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'Psellus' Treatise on Music' in Mizler's 'Bibliothek'*

UNDER the influence of the ideas of the Enlightenment there was a complete change in the traditional understanding of music as a science, a conception on which its educational value had rested since the days of Ancient Greece.¹ From the beginning of the eighteenth century the view prevailed that music is an Imitative Art rather than an expression of the laws of numbers.² The *Musica theoretica* had already been neglected for a long time in the curricula of the Universities, partly in favour of the study of natural science. Now, the teaching of music and musical practice disappeared also from the gymnasia.³

Lorenz Christoph Mizler (1711-78), whose views were strongly shaped by the rationalistic philosophy of Christian Wolff (1679-1754), tried, as in his dissertation 'Quod musica ars sit pars eruditionis philosophiae' (1736), to demonstrate that music was the mathematical element of Philosophy—the highest science of all. In other words, Mizler advocated an up-to-date renewal of music's former status as a component of the

¹ L. Richter, *Zür Wissenschaftslehre von der Musik bei Platon und Aristoteles* (Berlin, 1961), pp. 2ff.

² Cf. H. Hüschen, article 'Musik' in *Musik in Geschichte und Gegenwart*, 9 (1961), especially cols. 988ff. and the bibliography cited there.

³ P. Wagner, 'Zur Musikgeschichte der Universität,' *Archiv für Musikwissenschaft*, 3 (1921), pp. 8ff.; G. Schünemann, *Geschichte der deutschen Schulmusik* (Leipzig, 1931), pp. 224ff.

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Quadrivium.⁴ All of Mizler's numerous activities⁵ were subordinated to his rationalistic 'main intention . . . to give to music the full stature of a science, to study its history, and set it in order.'⁶ This undertaking did not, however, remain unchallenged. The sensuous approach of the most influential contemporary music theorist, Johann Mattheson, for instance, diverged greatly from Mizler's view of music as a 'sounding mathematics.' Thus Mattheson's encyclopedic *Der vollkommene Cappelmeister* (1739) directed some polemical blows at Mizler, and in the title of the pamphlet *Aristoxenis junioris Phtongologia systematica* (1748), Mattheson unfurled 'the name of Aristoxenos as a banner' against the Pythagoreanism of Mizler (and Leonhard Euler as well).⁷

Mizler expressed his views on the theory of music in the journal, which became the organ of the society he had founded, *Neueröffnete Musikalische Bibliothek oder gründliche Nachricht nebst unpartheyischem Urteil von musicalischen Schriften und Büchern*, which he published himself from 1736 until 1754. At first it appeared twice yearly, but later, when his difficulties in making a livelihood forced him to move to Poland, at ever longer intervals.⁸ Obsessed with missionary zeal and increasingly isolated, Mizler, as the propagator of a musical view 'more geometrico', was not much interested in reporting on actual musical life or in reviewing new publications. He rather concentrated on the presentation of his own theories, but in independent articles, in general reviews of the literature, and even in notes on individual publications. At first he gave preferential treatment to German

⁴ F. Wöhlke, *L. Chr. Mizler, Ein Beitrag zur musikalischen Gelehrten-geschichte des 18. Jahrhunderts* [Diss.] (Berlin, 1940), pp. 8ff. and pp. 38ff.; for bibliography cf. H. G. Hoke, 'Mizler,' *MGG*, 9 (1961), cols. 388f.

⁵ They included, among others: teaching at the University of Leipzig, theoretical publications (mostly in his own periodicals), and finally the organization of the first genuine musicological society in Germany—the 'correspondierende Societät der musicalischen Wissenschaften' (which counted as its members Handel and Bach). Cf. Wöhlke, *op. cit.*, pp. 96ff.; also A. Schering, *J. S. Bach und das Musikleben Leipzigs*, iii (1941), pp. 193ff.; W. C. de Jong, 'Händel, Bach en de Mizlerse Societeit in Leipzig,' *Mens en Melodie*, vii (1952), 2.

⁶ Cited from his autobiography published in Joh. Mattheson's *Grundlage einer Ehrenpforte* (Hamburg, 1740, new ed. by M. Schneider, Berlin, 1910), p. 230.

⁷ J. Handschin, *Der Toncharakter, eine Einführung in die Tonpsychologie* (Zürich, 1948), 177; cf. W. Braun, *J. Mattheson und die Aufklärung* [Diss.] (Halle, 1951), pp. 8ff.; R. Schäfke, *Geschichte der Musikästhetik* (Berlin, 1937), pp. 300ff.

⁸ Wöhlke, *op. cit.*, pp. 18ff. and 86ff. (with citations of contemporary views).

writers on music from the period 1650–1750 and, as Johann Adolf Scheibe said in a review, the personal ‘views [of Mizler, the publisher] too strongly penetrate the [original] text’.⁹ Later Mizler increasingly reproduced the original Classical sources, with annotations. Already in his preface he had stated his aim ‘to examine the works of the Greek writers on music . . . , [but] it would be even more useful to translate them verbatim and henceforth to give to our readers one such writer with our annotations as an appendix to each volume.’¹⁰

Mizler had recourse to the ancient Greek writers in order to strengthen his own position. For, according to him, they ‘were much more concerned with the origins, relationships, and concordances of notes than our present-day *Musici*, who cannot really be blamed for not understanding anything about Ancient Greek music, since for such an understanding knowledge of both the Greek language and the mathematical sciences is needed . . .’¹¹ Mizler realized that for an understanding of Greek music theory a combination of both mathematical and philological knowledge is necessary, the latter being normally inaccessible to a professional musician of his time. Nevertheless, Mizler undoubtedly overestimated his own powers when he considered himself equipped for this task.

Mizler apparently intended to append complete German translations to the existing editions of Greek writers on music, instead of the customary Latin translations. Thus, Mizler hoped, he could exercise some influence on the larger audience of professional musicians and interested laymen.¹² He had already furnished a summary translation of the treatises in the collections of Marcus Meibom (*Antiquae musicae auctores*, Amsterdam, 1652) and of John Wallis (*Opera mathematica*, III, Oxford, 1699),¹³ together with notes on Aristoxenos (partly from Mei-

⁹ J. A. Scheibe, in *Hamburgische Berichte von gelehrten Sachen* of June 14, 1737 (No. 42, p. 394); see also Wöhlke, *op. cit.*, pp. 20 and 88ff.

¹⁰ L. Chr. Mizler, *Musikalische Bibliothek*, I, Preface.

¹¹ *Ibid.*, I/1, p. 2.

¹² *Ibid.*, III/2, p. 200, n. 24.

¹³ For references to the editorial activities of Meibom and Wallis (beside those contained in the new editions of the nineteenth century), cf. above all R. Schäfke *Aristides Quintilianus* (Berlin, 1937), p. 25f.; I. Düring, ‘Die Harmonielehre des Klaudios Ptolemaios,’ *Göteborgs Högskolas Årsskrift*, XXXVI (1930), fasc. 1, p. xciii. See also G. Fellerer, ‘Zur Erforschung der antiken Musik im 16.—18. Jh.’, *Jahrbuch Peters*, 42 (1936), pp. 84ff.

bom’s preface and partly from Suida’s lexicon).¹⁴ According to his plan each volume of his journal was to end with a scholarly supplement containing an annotated translation of an ancient treatise. The only publication which he completed, however, was that of a Byzantine treatise.

Michael Psellus (1018–78), a Platonist philosopher and productive writer of excellent mastery of form and abundant encyclopedic knowledge, enjoyed a reputation which spread from Byzantium into Western Europe.¹⁵ It is, therefore, no accident that sixteenth-century editions of his writings may include a compendium of the four mathematical disciplines (*Σύνταγμα εὐσύνοπτον εἰς τὰς τεσσάρων μαθηματικῶν ἐπιστήμας*) which is not correctly attributed to him.¹⁶ The first publisher of the treatise, Arsenius, in his Praefatio of 1532 only tentatively ascribed the *Syntagma* to Psellus. The attribution to Psellus was however adopted in the Paris edition by Bogardus (1545). From that time on Psellus’s name is found in all editions, among which that by Wilhelm Xylander (Basel, 1556) stands out on account of its valuable critical and exegetical notes to the Latin translation. ‘Psellus’ treatise on music’ was also published separately in Paris (ed. Vinet, 1557) and in Wittenberg (1560). It started gaining importance from a musicological point of view after its appearance in the appendix to Lampertus Alardus’ work *De veterum musica* (Schleusingen, 1636, pp. 177–203), in spite of the fact that he used a corrupt text derived from the Paris edition of 1545.¹⁷

¹⁴ ‘Meiboms Vorrede über die Scribenten von der alten Griechischen Musik’ *Musikalische Bibliothek*, I/1, pp. 1ff.; ‘Wallisi . . . Vergleichung der alten Musik mit der zu seiner Zeit,’ *Ibid.*, I/2, pp. 1ff.; ‘Nachricht von Aristoxeni Harmonik und dessen Leben,’ *Ibid.*, I/3, pp. 1ff.

¹⁵ See especially K. Krumbacher, *Geschichte der byzantinischen Literatur*² (München, 1897), pp. 433ff.; the monographs by Chr. Zervos and E. Renaud (both published in 1920) and by B. Tatakis (publ. in 1949); also the pertinent passages in G. Moravcsik, *Byzantinoturcica*, I (1958), pp. 437ff.; G. Ostrogorsky, *Geschichte des byzantinischen Staates*² (München, 1952), pp. 261ff.; H. G. Beck, *Kirche und theologische Literatur im byzantinischen Reich* (München, 1959), pp. 538ff.

¹⁶ A critical new edition edited by J. L. Heiberg, *Anonymi Logica et Quadrivium, cum scholiis antiquis* [Det Kgl. Danske Videnskabernes Selskab. Hist.-filol. Meddelelser, XV/1] (Copenhagen, 1929). Cf. review by K. Praechter in *Byzantinische Zeitschrift*, 31 (1939), pp. 82–90.

¹⁷ For a demonstration that Psellus is not the author, see L. Richter, ‘Antike Überlieferungen in der byzantinischen Musiktheorie,’ *Deutsches Jahrbuch der Musikwissenschaft für 1961*, 6. Jg. (Leipzig, 1962), pp. 95 and 112 (bibliography).

The treatise on harmony, written in the beginning of the eleventh century and in some manuscripts attributed to a monk named Gregorios Solitarios, deserves attention as the earliest known musical treatise from Byzantium, though eclectic in content.¹⁸ It would be too much to expect the rationalist Mizler to comprehend all the special problems involving this treatise, when he included in the third volume of his *Musikalische Bibliothek* a study entitled 'Des Psellus vollständiger kurzer Inbegriff der Musik'.¹⁹ The personality of the alleged author was no doubt thought likely to exert a greater attraction on the potential reader than the little-known names of the authors of the truly ancient treatises. The description of the eventful life of Psellus,²⁰ appeared to Mizler an additional inducement for the interested reader to study the didactic treatise that followed. The compendium-like, didactic design of that treatise probably appeared to serve Mizler's intention of popularizing his views, while its largely arithmetical aspect must have seemed to him an authoritative support for his own philosophical and mathematical tendencies. In a procedure which for his time undoubtedly was very modern, Mizler provided a German translation which was generally fluent and clear and which was printed parallel to the Greek text, and commentary in the form of footnotes. Shunning the corrupt text and often absurd translation of Alardus, Mizler used Xylander's version (although it too was not a definitive edition by any means), and completed Xylander's annotations by his own notes.

especially C. v. Jan, *Musici Scriptores Graeci* (Leipzig, 1895), pp. xxxiv ff., lx ff., lxx ff.).

¹⁸ Richter, *op. cit.*, pp. 95ff. (survey of concordances).

¹⁹ The title of this treatise, which is listed after the table of contents, is the following: 'Psellus kurzer Inbegriff der Musik, aus dem Griechischen ins Deutsche übersetzt, mit Xylanders u. L. Mizlers Anmerkungen,' in *Musikalische Bibliothek*, III/2 (1746), pp. 171-200.

²⁰ Michael Psellus lived at the time of Romanus Diogenes, Emperor of Constantinople, and was well known in the year 1070 A.D. He was a Greek theologian and historian, and beside many other writings, he also compiled this short treatise on music. Psellus was born in Constantinople, of noble parents. He was a teacher of Emperor Michael VII Ducas, as is reported in the chronicle of the monk John Zonaras. But when this emperor was deposed and sent into a monastery, Psellus, his favourite, also had to resign his high positions and become a monk, and as such he lived for about another thirty years . . . ' *Musikalische Bibliothek*, III/2, p. 171, n. 1. (Even the rumour formerly current about an 'older' Psellus is found in this note.)

The very first mention of the alleged author, Psellus, is connected with an *argumentum e consensu gentium* for Mizler's basic thesis that music is a mathematical discipline. This contention is accompanied by an attack on Mattheson.²¹ It is also significant how Mizler, while interpreting music in a strictly rationalistic sense, retraces the argument raised in the *prooimion* of the treatise, namely that the harmony of the world manifests itself in music.²² Though Mizler is far from providing a critical examination of sources or a historical interpretation of the text, he nevertheless clearly understands that, contrary to modern usage, 'harmony' in this context is to be interpreted as a horizontal sequence of notes.²³ Yet elsewhere in the text he interprets the intervals in a harmonic (in the modern sense) fashion.²⁴ While pursuing his secondary aim of advertising his own ideas by using an ancient writer as an authority for those views, he by no means forgets his basic aim of providing easily understandable information about ancient music theory. Besides the interpretation of technical terms which is implied by the choice of words in the translation, he achieves this aim by discussing specific topics. In the case of some matters of importance, such as the catalogue of names of notes (p. 176f.), the composition of intervals (p. 184f.), the sections on modes and tetrachords (p. 197), and on scales (p. 198), Mizler does not give any deeper explanations but refers to earlier systematic descriptions, above all to the article based on John Wallis's 'Comparison of the Ancient Music and that of the present day' (*Musikalische Bibliothek*, I/2). Mizler undoubtedly considered Xylander's mathematical account of the divisibility of the whole tone (p. 178ff.) to be sufficiently exhaustive not to warrant any additional comments. But he personally concerns himself with

²¹ 'In his days no one thought of denying that music is a mathematical science or, what amounts to the same, is a part of mathematics. In these our own days, however, Herr Mattheson desires to reverse the matter by stating that mathematics in a way is a part of music. Such a view, however, so far has not found any acceptance by any of our contemporary scholars.' *Ibid.*, p. 173, n. 1. 'Now, since music depicts in miniature the very best order which the human mind can envisage, the Ancients were correct in saying that music represents the harmony of the whole structure of the world.' *Ibid.*, p. 174, n. 2.

²² 'Psellus here uses the word "harmony" in a meaning different from that in which we understand it today. In his text, the word means "a combination of different tones in accordance with a certain order", i.e., a "mode", a musical scale, a system.' *Ibid.*, p. 194, n. 18.

²⁴ See below, p. 125f.

the interpretation of textual passages which were especially attractive to him as a music theorist, namely those dealing with consonant intervals and the numerical ratios contained therein (p. 188ff.). The fact that Mizler also possessed some philological and antiquarian knowledge is demonstrated in the last note (referring to Exodius), which happens to be the only note in which he corrected and supplemented Xylander and the only note which is not essentially theoretical in character. In Mizler's treatment of the central questions of the theory of consonant intervals, only the conclusiveness of given doctrines is open to debate, while their development is not. In spite of the fact that Mizler is aware of the essential difference between the ancient and the contemporary musical systems, his deductive and theoretical disposition prevents him from grasping the importance of any questions about the historical conditioning which may have limited certain parts of the theory, let alone about the existence of different layers of tradition in the transmission of the text.

While the line of investigation of harmony pursued in Pseudo-Psellus basically follows that of the Aristoxenian School,²⁵ the actual core of the text, the theory of intervals, progresses from an Aristoxenian determination, in terms of additive distances in space, to the Pythagorean-Platonic interpretation of the consonances as numerical ratios, mostly in the version expounded by Theon of Smyrna.²⁶ The classification of intervals according to their degree of consonance presented by Pseudo-Psellus (p. 187ff. Mizler = p. 68. 19ff. Heiberg) creates certain problems because of its odd terminology. These problems vexed Mizler, just as they had bothered Xylander, but neither of them attempted to undertake an analytical investigation of the original sources.²⁷ Meibom, however, already had cited

²⁵ Cf. G. Seydel, *Symbolae ad doctrinam Graecorum harmoniae historiam* [Diss.] (Leipzig, 1907), pp. 5-7, 56ff.; see also C. v. Jan, *Scriptores* . . . , pp. 167ff.; *Gymnasium Program* (Landsberg, 1870); *Gymnasium Program* (Strassburg, 1890 and 1891); R. Schäfer, *Aristides* . . . , pp. 9ff.

²⁶ The basic work is C. Stumpf, *Geschichte des Consonanzbegriffes*, I, publ. in *Abhandlungen d. Münchner Akad.*, Philos.-Philol. u. Hist. Kl., 21 (1901); see also especially J. Handschin, *Der Toncharakter*, pp. 133ff. and 205ff.

²⁷ The passage which is especially in need of interpretation, in Pseudo-Psellus (p. 187, 1-8 Mizler = p. 68, 19-21 Heiberg), together with Mizler's translation (which partly paraphrases it and partly corrects it) is the following: *Σύμφωνεῖ δὲ ἡ μὲν διὰ τεσσάρων διάστασις καὶ ἡ διὰ πέντε κατὰ παράφωνον*.

parallel passages elsewhere and had considered it necessary to make a conjectural emendation (at p. 187, 3 M = p. 68, 21 H). In connection with Gaudentius' classification of the melodic tones (c. 9, p. 338, 37 Jan)²⁸ he attempted to give further instances of the rare technical term *paraphonia* (which here designates the intermediate value between the sym-phonous and dia-phonous intervals), as it occurs in Thrasyllus, an author quoted by Theon, together with the more usual term *antiphonia* (i.e. opposition of voices, or repetition of a melos on a different pitch).²⁹

The expression *antiphonia*, which was probably first used by Plato (Laws 812 D) as a technical term referring to musical phenomena,³⁰ serves in the pseudo-Aristotelian *Problemata* above all to characterize similarities of the octave-species (esp. *Probl.* XIX 7, 13, 17, 39b). Since the first century A.D. it was considered a special case of the *symphonia* (i.e. 'simultaneous sounding', or tonal relationship, or consonance).³¹ In Thrasyllus' article in Theon of Smyrna's work (p. 48, 17ff. Hiller) we find for the first time consonances divided into the two categories of antiphony and paraphony, i.e. in terms of two degrees of relationship which are manifested by their greater or lesser fusion. Consonances in the sense of antiphony (*σύμφωνα κατ' ἀντίφωνον*) were the intervals of octave and the double octave, consonances in the sense of paraphony (*σύμφωνα κατὰ παράφωνον*) are the intervals of the fourth and fifth. Thereafter consonances

ἡ δὲ διὰ πασῶν καὶ ἡ δις διὰ τεσσάρων καὶ ἡ δις διὰ πέντε καὶ ἡ δις διὰ πασῶν κατὰ ἀντίφωνον.* = 'But the intervals of the fourth and the fifth agree according to the genus which the Greeks call "paraphonium", whereas the octave, the superimposed fourth and fifth, and the double octave agree according to the genus of consonances which the Greeks call "antiphonium".'

²⁸ M. Meibom, *Antiquae musicae auctores*, Nota ad Gaudentium, p. 35; cf. C. v. Jan, *Scriptores* . . . , p. 338. Meibom conjectures that before the last two words of the text (indicated by an asterisk *) the following words are to be added: *καὶ ἡ διὰ τεσσάρων καὶ ἡ διὰ πασῶν καὶ διὰ πέντε*.

²⁹ On the term 'paraphonia' see J. Handschin, 'Musikalische Miscellen,' *Philologus*, 86 (1930), pp. 52ff., especially p. 54 listing the derivation of the term from a passage in Ps. Longinus' *Περὶ ὕψους* ('On the sublime'), 21.1.

³⁰ On this much discussed passage see especially C. Stumpf, *Geschichte des Consonanzbegriffes*, pp. 13ff. and in *Sammelbände für vergleichende Musikwissenschaft*, I (1922), 167; also Handschin, *Der Toncharakter*, p. 23 and *Musikgeschichte*, p. 61; C. Sachs, *The Rise of Music in the Ancient World* (New York, 1943), 257f.

³¹ C. Stumpf, 'Die Pseudo-Aristotelischen Probleme, über Musik,' *Abhandlungen d. Berliner Akad.*, Phil. Hist. Klasse, 3 (1896), pp. 25ff., especially 32; cf. Handschin, *Toncharakter*, pp. 227 and 353.

'according to relation' (*κατὰ συνέχειαν*) are listed, such as the whole tone and the quarter tone (*diesis*). These latter then are melodically useful intermediate steps which are only indirectly related to the immediately related basic tones of the tonal system (cf. Aristoxenos, p. 27 M 35, 9ff. Da Rios). According to this treatise, the intervals of antiphony are 'sym-phonous' insofar as the low-pitched tones 'symphonize' with the juxtaposed high-pitched tones (cf. Theon, 51, 4ff). The intervals of paraphony are 'sym-phonous' insofar as one tone in relation to the other tone sounds neither 'mono-tonous' nor 'dia-phonous', but sounds similar, though it is at a clear distance (*παρὰ τι γνώριμον διάστημα ὁμοιον*). Those small intervals which previously, in terms of melodic sequence, were called symphonous, are now considered dia-phonous ('sounding apart from each other'). For though they represent a 'principle of symphonia, yet they are not the symphonia itself.'³²

sym-phonous $\left\{ \begin{array}{l} \text{antiphona: Octave, Double Octave} \\ \text{paraphona: Fifth, Fourth} \end{array} \right.$

symphonous 'according to relation'

= diaphonous (principle of symphonia): Whole tone, Diesis

From this particular section derive syncretistic paraphrases in the writings of the Byzantine music theoreticians. They transfer into Thrasyllus' system, with its distinction of different degrees of consonance, the added-octave intervals which had been classified as consonances by Claudios Ptolemaios. Ptolemaios disagreed with the Pythagoreans who excluded from the consonances the interval of 'octave plus fourth', or the eleventh (3.8, as one not belonging either to the numerical ratios obtained by a clear division, such as $n : 1$, or by a division with a rest, such as $(n + 1) : 1$. He equated the 'upper fourth' (i.e. the eleventh) with the simple fourth as a corollary of the (assumed) identity of the octave (Harm 1.5.6). As far as the intervals of uneven tensions (anisotones) are concerned, Ptolemaios grouped them in terms of the degree of approximation toward identity and established the following ranking:

- (a) homophonic intervals, such as the octave and double octave with the ratios $2 : 1$ and $4 : 1$;

³² C. Stumpf, *Geschichte . . .*, 48ff.; Handschin, *Ibid.*, 229; see also C. Dahlhaus' article 'Konsonanz-Dissonanz' in *MGG*, 7 (1958), cols. 1504-5.

- (b) symphonous intervals, such as the fifth and the fourth, both being the first ratios of a division with rests, $3 : 2$ and $4 : 3$. To these he added those intervals consisting of these two and the homophonic octave-expansion, i.e. the twelfth ($2 : 1 \times 3 : 2 = 3 : 1$) and the eleventh ($2 : 1 \times 3 : 4 = 3 : 8$).
- (c) emmelic intervals (melodically usable ones), such as the whole tone ($8 : 9$) and the series of the micro-intervals, i.e. those ratios which exceed the ratio $4 : 3$ (Harm. i.7).

Thus the same degree of fusion was ascribed to the expansion of an interval by means of an octave as was ascribed to the simple intervals within the range of the octave; in other words, the intervals of the type N-plus-octave were considered equivalent to the primary consonances (N).³³

Anisotones $\left\{ \begin{array}{l} \text{homophonous: Octave, Double Octave} \\ \text{symphonous: Fifth, Fourth, Twelfth, Eleventh} \\ \text{emmelic: Whole tone and micro-intervals} \end{array} \right.$

The Ptolemaic teachings on harmony strongly influenced the archaizing tendencies in Byzantine writings on music theory.³⁴ Since no intermediate stages can be found between Ptolemy and Pseudo-Psellus, let us first, in order to reconstruct the historical development, quote parallels to this passage from the far better investigated treatises of late Byzantine music theory.³⁵ Georgios Pachymeres (1242-1310) refers (c.10) specifically to the argument by which Ptolemy counts the eleventh as a consonance (at the same time adding the arithmological argument of the *tetraktys*). But his analysis of the main consonances (c. 13, 14) which is an addition to Ptolemy's refutation of the Aristoxenians (I.10, 11) does not go beyond the realm of the octave. Manuel Bryennios (early fourteenth century) who systematized the Byzantine musical writings sanctioned by Ptolemy, grafts the Ptolemaic 'octave-expansion' (I.5) into the hierarchy of consonances found in Theon's writings in such a way that Theon's trichotomy was expanded into a four-fold

³³ Stumpf, *Ibid.*, pp. 56ff.; Handschin, *Ibid.*, pp. 88, 115, 151-2, 208-9, 222-3' 226-7; cf. L. van der Waerden, 'Die Harmonielehre der Pythagoreer,' *Hermes*, 78 (1943), pp. 166ff.; also I. Düring, 'Ptolemaios und Porphyrios über die Musik,' *Göteborgs Högskolas Årsskrift*, xl (1934), pp. 173ff.

³⁴ L. Richter, 'Antike Überlieferungen . . .', pp. 84ff. and 93ff.

³⁵ *Ibid.*, pp. 98ff. and 101ff.

hierarchy (but cf. II.2). Bryennios divided the symphonous intervals into antiphonous intervals, such as octave and double octave, paraphonous intervals, which include only the fifth and the twelfth, while he uses the general term *symphonia* for the interval of the fourth and the eleventh, that is, he considers the latter intervals to be unqualified consonances. Following the Aristoxenian model, he interprets as diaphonous those intervals which are smaller than the fourth, such as the diesis and its combinations up to the di-tonus, as well as the intermediary intervals between the symphonies, which comprise three, four, and five tones (cf. Aristoxenus, p. 20 M 25, 11 Da Rios, and esp. Cleonides, c.5, p. 187, 15ff., as the direct model).³⁶

Symphonous	←	antiphonous: Octave, Double Octave
		paraphonous: Fifth, Twelfth
Diaphonous:	←	generally symphonous: Fourth, Eleventh
		Diesis, Half-tone, Whole tone, Tone-and-a-half, Ditonus

Acoustical properties serve as an *argumentum a posteriori* for the differentiation of the individual groups of intervals. Some notes about intervals as relationships of rhythmical impulses (frequencies) lead on to a paraphrase of the theory of consonances as mixtures of tone, the psychological consequence of physical relationships. It is stated that paraphonous intervals symphonize, but not simultaneously, by virtue of the fact that the sounds follow each other in a well-regulated and rhythmically well-ordered fashion. In antiphonous intervals the higher pitch is said to symphonize with the lower one simultaneously and in an identical manner, as for instance the octave with the prime (i.e. unison), the ninth with the second (cf. the more detailed presentation by Heracleides in Porphyrios in Ptol., p. 32. Düring; Euclid, *Sectio canonis*, p. 148f. Jan, Ps. Aristotelische *Problemata*, XIX 39b; Adrast. in Theon 50, 4ff.).³⁷ As far as the

³⁶ For the diesis, as the smallest unit of measurement in Aristoxenos, cf. L. Lalou, *Aristoxène du Tarente* (Paris, 1904), pp. 113ff., 185ff. and *passim*. See also R. P. Winnington-Ingram's study in *Classical Quarterly*, 26 (1932), p. 195 and Handschin, *op. cit.*, pp. 146 and 149.

³⁷ Cf. Jan, *Scriptores* . . . , pp. 134ff.; E. Graf, 'Die Theorie der Akustik im griechischen Altertum,' *Gymnasium Program* (Gumbinnen, 1894), p. 6; L. Schönbberger, 'Studien zum 1. Buch der Harmonie des Cl. Ptolemäus,' *Gymnasium Program* (Augsburg, 1914), pp. 26ff.; and especially, van der Waerden, *op. cit.*, pp. 192ff.

symphonia is concerned, it is said to represent a coincidence and blending of two tones which differ in weight and pitch, with the sense perception of a total fusion, so that it is no longer possible to perceive the individuality of each of the two components one of the two sounded notes is said to dominate (for textual concordances cf. Cleon., p. 187, 19ff. with some added manuscripts; Gaudentius, p. 337, 8ff.; Aelian in Porph. in Ptol. 33, 13ff.).³⁸

These disquisitions are embedded as the second section in a comprehensive chapter on the intervals, which are characterized in terms of the following five criteria: range, degree of consonance, composition, tonal gender, and rationality. The disposition of these criteria is based on the Aristoxenian tradition, as it was first mapped out in Aristoxenos' own writings (Aristox. Harm. p. 16 M. 21, 17ff.) and developed further and more elaborately by Cleon. c. 5, p. 187, 3ff. (cf. Aristides I.2, Anon. Bellermand, § 58). The first three of these distinctive characteristics recur in the synopsis of the Pseudo-Psellus, although only in a rudimentary form. Various agreements between that treatise and Bryennius seem to indicate a relationship of dependency. Certain abbreviations, deviations, and obvious misunderstandings in the Pseudo-Psellus, however, would rather suggest the use of a common source. In the treatment of distances between tones, for instance, Pseudo-Psellus arranges them in the Aristoxenian way, starting with the quarter-tone as the smallest unit,³⁹ and hence proceeding all the way to the octave which is said to have been named diapa-sion ('through-all'), since all others find their completion in the *octa-chord*, and if one were to go beyond the octave, such intervals then become 'doubled': the intervals which follow the octave are said to be the 'double fourth' (*disdiatessaron*) and the 'double fifth' (*disdiapente*), etc. (cf. p. 185f. M = 68, 14-18 H; for the terminology of the consonances, cf. Theon, p. 51, 4ff.). The over-schematic interpretation of the concept of duplication as covering *all* intervals in the octave leads Pseudo-Psellus astray. He not only speaks about the double octave, but also erroneously about a δις διάτεσσάρων and a δις διαπέντε instead of the correct διὰ πασῶν καὶ τεσσάρων and διὰ πασῶν καὶ διαπέντε

³⁸ Jan, pp. 322ff.; Stumpf, pp. 41f. and 47f.; Düring, pp. 158, Handschin, p. 144f.

³⁹ See note 36, above.

respectively. That this formulation is not used as an abbreviation for the correct version (excepting, of course, attestations in certain Greek theoretical writings where, to be sure, the terms *disdiatessaron* and *disdiapente* are used, but merely in their only acceptable meaning, namely in reference to the dissonant [dia-phonous] intervals of the seventh and the ninth [as, for instance, in the pseudo-Aristotelian *Problemata*]),⁴⁰ is shown in Pseudo-Psellus where immediately after the passage in question the multiplicative prefix 'dis-' is substituted for the noun 'diapason'. Later on, *dis* not only superfluously, but indeed absurdly, precedes the compounds beginning in *diapason*.

The preceding considerations now permit us to submit an interpretation of our starting point. In distinguishing the intervals by their degree of consonance (p. 187f. M = 68, 19ff. H), Pseudo-Psellus treats the intervals of the fourth and fifth as symphonizing paraphonically, but the intervals of the octave, the 'double fourth', and the 'double fifth' as symphonizing antiphonically. Ptolemaios' view of the equivalence of the octave extensions is injected into Theon's structural scheme, but with a mistaken use of terminology. The subsequent acoustic derivation of this difference in quality of intervals corresponds to what is later on transmitted by Bryennius, though without the latter's discussion of the phenomenon of fusion, while the definition of diaphony agrees with the final sentence in Thrasyllus.⁴¹ Both Pseudo-Psellus and Bryennius accept the paired concepts of antiphony and paraphony, a pair of concepts which emerged in Late Antiquity. The earlier of these two Byzantine theorists, however, does not yet go beyond the model itself.

symphonizing $\left\{ \begin{array}{l} \text{paraphonically: Fourth, Fifth} \\ \text{antiphonically: Octave, 'Double Fourth,'} \\ \qquad \qquad \qquad \text{'Double Fifth'} \end{array} \right.$

Principles of symphonia: Whole tone, Half tone, Diesis.

In the subsequent description of the consonances according to their composition (p. 188f. M = 69, 9ff. H) we find the same basic mistake in the nomenclature of the octave-expansions, a

⁴⁰ For this point see especially Stumpf's 'Die pseudoaristotelischen Probleme,' pp. 5ff.

⁴¹ See p. 119.

mistake which recurs throughout the manuscript tradition of this text. The Byzantine author apparently found in his model the correct designation for the interval of an octave plus a fourth, or of an octave plus a fifth, yet no longer did he want to part with the intrusive spurious prefix. Thus one reads that an octave plus a 'double' fourth equals eight and a half tones, and the octave plus a 'double' fifth equals nine and a half tones. The error now becomes manifest, for if we were to believe the author, there would be eleven tones in the first octave-expansion, thirteen in the second, while the double octave comprises only twelve! The same applies for the explanation of the fractional-number ratios of the intervals by means of composite numbers.

Meibom, in his conjecture about the division of the consonances in Pseudo-Psellus (p. 187.3 M = 68, 21 H),⁴² proposes to add the upper fourth and the upper fifth to the traditional set of paraphonies, namely to the fourth and fifth. In so doing he undoubtedly based himself on Ptolemy's second rubric, but this is not the meaning of the text. For given the fact that these octave-expansions (i.e., the octave + fourth and octave + fifth) have already been mentioned, the following antiphonous intervals ('double fourth' and 'double fifth') would, if one were to believe Meibom, have to be interpreted in a literal sense as doublings without any reference to the octave (from which they were derived) and outside the realm of consonances. Mizler, following Xylander, noticed the textual corruption at the very first appearance of the terms 'double' fourth and 'double' fifth. He pointed out that the correct reading should be 'superimposed fourth' and 'superimposed fifth' (= eleventh and twelfth) (annotation 9). Similarly he criticized the spurious use of the terms *διὰ πασῶν καὶ δις διὰ τεσσάρων* and *διὰ πασῶν καὶ δις διὰ πέντε* (at p. 189 M = 69, 9ff. H; Mizler's annotations 11 and 12). At the mention of the intervals of the fourth and eleventh, he could not resist pointing out that their consonant character is only relative and dependent upon the harmonic function of that interval.⁴³ Thus the views of Mizler's age con-

⁴² See note 28, above.

⁴³ '... But in the same way as the interval of the fourth is never a consonance by nature, but only under certain circumstances, thus also the composite fourth or eleventh can only under certain conditions be counted among the consonances, from which elsewhere it is excluded.' *Musikalische Bibliothek*, III/2, p. 186, n. 9.

cerning a harmonically regulated counterpoint were, in an entirely unhistoric manner, brought to bear upon the interpretation of this interval. In the basically monophonic music of Antiquity, it was the framework of the tetrachord and, as such, represented a structural consonance. Only with the highly developed polyphony of the High Middle Ages, was it subjected to the degraded to a 'dissonantia per accidens'.⁴⁴

As far as the ordering of consonances in Pseudo-Psellus is concerned, Mizler is inclined to understand the opposing terms paraphony and antiphony, not as different degrees of relationship, but rather as mutually exclusive aspects of tonal relationship. Thus he considered the former of these terms to indicate 'consonance in melody' and the latter to designate 'consonance in harmony' (p. 188, annotation 10),⁴⁵ since the only examples given for this term are octaves.⁴⁶ As a rationalistic theorist, Mizler apparently imagined the octave consonance of Antiquity to have been a real 'di-chord' (Zweiklang), used for the purpose of singing in parallel motion, partly in lieu of the consonances of the third and sixth (which at that time had not yet been legitimized), partly because of an aversion to motion in parallel fourths or fifths (which would have run counter to the rules of euphony). The probable reason for this view was a belief in historical progress: Antiquity, to be sure, was far removed from the ideal state (of the eighteenth century) where the third was recognized as a consonance; on the other hand, it had not yet reached the transitional stage of early medieval organum with its motion in parallel fifths and fourths.⁴⁷

⁴⁴ Cf. H. Riemann, *Geschichte der Musiktheorie*² (Berlin, 1920), pp. 110ff. and 186ff.; Dahlhaus' article in *MGG*, 7, col. 1506. See also the distinction of the fourth as a dissonance (with the lower tone in the Bass part) and a perfect consonance (based on an arithmetical division of this interval) in J. J. Fux, *Gradus ad Parnassum* (Wien, 1725), I, 17, pp. 25f.

⁴⁵ The same misinterpretation of paraphony as a 'consonant progression in the melody' is found later on in the relatively thorough representation of the concept of consonance among the Ancient Greeks in Fr. W. Marpurg's *Kritische Einleitung in die Geschichte und Lehrsätze der alten und neuen Musik* (Leipzig, 1759), p. 142.

⁴⁶ But the reason that he cited only examples of octaves is that the Ancients did not consider the third to be a consonance, and even less so the sixth; and their sense of hearing prevented them from moving upward or downward in [parallel] fourths and fifths.' *Musikalische Bibliothek*, III/2, p. 188, n. 10.

⁴⁷ For further discussion as well as a list of more specialized literature on the concept of consonance in the Middle Ages, see Dahlhaus, *loc. cit.*

It would be unfair to expect of the eighteenth century the store of musicological knowledge and expertise which is available today. Nevertheless, the misinterpretations might have been avoided by a closer investigation of the text and by proper reference to parallel passages which had already been assembled by Meibom. Where Pseudo-Psellus offers only a quasi-abbreviated and hardly explicit text, his predecessors would have permitted Mizler to realize that not only the octave, but also the fourth and the fifth were considered true consonances and, as such were contrasted with less consonant intervals. It would have become evident that those intervals (the octave, as well as the fourth and fifth) were 'framework' intervals, between which lay the micro-intervals which were useful for melodic movement. These micro-intervals had been pregnantly called 'emmelic' by Ptolemy, while, following Aristoxenos, Thrasylos (as quoted by Theon) called them 'symphonous depending on the context' or considered them defined in terms of the criterion of observable distance, with the addition 'principle of symphonia, but not the symphonia itself', an addition which in the Pseudo-Psellus survived alone and out of context.⁴⁸ Yet Mizler in no way discusses the surprising fact that the Byzantine author of the treatise suddenly departs from this Aristoxenian additive view of the intervals (according to which the diesis serves as the brick, as it were, of which the intervals are built) and (p. 189 M = 69, 16 H) moves on to the Pythagorean computational principle of defining intervals according to their numerical ratios.

Mizler does not seem to have harboured any misgivings about the legitimacy of using such an incomplete account as the source of information about ancient music in general, or as a vehicle for demonstrating his own theories. Yet, at the end of his commentary, there is a certain feeling of sadness about the fact that his ambitious plans to translate a comprehensive body of Greek writings on musical theory had so far yielded such diminutive results. He no longer announces the translation of complete works, as he had originally done in the foreword to the *Musikalische Bibliothek*, but only excerpts or brief summaries of the ancient writings on music contained in the collections of Meibom and Wallis, to which he refers for a more detailed and

⁴⁸ See note 32, above.

comprehensive orientation. In the meantime, the Byzantine treatise is offered as a 'foretaste' of things to come. For those who are truly interested in the subject-matter, the text is given in its original language, while a German version is provided for the amateur.⁴⁹

Mizler is thus the first to have translated into German a Byzantine treatise on music and to have commented upon it. In this way he contributed to the popularization of Greek teachings on music. The merits of this pioneering work cannot be denied, in spite of its great deficiencies in interpretation. Although Mizler did his best to act as an interpreter of methodology he could not bring himself to cease advocating his own cause. Nor could he as an editor achieve what eluded even the most learned philologists of his time, namely a solid and diplomatically well-founded edition of the text. It was only in the nineteenth century that critical editions were provided, above all for the texts of *Ancient* Greek musical theorists. And even today, the editorial and exegetical study of *Byzantine* sources has hardly progressed beyond the first tentative steps.

⁴⁹ Moreover, one can well see that these pages will offer no satisfaction to those who wish to obtain detailed information about the music of Antiquity (although they may perhaps contribute a little to their knowledge). He who wishes to be fully informed must consult the writings of the Ancient Greek writers of music and try to understand them. In due time, I shall endeavour to go over those writings and present their most useful aspects in writing. Meanwhile it has become necessary to present a foretaste of things to come to those who are interested in this matter; and in order to please them I have appended Psellus' treatise in the original language, while for the benefit of Germans who know something about music, I have furnished a translation. *Musikatische Bibliothek*, p. 200, n. 24.

Richter L., *Psellus' treatise on music in Mizler's Bibliothek*: Stud. in eastern chant II (cf. ci-dessus) 112-128. | Lorenz Christoph Mizler (1711-1778) first translated into German and commented upon the Byzantine musical treatise attributed to Michael Psellus. The investigation of harmony in the treatise follows that of the Aristoxenian school, but the theory of intervals proceeds from an Aristoxenian determination to the Platonic-Pythagorean interpretation of consonances as numerical ratios.