes is simple.

For if the containing notes are successive, no note is wanting; if none is wanting, none will intrude; if none intrudes, none will divide the interval. But that which excludes division excludes composition. For every composite is composed of certain parts into which it is divisible.

The above proposition is often the object of perplexity on account of the ambiguous character of the intervallic magnitudes. 'How,' it is asked in surprise, 'can the ditone possibly be simple, seeing that it can be divided into tones? Or, how again is it possible for the tone to be simple seeing that it can be divided into two semitones?' And the same point is raised about the semitone.

This perplexity arises from the failure to observe that some intervallic magnitudes are common to simple and compound intervals. For this reason the simplicity of an interval is determined not by its magnitude, but the relations of the notes that bound it. The ditone is simple when

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bounded by the Mese and Lichanus ; when bounded by the Mese and Parhypate, it is compound. This is why we assert that simplicity does not depend on the sizes of the intervals, but on the containing notes. 61

In variations of genus, it is only the parts of the Fourth that undergo change.

All harmonious scales consisting of more than one tetrachord were divided into conjunct and disjunct. But conjunct scales are composed of the simple parts of the Fourth alone, so that here at least it will be the parts of the Fourth alone that will undergo change. Again, disjunct scales comprise besides these parts of the Fourth a tone peculiar to disjunction. If then it be proved that this particular tone does not alter with variation of genus, evidently the change can affect only the parts of the Fourth. Now the lower of the notes containing the tone is the higher of the notes containing the lower of the disjunct tetrachords ; as such we have seen that it is immovable in the changes of the genera. Again, the higher of the notes bounding the tone is the lower of the notes bounding the higher of the disjunct tetrachords ; it likewise, as we have seen, remains constant through change of genus. Since therefore, it appears that the notes containing the tone do not vary with a change of genus, the necessary conclusion is that it is only the parts of the Fourth that participate in that change.

Every Genus comprises at most as many simple intervals as are contained in the Fifth. 62

The scale of every genus, as we have already stated, takes the form of conjunction or disjunction. Now it has been shown that the conjunct scale consists merely of the parts of the Fourth, while the disjunct scale adds a single interval peculiar to itself, namely the tone. But the addition of this tone to the parts of the Fourth completes the interval of the Fifth. Since therefore it appears that no scale of any

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genus taken in the one *shading* is composed of more simple intervals than those in the Fifth, it follows that every genus comprises at most as many simple intervals as are contained in the Fifth.

In this proposition the addition of the words 'at the most' sometimes proves a stumbling-block. 'Why not,' it is asked, 'show without qualification that each genus is composed of as many simple intervals as are contained in the Fifth?' The answer to this is that in certain circumstances each of the genera will comprise fewer intervals than exist in the Fifth, but never will comprise more. This is the reason that we prove first that no genus can be constituted of more simple intervals than there are in the Fifth; that every genus will sometimes be composed of fewer, is shown in the sequel.

63 *A Pycnum cannot be followed by a Pycnum or by part of a Pycnum.*

For the result of such a succession will be that neither the fourth notes in order from one another will form Fourths, nor the fifth notes in order from one another Fifths. But we have already seen that such an order of notes is unmelodious.

The lower of the notes containing the ditone is the highest note of a Pycnum, and the higher of the notes containing the ditone is the lowest note of a Pycnum.

For as the Pycna in conjunct tetrachords form Fourths with one another, the ditone must lie between them; similarly since the ditones form Fourths with one another, the Pycnum must lie between them. It follows that the Pycnum and the ditone must succeed one another alternately. Therefore it is evident that of the notes containing the ditone, the lower will be the highest note of the Pycnum below, and the higher will be the lowest note of the Pycnum above.

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The notes containing the tone are both the lowest notes of a Pycnum.

For in disjunction the tone is placed between tetrachords the boundaries of which are the lowest notes of a Pycnum ; and it is by these notes that the tone is contained. For the lower of the notes containing the tone is the higher of those containing the lower tetrachord ; and the higher of those containing the tone is the lower of those containing the higher tetrachord. Therefore it is evident that the notes containing the tone will be the lowest notes of a Pycnum.

A succession of two Ditones is forbidden.

64

Suppose such a succession ; then the higher ditone will be followed by a Pycnum below, and the lower ditone will be followed by a Pycnum above, for we saw that the note that forms the upper boundary of the ditone is the lowest note of a Pycnum. The result will be a succession of two Pycna ; and as this has been proved unmelodious, the succession of two ditones must be equally so.

In Enharmonic and Chromatic scales a succession of two tones is not allowed. Suppose such a succession, first in the ascending scale ; now if the note that forms the upper boundary of the added tone is musically correct, it must form either a Fourth with the fourth note in order from it, or a Fifth with the fifth in order ; if neither of these conditions is satisfied, it must be unmelodious. But that neither of them will be satisfied, is clear. For if it be Enharmonic, the Lichanus, which is the fourth note in order from the added note, will be four tones removed from it. If it be Chromatic, whether of the Soft or Hemiolic colour, the Lichanus will be further removed than a Fifth ; and if it be of the Tonic Chromatic, the Lichanus will form a Fifth with the added note. But this does not satisfy our law which demands that either the fourth note should form a Fourth, or the fifth a Fifth. Neither condition

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is here fulfilled. It follows that the note constituting the upper boundary of the added tone will be unmelodious.

65 Again, if the second tone be added below it will render the genus Diatonic. Therefore it is evident that in the Enharmonic and Chromatic genera a succession of two tones is impossible.

In the Diatonic genus three consecutive tones are permitted; but no more. For let the contrary be supposed; then the note bounding the fourth tone will not form a Fourth with the fourth note from it, nor a Fifth with the fifth.

In the same genus a succession of two semitones is not allowed. For first suppose the second semitone to be added below the semitone already present. The result is that the note bounding the added semitone neither makes a Fourth with the fourth note from it, nor a Fifth with the fifth. The introduction, then, of the semitone here will be unmelodious. But if it be added above the semitone already present, the genus will be Chromatic. Thus it is clear that in a Diatonic scale the succession of two semitones is impossible.

It has now been shown which of the simple intervals can be repeated in immediate succession, and how often they can be repeated; and which of them on the contrary it is absolutely impossible to repeat at all. We shall now speak of the collocation of unequal intervals.

A ditone may be succeeded either above or below by a Pycnum. For it has been proved that in conjunct tetrachords these intervals follow alternately. Therefore each can succeed the other either in an ascending or descending order.

66 *A ditone can be followed by a tone in the ascending scale only.* For suppose such a succession in the descending order. The result will be that the highest and the lowest note of a Pycnum will fall on the same pitch. For we saw

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that the note that forms the lower boundary of the ditone was the highest note of a Pycnum, and that the note that forms the upper boundary of the tone was the lowest note of a Pycnum. But if these notes fall on the one pitch, it follows that there is a succession of two Pycna. As this latter succession is unmelodious, a tone immediately below a ditone must be equally so.

A tone can be followed by a Pycnum in the descending order only. For suppose such a succession in the opposite order; the same impossibility will be found to result again. The highest and lowest note of a Pycnum will fall on the same pitch, and consequently there will be a succession of two Pycna. This latter being unmelodious, the position of the tone above the Pycnum must be equally so.

In the Diatonic genus, a tone cannot be both preceded and succeeded by a semitone. For the consequence would be that neither the fourth notes in order from one another would form a Fourth, nor the fifth a Fifth.

A pair of tones, or a group of three tones may be both preceded and succeeded by a semitone; for either the fourth notes from one another will form a Fourth, or the fifth a Fifth.

From the ditone there are two possible progressions upwards, one only downwards. For it has been proved that the ditone can be followed in the ascending scale by either a Pycnum or a tone. But more progressions upwards from the said interval there cannot be. For the only other simple interval left is the ditone, and two consecutive ditones are forbidden. In the descending order there is 67 but one progression from the ditone. For it has been proved that a ditone cannot lie next a ditone, and that a tone cannot succeed a ditone in the descending order. Consequently the progression to the Pycnum alone remains. It is clear then that from the ditone there are two possible

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progressions upwards, one to the tone, and one to the Pycnum ; and one possible progression downwards, to the Pycnum.

From the Pycnum, on the contrary, there are two possible progressions downwards, and one upwards. For it has been proved that in the descending scale a Pycnum can be followed by a ditone, or a tone. A third progression there cannot be. For the only remaining simple interval is the Pycnum, and a succession of two Pycna is forbidden. It follows that there are only two possible progressions from a Pycnum downwards. Upwards there is but one, to the ditone. For a Pycnum cannot adjoin a Pycnum, nor can a tone succeed the Pycnum in the ascending scale ; therefore the ditone alone remains. It is evident then that from the Pycnum there are two possible progressions downwards, one to the tone, and one to the ditone ; and one possible progression upwards, to the ditone.

From the tone there is but one progression in either direction : downwards to the ditone, upwards to the Pycnum. It has been shown that in the descending scale the tone cannot be followed by a tone or by a Pycnum. Therefore the ditone alone remains. And it has been shown that in the ascending scale the tone cannot be followed by a tone or a ditone. Therefore the Pycnum alone remains. It follows that from the tone there is but one possible progression in either direction, downwards to the ditone, and upwards to the Pycnum.

The same law can be applied to the Chromatic scales, except of course that one must substitute for the ditone the interval between the Mese and Lichanus, which varies, according to the particular *shade*, with the size of the Pycnum.

The same law will also hold good of the Diatonic scales. From the tone common to the genera there is one possible

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progression in either direction ; downwards to the interval between the Mese and Lichanus, whatever it may happen to be in any particular *shade* of the Diatonic scales ; upwards to the interval between the Paramese and Trite.

Some persons have been much perplexed by this proposition. They are surprised that we do not arrive at quite a contrary conclusion ; for they think that the progressions in either direction from the tone are innumerable, since there are innumerable possible magnitudes of the interval between the Mese and Lichanus, and of the Pycnum as well. To this objection we offered the following answer. To begin with, the same observation might be made equally well in the other cases we have considered. Evidently one of the two descending progressions from the Pycnum admits of innumerable possible magnitudes ; likewise one of the two ascending progressions from the ditone. For such an interval as that between the Mese and Lichanus admits of innumerable magnitudes, and the same may be said of such an interval as the Pycnum. Nevertheless there are but two progressions from the Pycnum downwards, and two from the ditone upwards ; and similarly one from the tone in either direction. For the progressions must be 69 ascertained in accordance with one individual *shade* in one particular genus. In making any musical phenomenon the object of scientific knowledge, its definite side should be insisted on, its indefinite features left in the background. Now in respect of the sizes of intervals and the pitch of notes, the phenomena of melody are indefinite, while in respect of functions, common qualities, and orders of arrangement, they are definite and determined. To take the first example that occurs, the progressions downwards from the Pycnum are in function and character determined as two in number. The first proceeds by the tone and brings the scale into the disjunct class ; the second pro-

ceeding by the other interval (whatever its size may be) brings the scale into the conjunct class. Hence we see also that there is but one possible progression in either direction from the tone, and that both these progressions alike produce but one class of scale—the disjunct. But it is quite plain from these observations, and from the nature of the facts, that if one seek to discover the possible progressions by considering not one *shade* of one genus at a time, but all *shades* and all genera together, one will come upon an infinity of them.

In the Chromatic and Enharmonic scales every note participates in the Pycnum. For every note in the said genera is the boundary either of a part of the Pycnum, or of the tone, or of an interval such as that between the Mese and Lichanus. The case of notes that bound the parts of the Pycnum requires no proof; it is immediately evident that they participate in the Pycnum. And we proved already that the notes containing the tone are both the lowest notes of a Pycnum; we showed also that the lower of the notes containing the remaining interval was the highest of a Pycnum, and the higher of them the lowest of a Pycnum. Now as these are the only simple intervals, and each of them is contained by notes both of which participate in the Pycnum, it follows that every note in the Chromatic and Enharmonic genus participates in the Pycnum.

One will readily see *that the positions of the notes situated in the Pycnum are three in number*, since, as we know, a Pycnum cannot be followed by another Pycnum or part of one. For it is evident in consequence of this latter law, that the number of the said notes is so limited.

It is required to prove that from the lowest only of the notes in a Pycnum there are two possible progressions in either direction, while from the others there is but one. It has already been proved that from the Pycnum there are two

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progressions downwards, one to the tone, and one to the ditone. But to prove that there are two progressions downwards from the Pycnum is the same as proving that there are two progressions downwards from the lowest of the notes situated in the Pycnum; for this note marks the limit of the Pycnum. Again, it was proved that from the ditone there are two progressions upwards. But to say that there are two progressions upwards from the ditone is the same as saying that there are two progressions upwards from the higher of the notes bounding the ditone. For this note marks the upper boundary of the ditone. But it 71 is clear that the same note which forms the upper boundary of the ditone also forms the lower boundary of the Pycnum; being the lowest note of a Pycnum (for this too was proved). Hence it is evident that from this note there are two possible progressions in either direction.

It is required to prove that from the highest note of a Pycnum there is but one progression in either direction. It was proved that from a Pycnum there is but one progression upwards. But to say that there is one progression upwards from the Pycnum is (for the reason given in the former proposition) the same as saying that there is but one from the note limiting it.

Again, it was proved that from the ditone there is but one progression downwards: but to say that there is but one progression downwards from the ditone is (for the reason given) the same as saying that there is but one from the note bounding it. But it is evident that the note which bounds the ditone below is at the same time the upper boundary of the Pycnum; being the highest note of a Pycnum. It is plain, then, that from the given note there is but one possible progression in either direction.

It is required to prove, that from the middle note of a Pycnum there is but one progression in either direction. Now

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since the given note must be adjoined by some one or other of the three simple intervals, and there lies already a diesis on each side of it, plainly it cannot be adjoined on either side by either a ditone or a tone. For suppose a ditone to adjoin it; then either the lowest or the highest note of a Pycnum will fall on the same pitch as the given note, which is the middle note of a Pycnum; consequently there will be a succession of three dieses, no matter on
72 which side the ditone be located. Again, suppose a tone to adjoin the given note; we shall have the same result. The lowest note of a Pycnum will fall on the same pitch as the middle note of a Pycnum, so that we shall again have three dieses in succession. But this succession is unmelodious; therefore it follows that there is but one possible progression from the given note in either direction.

It has now been shown that from the lowest of the notes of a Pycnum there are two possible progressions in either direction; while from the others in either direction there is but one.

It is required to prove that two notes that occupy dissimilar positions in the Pycnum cannot fall on the same pitch without violating the nature of melody. Suppose, firstly, that the highest and lowest note of a Pycnum fall on the same pitch. The result will be two consecutive Pycna, and as this is unmelodious, it must be equally unmelodious that notes dissimilar in the Pycnum in the manner of the assumed notes should fall upon the same pitch.

Again, it is evident that the notes also that are dissimilar in the other possible manner cannot have a common pitch. For if the highest or lowest note of a Pycnum coincide in pitch with a middle note, there necessarily results a succession of three dieses.

It is required to prove that the Diatonic genus is composed of two or of three or of four simple quanta. It has been

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already shown that each genus comprises at most as many simple intervals as there are in the Fifth. These are four **73** in number. If then three of those four become equal, leaving but one odd,—as happens in the Sharp Diatonic—there will be only two different quanta in the Diatonic scale. Again, if two become equal and two remain unequal, which will result from the lowering of the Parhypate, there will be three quanta constituting the Diatonic scale, namely, an interval less than a semitone, a tone, and an interval greater than a tone. Again, if all the parts of the Fifth become unequal, there will be four quanta comprised in the genus in question.

It is clear then that the Diatonic genus is composed of two or of three or of four simple quanta.

It is required to prove that the Chromatic and Enharmonic genera are composed of three or four simple quanta. The simple intervals of the Fifth being four in number, if the parts of the Pycnum are equal, the genera in question will comprise those quanta, namely, the half of the Pycnum, whatever its size may be, the tone, and an interval such as that between the Mese and Lichanus. If on the other hand the parts of the Pycnum are unequal, the said genera will be composed of four quanta, the least, an interval such as that between the Hypate and Parhypate, the next smallest one such as that between the Parhypate and Lichanus, the third smallest a tone, and the largest an interval such as that between the Mese and Lichanus.

On this point the difficulty has been raised, How is it that all the genera cannot be composed of two simple **74** quanta, as is the case with the Diatonic? We can now see the complete and obvious explanation of the difference. Three equal simple intervals cannot occur in succession in the Enharmonic and Chromatic genera ; in the Diatonic

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they can. That is the reason that the last-named genus is sometimes composed of only two simple quanta.

Passing from this subject we shall proceed to consider the meaning and nature of difference of species. We shall use the terms 'species' and 'figure' indifferently, applying both to the same phenomenon. Such a difference arises when the order of the simple parts of a certain whole is altered, while both the number and magnitude of those parts remain the same. Proceeding from this definition we have to show that there are three species of the Fourth. Firstly, there is that in which the Pycnum lies at the bottom; secondly, that in which a diesis lies on each side of the ditone; thirdly, that in which the Pycnum is above the ditone. It will be readily seen that there are no other possible relative positions of the parts of the Fourth.